State of Nevada
State Energy Security Plan

July 2025

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Prepared by:
GOVERNOR'S OFFICE OF ENERGY

July 2025

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State Energy Security Plan
Revision/Review Record:

DATE OF REVISION	ITEMS REVISED
June 2008	Plan Revision & Update
June 2010	Plan Revision & Update Included EA & Smart Grid Resiliency
June 2013	Plan Revision and Update
June 2014	Plan Reviewed, no revisions Contact lists updated in Appendices A, D & E
June 2016	Plan Reviewed, no revisions Contact lists updated in Appendices A, D & E
March 2020	Plan Revision & Update Contact lists updated in Appendices A, D, & E
August 2020	Added Draft Executive Order and Sample Press Release
September 2020	Plan Revision and Update Included Petroleum Set Aside Section
February 2022	Cyber, Contractual, Appendix A, and E updates
April 2022	Plan Revision & Update; Added communications templates in Appendix F & G
September 2022	Update to include requirements of the Infrastructure Investment & Jobs Act (IIJA)
July 2023	Revisions to meet the requirements of the 2021 Infrastructure Investment & Jobs Act (IIJA)
July 2025	Revisions to incorporate Federal DOE guidance related to the Risk Assessment Section.

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INTRODUCTION

PURPOSE AND PHILOSOPHY

The 2024 Nevada Energy Security Plan (Plan) outlines the state's response to a shortage of energy. For planning purposes, the Governor's Office of Energy considers a shortage to mean an actual or potential loss of supply, which significantly affects the state's energy systems, including rapid increases in energy prices. A shortage may be caused by natural disasters such as earthquake, fire or flood, or geopolitical events such as war, terrorism, civil disturbance, oil embargo or cyberthreat (Section VI Threats and Hazards-Cybersecurity).

This plan is a response to NRS 416.030(2) and federal requirements of the Department of Energy's State Energy Program (SEP) Formula Grant. *See, Energy Policy and Conservation Act, Section 363, 42 U.S.C. 6322(e).*

Since each energy event is unique, it is impossible to envision every event or combination of events, which might qualify as, or lead to, an energy emergency. Instead of developing a separate response plan for each type of event, one flexible plan has been developed to work in any energy emergency, based on a review of the 2009 National Association of State Energy Officials (NASEO) Energy Assurance Guidelines, the 2022 US Department of Energy's Energy Emergency Response Playbook for States and Territories, and plans of neighboring states. The Plan provides a management structure that identifies the working relationships among people and a process to make those relationships work in a crisis. The Plan represents a dynamic process with the flexibility to evaluate and define a potential emergency and to respond adequately to any situation.

The Plan relies upon a mixed strategy response to an energy shortage, using a free market approach with government intervention only to the extent necessary to protect the interests of public health, safety, and welfare. Activation of the management and information system and the implementation of specific programs described in the Plan occur only when an energy shortage substantially disrupts Nevada's economy and normal operation. In addition, in the event of an energy shortage, energy suppliers may request state assistance that will help facilitate their ability to respond to the event, through waivers of certain governmental restrictions and other actions or assistance needed as appropriate.

During the early stages of a shortage, the primary role of state government is monitoring and information exchange, rather than direct intervention in industry efforts to restore services and satisfy customer requirements. The Governor's Office of Energy serves as a central source of credible and timely information on how a shortage affects the state. The Plan is intended to lessen the potential adverse impacts of a disruption or shortage by providing the Governor, Legislature, and policy makers, including the Nevada Office of Emergency Management (NVOEM) within the Office of the Governor, with accurate and timely information for decision making.

If the impacts transcend the boundaries of a single service territory or region, or if a supply disruption or shortage is likely to cause public controversy or attract widespread media attention, the Governor's Office of Energy intensifies its monitoring and public information activities. If a shortage continues or worsens, the Governor's Office of Energy may implement voluntary or mandatory conservation and other mitigation programs as appropriate.

The Plan has been designed around concepts compatible with the National Incident Management Systems (NIMS) practices, which are utilized by NVOEM in carrying out the State Comprehensive Emergency Management Plan (SCEMP), the Federal Emergency Management Administration (FEMA), and the U.S. Department of Homeland Security (DHS). The Plan approval is the responsibility of the Director of the Governor's Office of Energy and the Governor. Distribution of the Plan includes NVOEM, Nevada Department of Agriculture (NDA), the State Library, the Legislative Counsel Bureau (LCB), Public Utilities Commission of Nevada (PUCN), the United States Department of Energy (U.S. DOE) and NASEO. The Plan will be on the Governor's Office of Energy website, (www.energy.nv.gov), except for Appendix A which per Executive Order 2020-01, is the confidential contact list. The Plan and appendices will be reviewed and updated, as necessary. The Appendix A contact list will be reviewed and updated every year.

Support for the Energy Security Plan is provided through the State Energy Program formula grant funding.

OVERVIEW

Section I describes the components of the Plan, which includes management and coordination, energy emergency phases, and response actions. The management and coordination portion outlines all relevant agencies to coordinate with during an energy event, relationships between agencies, specific roles within agencies, and the responsibilities required to be carried out. The section includes the list of legal authorities for the Governor's Office of Energy to develop and implement the Plan. The energy emergency response phase portion explains how activities will be implemented to correspond with the level of severity. The emergency response action portion identifies those tools that will be implemented during each phase of an energy event including coordination, planning and analysis; reporting communication programs; mitigation and conservation programs; and economic assistance programs.

Section II outlines the Plan operating guidelines, which include checklists for each role identified with responsibilities within the Governor's Office of Energy and the Governor's Office.

Section III details the Plan operations that are the responsibility of the Governor's Office of Energy during an energy incident. The operations section contains tools regarding coordination, planning and analysis, public information, mitigation and conservation measures, and economic assistance.

Section IV details Nevada state energy profile. This energy profile is part of the pre-event baselining activities performed during "blue sky" days, which can be used for comparison purposes while assessing consequences during event response. The profile maps and catalogs key energy infrastructure and graphs energy supply and demand; this information may be used to inform state policy and/or investment decisions.

Section V details the regulated and unregulated energy sources in Nevada.

Section VI describes the threats and hazards facing the energy sector in Nevada, including the cybersecurity concerns for the smart grid and steps for developing cybersecurity measures for other situations.

Section VII outlines the risk assessment and mitigation measures, including resources to reference when preparing mitigation planning activities. This section also includes the process to facilitate the engagement of partners and future planning efforts to ensure electric reliability and resiliency of power generation sectors.

Appendices include supplemental detailed technical resource data supporting issues covered in the Plan. Appendix A contains the key list of designated agency and industry contacts to coordinate with preceding and during an emergency. This list is to be regularly maintained by the Governor's Office of Energy staff in their efforts to monitor and coordinate energy events. Appendix A is confidential and is not for public disclosure.

SECTION I - PLAN DESCRIPTION

EMERGENCY RESPONSE MANAGEMENT AND COORDINATION

MANAGEMENT

This Plan is authorized by Nevada state law and is designed to be complementary to the framework of the National Incident Management Systems (NIMS) described in the next few pages. In accordance with the State Comprehensive Emergency Management Plan, the Nevada Office of Emergency Management (NVOEM) has the lead coordination role in any state emergency. NVOEM is the state agency responsible for the administration of emergency preparedness, prevention, response, recovery and mitigation. It is established by the Nevada Legislature in Chapter 414 of the Nevada Revised Statutes. The Governor's Office of Energy has a lead operations role in any energy emergency and, in accordance with the State Emergency Plan, shall provide assistance and coordinate efforts with the NVOEM.

The Governor's Office of Energy staff, with any supplementary staff assigned by the Governor, shall serve as the primary agency responsible for any energy emergency or for the energy management of any other emergency. Whatever the emergency situation and degree of government involvement, the Governor's Office of Energy serves as the central clearinghouse for energy information and is responsible for assessing energy impacts in Nevada during an event that impacts energy price and supply; developing recommendations to address the situation; coordinating with the NVOEM and reporting to the United States Department of Energy (U.S. DOE) Office of Cybersecurity, Energy Security, and Emergency Response (CESER); delivering status messages and direction to the public; performing any resource supply responsibilities such as energy-related aid and support; and carrying out any other functions identified by the NVOEM.

LEGAL AUTHORITY

10 CFR 420.13 (9), and as amended by HR 3684, [Public Law 117-58] Sec.40108, specifies that A State is not eligible to receive Federal financial assistance under this part for any purpose for a fiscal year unless the Governor of the State submits to the Secretary, with respect to that fiscal year:

(1) a state energy security plan that meets the requirements of subsection (c); or
(2) after an annual review, carried out by the Governor, of a state energy security plan —
    (A) any necessary revisions to the State energy security plan; or
    (B) a certification that no revisions to the State energy security plan are necessary.

The following Nevada Revised Statutes (NRS) under Chapter 701 grant authority to the Governor's Office of Energy in the preparation of the Plan. NRS Chapter 416 delineates the handling of emergencies concerning energy.

- NRS 701.210 orders the preparation of petroleum allocation and rationing plans.
- NRS 414 allows for general declarations of emergencies.
- NRS 416.030 and 416.040 delineates the power of the Governor in dealing with energy emergencies.
- NRS 416.050 identifies the procedure for the proclamation of an energy emergency by the Governor. To declare an energy emergency, or an impending energy emergency, pursuant to NRS 416.050, the Governor must file a proclamation with the Secretary of State following a proper notice for a public hearing on such proclamation. The proclamation will take effect immediately upon being filed.

- NRS 416.060 details the powers of the Governor upon proclamation of emergency.
- NRS 416.070, 416.080, 416.090 and 416.100 outline operational details of the emergency proclamation, including penalties for violations.

Federal authority for energy resilience is provided as follows:

- Federal Authority for the Governor's Office of Energy – ESF-12 Energy Annex
- Homeland Security Presidential Directive (HSPD) – 5
- Presidential Policy Directive (PPD) – 21
- 6 U.S.C. 101
- 42 U.S.C. 5195c(e)
- PL-117-58, Section 40108

NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS)

NIMS is the national approach to incident management and has been incorporated into the State of Nevada Emergency Management operations. The components of the system follow:

COMMAND AND MANAGEMENT

The incident management structures employed by NIMS can be used to manage emergency incidents or non-emergency events such as celebrations. The system works equally well for small incidents and large-scale emergency situations. The system has built-in flexibility to grow or shrink depending on current needs. It is a standardized system, so personnel from a variety of agencies and geographic locations can be rapidly incorporated into a common management structure. The State of Nevada Emergency Management uses the Incident Support Model to man and operate the Nevada Emergency Operations Center.

Incident Command System (ICS): May be used by local or regional public safety agencies to manage an incident. ICS has several features that work together to make it a real management system. Among the primary attributes of ICS are:

- Common Terminology – ICS requires the use of common terminology, such as the use of standard titles for facilities and positions within an organization, to ensure efficient and clear communications.
- Organizational Resources – All resources including personnel, facilities, major equipment, and supply items used to support incident management activities must be "typed" with respect to capability. This typing will minimize confusion and enhance interoperability.
- Manageable Span of Control – Span of control should ideally vary from three to seven. Anything less or more requires expansion or consolidation of the organization.
- Organizational Facilities – Common terminology is used to define incident facilities, the activities conducted at these facilities, and the organizational positions that can be found working there.
- Use of Position Titles – All ICS positions have distinct titles.
- Reliance on an Incident Action Plan – The incident action plan, which may be verbal or written, is intended to provide supervisory personnel a common operating picture of the situation and direction for future action. The plan includes a statement of objectives, organizational description, assignments, and support material such as maps.

  Written plans are desirable when two or more jurisdictions are involved, when state and/or federal agencies are assisting local response personnel, or there has been significant turnover in the incident staff.
- Integrated Communications – Integrated communications include interfacing disparate

communications as effectively as possible, planning for the use of all available systems and frequencies, and requiring the use of clear text in communications.

- Accountability – ICS is based on an orderly chain of command, check-in for all responders, and only one supervisor for each responder.

Unified Command: May be used by local or regional public safety agencies to manage an incident.

- Unified Command is a variant of ICS used when there is more than one agency or jurisdiction with responsibility for the incident or when personnel and equipment from several different agencies or jurisdictions are responding to it. This might occur when the incident site crosses jurisdictional boundaries or when an emergency involves matters for which state and/or federal agencies have regulatory responsibility or legal requirements.
- ICS unified command is intended to integrate the efforts of multiple agencies and jurisdictions. The major change from a normal ICS structure is at the top. In a Unified command, senior representatives of each agency or jurisdiction responding to the incident collectively agree on objectives, priorities, and an overall strategy or strategies to accomplish objectives; approve a coordinated Incident Action Plan; and designate an Operations Section Chief. The Operations Section Chief is responsible for managing available resources to achieve objectives. Agency and jurisdictional resources remain under the administrative control of their agencies or jurisdictions but respond to mission assignments and direction provided by the Operations Section Chief based on the requirements of the Incident Action Plan.

Area Command: May be used by local or regional public safety agencies to manage an incident.

- An Area Command is intended for situations where there are multiple incidents that are each being managed by an ICS organization or to oversee the management of large or multiple incidents to which several Incident Management Teams have been assigned. Area Command becomes Unified Area Command when incidents are multi-jurisdictional.
- The organization of an Area Command is different from a Unified Command in that there is no operations section, since all operations are conducted on scene, at the separate ICPs.

Multi-Agency Coordination Systems: Multi-agency coordination systems may be required for incidents that require higher level resource management or information management. The components of multi-agency coordination systems include facilities, equipment, Emergency Operations Center (EOC)s, specific multi-agency coordination entities, personnel, procedures, and communications; all of which are integrated into a common framework for coordinating and supporting incident management.

Public Information: The NIMS system fully integrates the Joint Information System (JIS) and the Joint Information Center (JIC). The JIC is a physical location where public information staff involved in incident management activities can co-locate to provide critical emergency information, crisis communications, and public affairs functions.

PREPAREDNESS

Preparedness activities include planning, training, and exercises as well as certification of response personnel, and equipment acquisition and certification. Activities include the creation of mutual aid agreements and Emergency Management Assistance Compacts. Any public information activities such as publication management would also be preparedness activities.

COMMUNICATIONS AND INFORMATION MANAGEMENT

Adherence to NIMS specified standards by all agencies ensures interoperability and compatibility in communications and information management.

ONGOING MANAGEMENT AND MAINTENANCE

Energy emergencies requiring multiple State agencies, multiple jurisdictions or that crosses state boundaries by resulting in a partial or full activation of the Nevada EOC. Prior to an energy emergency, agencies such as NVOEM, local governments, the PUCN, other state agencies, other states, industry, and the federal government will be kept informed specifically as an energy situation is unfolding. The Governor's Office of Energy will evaluate the energy event as to the scope of the problem, the potential duration, the effect on storage, and the impact on the public with the information being directed through the Nevada Emergency Management Policy Group. The Governor's Press Secretary or Public Information Officer may be used to issue press releases concerning the event, sensitive to potential runs on commodity supplies. Messaging will be coordinated using the Joint Information System.

COORDINATING AGENCIES

This Plan recognizes the need for multi-agency coordination. Effective communication with other state agencies, federal agencies and local jurisdictions is essential to a coordinated state response to an energy event. Each entity's responsibilities are detailed in the following paragraphs. Contact information for each entity referenced in this section is reflected in the Industry and Government Contacts List in Appendix A. Contact information for area, county and city emergency officials is found in Appendix E.

Coordination with the Office of Emergency Management: The NVOEM is the operational entity within Nevada that coordinates all emergency responses within Nevada state government, administering the State Comprehensive Emergency Management Plan (SCEMP). During a disaster, NVOEM is the lead agency and other state agencies (including the Governor's Office of Energy) provide support through Emergency Support Functions (ESFs). The Governor's Office of Energy is the primary agency for Emergency Support Function 12 – Energy (ESF-12).

NVOEM will notify the Governor's Office of Energy if its ESF-12 role has been activated. Regardless of the type, scale, or cause of the emergency, the Governor's Office of Energy and the NVOEM will work in cooperation on matters involving energy. The Governor's Office of Energy will use its expertise and contacts to provide accurate information and to coordinate resource requests with the NVOEM to ensure a coordinated statewide response effort. NVOEM maintains the ESF-12 annex in the State Comprehensive Emergency Management Plan.

Coordination with State and Local Governments: The line of communication for local jurisdictions, particularly to request resources during an energy event is from city to county to the NVOEM. The NVOEM will contact the Governor's Office of Energy to coordinate information. The NVOEM will notify the Governor's Office of Energy if its ESF-12 role has been activated, and the Governor's Office of Energy may coordinate its efforts with the NVOEM and any local government agency who is overseeing the response to the disaster on energy related responses.

The Governor's Office of Energy will also coordinate with the Legislature, through the Governor's Press Secretary, to provide status updates and requests for support in promoting energy conservation and mitigation measures to constituents around the state. The Governor's Office of Energy may also engage as directed to coordinate with local governments, including Regional Transportation Commissions and public and private transit entities before and during an event to develop and implement transportation conservation strategies.

Coordination with the Public Utilities Commission: The PUCN is the regulatory agency that monitors certain energy suppliers and distributors on a statewide basis. The Governor's Office of

Energy will maintain regular communication with PUCN staff to provide and receive current status reports on electricity and natural gas reliability, including any threats to physical or cyberinfrastructure, within the state. During an actual or impending energy emergency, the Governor's Office of Energy will coordinate with, and draw resources from, the PUCN staff to meet the needs of the state and/or local jurisdictions in providing information and resources and support of the ESF-12 function as required.

Coordination with Other State Agencies: The Division of Welfare and Supportive Services (DWSS) administers a broad range of programs to reduce the incidence of poverty, assisting low-income Nevada residents to become self-sufficient. The Governor's Office of Energy, in conjunction with the DWSS, has identified programs that could be augmented in an emergency. The DWSS existing network of resources and service organizations can provide for the implementation of programs during an energy emergency. Upon the activation of the Emergency Phase, the Director will appoint an Economic Assistance Coordinator to act as a liaison with ESF-6, Mass Care, which would take on those responsibilities.

Nevada Department of Agriculture (NDA): During times of petroleum supply disruptions or shortages, the Governor's Office of Energy will work with the Nevada Department of Agriculture (NDA) to obtain and distribute information from the petroleum industry (to include, as necessary, producers, suppliers, wholesalers, and retailers) regarding availability of motor vehicle and/or aviation fuel supplies. NDA's Public Information Officers may assist in preparing press releases or other public communication concerning disruptions or shortages in the supply of motor vehicle and/or aviation fuel supplies, with particular attention to avoiding potential runs on existing supplies during times of supply disruption.

Nevada Department of Transportation (NDOT): During times of petroleum shortages, the Governor's Office of Energy will work with the Nevada Department of Transportation (NDOT) to develop and implement conservation measures as described in the relative mitigation and conservation sections and appendices of this document. In a fuel emergency, NDOT sites will be used to fuel emergency and first responder vehicles. Their sites are fenced and, if necessary, the National Guard will be activated to provide security.

Coordination may also occur with any of the following agencies including the Nevada Board for Regulation of Liquified Petroleum Gas (LP-Gas Board), Nevada Department of Environmental Protection (NDEP), Clark County Division of Air Management and Quality, Washoe County Air Quality Management District, Public Utilities Commission of Nevada, Department of Public Safety, and the Office of the Military.

Multistate and Regional Coordination: The Governor's Office of Energy participates in the Energy Emergency Assurance Coordinators (EEAC) program, a collaboration between the National Association of State Energy Officials (NASEO), the National Association of Regulatory Utility Commissioners (NARUC), the National Governors Association (NGA), the Department of Homeland Security (DHS) and Cybersecurity and Infrastructure Security Agency (CISA), the Western Governor's Association, the Western Regional Partnership, and the United States Department of Energy's (U.S. DOE) Office of Cybersecurity Energy Security and Energy Restoration (CESER), Infrastructure Security and Energy Restoration (ISER) Division. The EEAC program allows key government contacts in each state to share and exchange information, in a secure cooperative communications environment, to support planning for and responding to energy emergencies.

The United States is divided into Petroleum Administration Defense Districts or PADDs. The states within PADD V (Alaska, Arizona, California, Hawaii, Nevada, Oregon, and Washington) are closely linked by their oil supply network. PADD V is essentially a self-contained oil supply system, and, because of this isolation, recognizes the need for cooperation and coordinated actions. The Governor's Office of Energy staff will notify any PADD V states of events that have the potential to affect energy supplies to that state. In addition, coordination with operators in the State of Utah will be required as they provide fuel to Northeastern Nevada and Las Vegas.

Cooperation and coordination with other states, particularly California, is of utmost importance as most petroleum fuels are imported into Nevada from California via pipeline and truck. The Governor's Office of Energy is a member of the Western Petroleum Shortage Petroleum Response Collaborative (WPSRC) with support from the U.S. DOE- CESER. This multistate collaborative benefits from deliberate examination, dissection, and cross- referencing of existing western state and regional response plans, concepts, and annexes, and leverage peer expertise to improve respective state plans while working toward a regional framework. The liquid fuels industry and federal partners in the energy-emergency management nexus with the unique task of regional catastrophic fuel planning. It provides for multi-state implementation of specific measures and programs identified by Western States when two or more states may be impacted that will facilitate the response effort. For more information see: Western Petroleum Shortage Response Collaborative | NASEO.

Also, Nevada is a member of the Emergency Management Assistance Compact (EMAC), which provides procedures for rendering emergency assistance between states after a Governor declared emergency. After a state of emergency declaration, Nevada can request and receive reimbursable assistance through EMAC from other member states. Nevada can also provide assistance to any state requesting resources after a formal declaration of emergency. Many ESF-12-related mission-ready packages are controlled by private-sector partners (ex., power restoration crews/vehicles). ESF-12 Coordinators within the Nevada Emergency Operations Center (NVEOC) will coordinate with their ESF-12 counterparts in other states for the deployment of state-controlled assets.

Nevada has Memorandums of Agreement with both California and Arizona to share resources in a similar fashion to the terms of EMAC, albeit without requiring a Governor's emergency declaration. Similar MOAs are being pursued with Utah, Idaho, and Oregon. Additionally, the California Energy Commission (CEC), with its substantially greater resources, can track events and developing information in advance of the Governor's Office of Energy. Since Nevada is so dependent upon petroleum from California, many events, including disasters or facility emergencies in California, could impact the supplies in Nevada; therefore, coordination is essential. Nevada's work with the CEC has included coordination and strategy for fuel supply for evacuees and energy infrastructure during the Caldor Fire in 2021. Nevada also coordinated with the CEC in regard to reported jet fuel shortages at the Reno Tahoe airport in the summer of 2021. The CEC coordinates recurring calls on fuel, electricity, natural gas, storage, and pricing issues with Arizona, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

In April 2023, the Governor's Office of Energy and NVOEM hosted a tabletop exercise (Sliver State Blackout) addressing the effects of a short-term and long-term power outages impacting a wide area of Nevada as a result of a malware attack. Participants included State, local, and tribal partners and the conversation focused on the attack's impact to community lifelines and the interdependency of each.

Coordination with other Affected ESF Functions:
The ESF functions in Nevada are as follows:

ESF 1	Transportation	ESF 9	Search & Rescue
ESF 2	Communications	ESF 10	Hazardous Materials (HazMat)
ESF 3	Public Works	ESF 11	Agriculture & Animal Protection
ESF 4	Fire Fighting	ESF 12	Energy
ESF 5	Information and Planning	ESF 13	Public Safety
ESF 6	Mass Care	ESF 14	Cross Sector Business & Infrastructure
ESF 7	Purchasing	ESF 15	Public Information
ESF 8	Health & Medical	ESF 16	Military
ESF 8.1	Mental Health	ESF 17	Cybersecurity

The Governor's Office of Energy acting as ESF-12 (whether activated as such or not) will utilize the NVOEM Emergency Operations Center list for phone and e-mail contacts involving ESF functions.

Coordination with the Federal Government: This Plan is designed to be compatible with federal emergency planning activities. The U.S. Department of Energy (U.S. DOE), as the lead federal agency for energy is charged with protecting national interests in the event of any energy supply disruptions and is designated as the federal ESF-12. The Governor's Office of Energy staff will respond to U.S. DOE requests for information. In coordinating with the NVOEM and the U.S. DOE in its role as the federal ESF-12, the Governor's Office of Energy staff will remain knowledgeable about the role of FEMA and the resources they provide in a natural disaster. NVOEM lead contingency response planning and synchronizes with State agencies and ESF partners including GOE.

The U.S. DOE assists states, through coordination with industry associations, to develop energy security plans and utilize a network of contacts and an informational internet bulletin board to stay apprized on industry events. Users of the systems are designated Energy Emergency Assurance Coordinators (EEAC). EEACs are designated within each state and can access information through a password protected website.

Numerous other federal agencies play roles during energy emergencies and can be contacted or monitored to extract valuable information and data. A comprehensive list of such agencies is included in the Industry and Government Contacts List (Appendix A).

Coordination with Industry Contacts: Before and during an energy event, it is critical to draw on information and resources of those entities that own or operate energy resources that make up the supply side of Nevada's energy profile. Nevada's major electric and natural gas utilities include NV Energy, Southwest Gas, rural electric cooperatives, municipal electric companies, and general improvement districts. Nevada's major petroleum pipeline operators include Kinder Morgan and Holly Energy Partners. Designated representatives and contact information for each are contained in the Industry and Government Contacts List (Appendix A).

Furthermore, regional industry associations can also provide valuable information before and during an energy event. Specific entities include the California Independent System Operator (CAISO), Western Electricity Coordinating Council (WECC), Western States Petroleum Association (WSPA) and the Energy & Convenience Association of Nevada (ECAN), formerly the Nevada Petroleum Marketers & Convenience Store Association (NPM&CSA). Each entity identified is included in Appendix A.

Industry associations serve as effective routes to coordinate across the private sector. Associations relevant to an energy emergency might include the Nevada Trucker's Association, The Resort Association, Nevada Hospital Association, Nevada Manufacturer's Association, economic development organizations throughout Nevada.

Coordination with Tribal Nations:
Tribal Nations located within the State of Nevada are recognized as sovereign nations. The residents of these tribal nations are also citizens of Nevada and the county within which they reside. An emergency or disaster may occur for which the members of the tribal nation cannot provide a satisfactory resolution. In such situations, tribal nations have the ability to request direct assistance from the county in which they reside, as well as the State of Nevada.

The Nevada Tribal Emergency Coordinating Council (NTECC) is appointed and authorized by the 28 federally recognized Tribes in Nevada and NVOEM. The NTECC is responsible for serving as an advisory body to the Chief of the Nevada Office of Emergency Management (NVOEM).

The purpose of NTECC is to serve as an advisory body for DEM for policy and programmatic functions for the 28 federally recognized Tribe, and urban Native communities in Nevada with respect to emergency management on Tribal lands in the following ways:

- Advise Office of Emergency Management in the development of programs and policies regarding the implementation of Tribal emergency management programs.
- Provide oversight in the distribution of funding available through the NVOEM and other grant sources.
- Encourage the creation of Tribal Emergency Response Commissions (TERC), Local Emergency Planning Committees (LEPC) and Community Emergency Response Teams (CERT).
- Increase knowledge, skills, and education of emergency management and preparedness.
- Encourage Tribal participation and input on Nevada emergency management commissions and committees.
- Encourage Tribal compliance to the Threat & Hazard Identification and Risk Assessment (THIRA).
- Assist federally recognized Tribes in Nevada with emergency operations plans, tribal hazard mitigation plans, public health preparedness plans, tribal hazard vulnerability assessments (HVAs), training plans, exercises and drills.
- Promote state-wide Tribal compliance with Homeland Security Presidential Directive-5, and the National Incident Management System.
- Encourage federally recognized Tribes in Nevada to opt-in to the Nevada Intrastate Mutual Aid System.
- Promote inter-operability communications, mutual aid agreements, and coordination/cooperation from federally recognized Tribes in Nevada to all Nevada jurisdictions, NVOEM, other state agencies, and federal agencies.

SOURCES FOR MONITORING ENERGY SUPPLIES IN NEVADA

Monitoring Energy Supply: The Governor's Office of Energy and PUCN monitor energy developments pertaining to Nevada, its region, and the nation through industry contacts, trade publications, and statistical reports. The Energy Information Administration (EIA) website (www.eia.gov) provides reports and statistics on key energy resources. The monitoring information gleaned from these data is basically historical. For current data during an emergency, the contacts listed in Appendix A would be utilized.

ELECTRICITY

General Information

Day-to-day electricity supply and demand are monitored on a routine basis by operating companies. Utilities generally prepare annual forecasts estimating demand for electricity and the means to satisfy it for the following five years. Other forecasted information includes:

- Expected price for fuel and other necessary purchases,
- Expected fuel and purchased power availability, and
- Plant status and similar data.

Reporting to the U.S.DOE-CESER

Utilities are also required to report to the U.S. DOE-CESER on a report called the OE-417 Electric Emergency Incident and Disturbance Report[1] any of the following events:

- Physical attack or a cyber event that causes major interruptions or impacts to critical infrastructure facilities or to operations
- Loss of firm system loads
- Voltage reductions
- Requests to the public to reduce usage
- Vulnerabilities that could impact system adequacy or reliability, and
    - Fuel supply emergencies (see Power System Emergency Reporting Procedures, May 1989, U.S. DOE).

Data Sources

- Electricity Sales-Monthly sales of electricity are published by state, month, and sector by the EIA in the Electric Power Monthly found at: (www.eia.gov/electricity/monthly/).
- EAGLE-I is an interactive Geographic Information System (GIS) that provides a visualization platform to authorized users to review updates to state and national electric power outages, petroleum, and natural gas sectors infrastructure.

Electricity Production by Fuel Source

This information is also published in the EIA Electric Power Monthly and includes, in English units (tons and barrels):

- The quantity of fuel used
- Kilowatt-hour produced
- Fuel costs by state

[1] https://www.oe.netl.doe.gov/oe417.aspx

The source of this information is the Monthly Report of Cost and Quality of Fuels for Electric Plants, Federal Energy Regulatory Commission (FERC)-423 (www.eia.gov/electricity/data/eia423/)

Levels of Fuel Inventories Available for Generation

Coal inventories and prices are published in the EIA Quarterly Coal Report (www.eia.gov/coal/production/quarterly/), which lists the amount of coal consumed in each state and the price paid by each sector. Levels of fuel inventories will be estimated by each utility and reported by the number of days of supply on hand at each location for coal and oil-fired plants.

Generation Capacity and Plant Availability

This information can be obtained from the Inventory of Power Plants in the United States (www.eia.gov/electricity/) published by the EIA.

Regional System Reliability Forecast
North American Electric Reliability Corporation (NERC) (www.nerc.com/) publishes annual reports of regional system reliability. These reports assess regional reserve margins by comparing net system availability with peak load projections and system-pool reserve availability.

Coal Distribution
This data, published in the EIA Quarterly Coal Distribution Report (www.eia.gov/coal/production/quarterly/), is a source of information regarding the origin and method of shipping coal.

Cooling and Heating Degree Days
Cooling and heating degree day data are available from the National Weather Service and National Oceanic and Atmospheric Administration (NOAA).
(www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/degree_days/)
This data may be used to describe extreme weather conditions that create peak loads on the electrical generation system.

NATURAL GAS

Complexities in Monitoring Natural Gas
Monitoring of natural gas generally covers:

- The quantity of interstate deliveries to Local Distribution Companies (LDC) and electric generation plants
- Storage levels
- Gas injection rates into storage
- Projected system send-outs
- Spot market and contract prices
- Curtailment notices; and
- Heating degree days

DATA SOURCES

Interstate Deliveries to LDC
Natural gas deliveries by sector are shown in the EIA Natural Gas Monthly (www.eia.gov/naturalgas/monthly/), that shows the amount of natural gas delivered into the state for sale.

Storage Levels and Injection Rates
State natural gas inventories are reported in the EIA Natural Gas Monthly, (www.eia.gov/naturalgas/monthly/). From this information, the percentage of storage capacity being used at any time can be calculated.

Supply Plans
The LDC provides natural gas demand and supply projections as part of their supply plans. These projections include storage field inventory balances. Potential shortages can be identified when long-term supply is inadequate to meet projected demand.

Spot and Contract Prices
Average city gate prices (price to the LDC as gas is received) and prices by sector, for each state are published in the EIA Natural Gas Monthly (www.eia.gov/naturalgas/monthly/). Price is an indicator of aggregate supply. When short-term prices are lower than long-term contract prices, supplies are generally judged to be in excess of demand. Conversely, when long-term contract

prices are lower, spot markets are assumed to be tight, indicating that demand may be exceeding supply.

Curtailment Notices

Interstate pipelines provide notices of curtailments to FERC. Notices of curtailment are early indicators of reduced supply. The supplementary supply required to offset the reduction in deliveries may need to be calculated and perhaps satisfied from other in-state supplies, depending upon the current levels of storage volumes, actual system send outs, and inter-tie exchanges.

Heating Degree Days

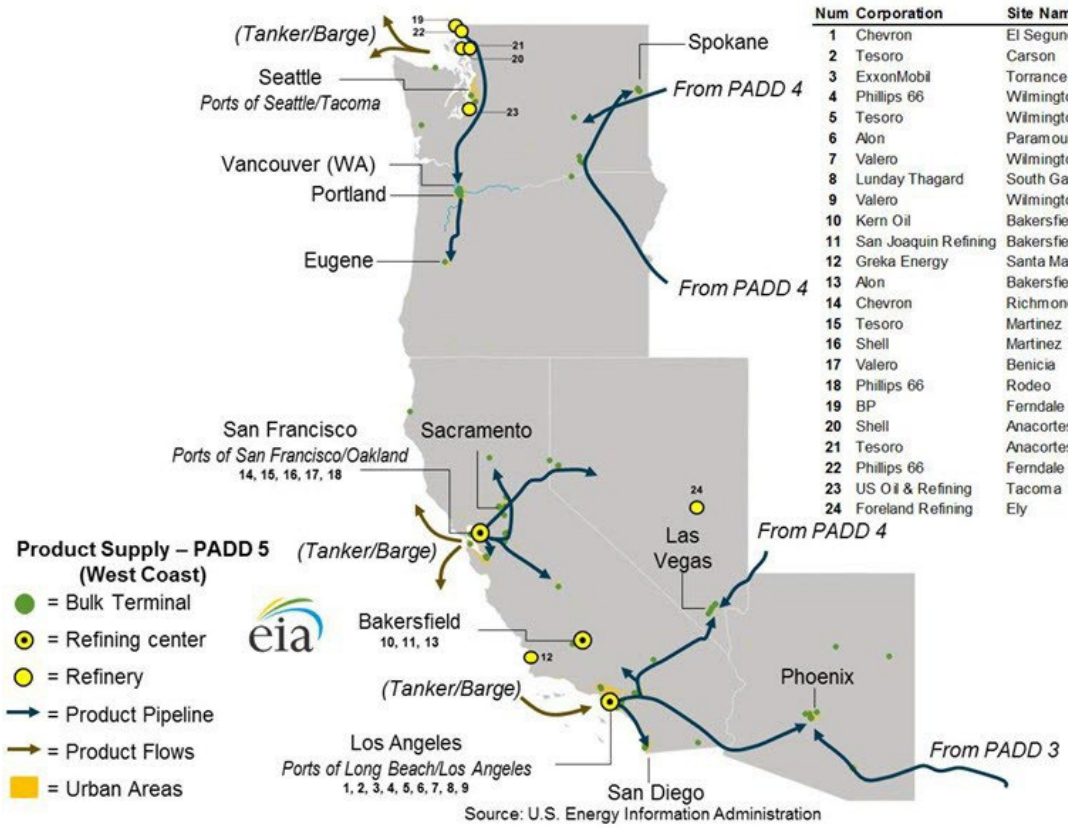
Heating degree-day information is provided by the National Weather Service on a daily and monthly basis: (www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/degree_days/). Statistics can often be obtained through local or regional weather stations. These values indicate periods of extreme cold weather that bring on increases in demand for natural gas for space heating.

Petroleum

Monitoring Petroleum Markets

Petroleum markets are monitored continuously by marketers and commercial buyers. Statistical organizations such as the EIA maintain databases containing information used to determine recent market behavior and anticipate supply disruptions. The American Petroleum Institute (API) (www.api.org/products-and-services/statistics/apis-economic- industry-outlook) is another source of information. The nature of the unregulated petroleum market makes learning about individual companies relatively difficult unless there is a confidentiality agreement. More information on the west coast transportation fuels market can be found: (www.eia.gov/analysis/transportationfuels/padd5/).

PADD 5 Mainland Refineries and Product Flows



Num	Corporation	Site Name	Capacity (b/cd)
1	Chevron	El Segundo	269,000
2	Tesoro	Carson	251,000
3	ExxonMobil	Torrance	149,500
4	Phillips 66	Wilmington	139,000
5	Tesoro	Wilmington	104,500
6	Alon	Paramount	Idle
7	Valero	Wilmington	78,000
8	Lunday Thagard	South Gate	8,500
9	Valero	Wilmington (asphalt)	6,300
10	Kern Oil	Bakersfield	26,000
11	San Joaquin Refining	Bakersfield	15,000
12	Greka Energy	Santa Maria	9,500
13	Alon	Bakersfield	No CDU
14	Chevron	Richmond	245,271
15	Tesoro	Martinez	166,000
16	Shell	Martinez	156,400
17	Valero	Benicia	132,000
18	Phillips 66	Rodeo	120,200
19	BP	Ferndale	225,000
20	Shell	Anacortes	145,000
21	Tesoro	Anacortes	120,000
22	Phillips 66	Ferndale	101,000
23	US Oil & Refining	Tacoma	40,700
24	Foreland Refining	Ely	2,000

Motor Gasoline Consumption

The total number of gallons of gasoline used is provided on a monthly and annual basis of motor gasoline sales revenue by the Federal Highway Administration. The data can be found at:

- www.fhwa.dot.gov/
- www.eia.gov/energyexplained/gasoline/use-of-gasoline.php
- www.eia.gov/totalenergy/data/monthly/index.php#petroleum

Petroleum Product Demand

Monthly deliveries of petroleum products to states by primary suppliers are reported in the EIA Monthly Report of Petroleum Products Sold into States for Consumption (www.eia.doe.gov/oil_gas/petroleum/info_glance/consumption.html/)

Prime Supplier Sales Volumes (Thousand Gallons per Day) for Nevada (www.eia.gov/dnav/pet/pet_cons_prim_dcu_SNV_m.htm).

Form EIA-782C

This report contains actual delivered volumes for the month for each petroleum product supplied and delivered into the State of Nevada for final consumption. This information may be used to determine the severity of a petroleum shortage and to calculate the amount of petroleum product to be set aside for emergency hardships. More information: (www.eia.gov/survey/#eia-782c).

Wholesale and Retail Prices
Wholesale and retail prices are available on the EIA web site at: (www.eia.gov/petroleum/). The data include weekly and monthly prices such as the EIA Petroleum Marketing Monthly, that provides monthly information regarding wholesale and retail prices at the state level and the Weekly Petroleum Status Report that provides information on national and international prices and inventory information. In an emergency, more timely information is needed and may be obtained through industry publications such as Oil Price Information Service's OPIS- Alerts or the Oil Daily. Special state-conducted telephone surveys of petroleum distributors and retailers may also be conducted. State and city level retail gasoline prices can also be found at the AAA Fuel Gauge Report by State and Major Cities see: (www.gasprices.aaa.com/) and also at Gas Buddy which has updated data in real time by city, state and zip code at: (www.gasbuddy.com/).

Inventories and Production
Inventory (stocks) and production data can be found on the EIA web site at: (www.eia.gov/petroleum/). Data are presented weekly and monthly by region. Data are reported by regional areas known as Petroleum Administration for Defense Districts (PADD). Nevada is in PADD V. State level monthly inventories are also published in this report and can be found at (Nevada Refinery, Bulk Terminal, and Natural Gas Plant Stocks of Selected Petroleum Products (eia.gov). Weekly data are also available through the API Weekly Statistical Bulletin at: (www.api.org/products-and-services/statistics/apis-economic-industry-outlook). State level inventories can be found at: (www.eia.gov/dnav/pet/pet_sum_mkt_dcu_nus_m.htm).

Infrastructure Information
Relevant information includes a listing of refineries serving the state, their production and storage capacities, the location and capacities of pipelines and terminals, and marine terminals. Refinery capacity data can be found in the EIA Petroleum and Other Liquids, Refinery Capacity Report (www.eia.gov/petroleum/refinerycapacity/).

Source of Crude Oil
The source and volumes of crude oil supply used by regional refineries may be found in the EIA Petroleum Supply Monthly at: (www.eia.gov/petroleum/supply/monthly/). This information is needed to estimate the extent to which refiners may need to shift supplies if any given source of crude oil is disrupted.

Heating Degree Days
Heating degree-day information is provided by the National Weather Service on a daily and monthly basis.
(www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/degree_days/)
Statistics can often be obtained through local or regional weather stations. These values indicate periods of extreme cold weather, which bring on increases in demand for heating fuels for space heating.

PROTECTING CRITICAL ENERGY INFRASTRUCTURE
U.S. Department of Homeland Security (DHS) Cybersecurity Information and Security Agency (CISA) is responsible for supporting Critical Infrastructure Protection Intelligence related to infrastructure protection is provided by two fusion centers in Nevada (Southern Nevada Counter Terrorism Center and Nevada Threat Analysis Center). Additional information can be found:

- National Infrastructure Protection Plan and Resources (https://www.cisa.gov/topics/critical-infrastructure-security-and-resilience/national-infrastructure-protection-plan-and-resources)

- State and Regional Energy Risk Assessment Initiative (www.energy.gov/oe/activities/energy-assurance/state-and-regional-energy-risk-assessment-initiative)
- National Infrastructure Protection Plan https://www.cisa.gov/sites/default/files/2022-11/national-infrastructure-protection-plan-2013-508.pdf)
- Supplemental Tool: Executing A Critical Infrastructure Risk Management Approach https://www.cisa.gov/sites/default/files/publications/NIPP-2013-Supplement-Executing-a-CI-Risk-Mgmt-Approach-508.pdf
- Nevada Energy Sector Risk Profile (https://www.energy.gov/sites/default/files/2021-09/Nevada%20Energy%20Sector%20Risk%20Profile.pdf)
- FEMA Region 9 Energy Sector Risk Profile (https://www.energy.gov/sites/default/files/2021-09/FEMA%20Region%209%20Energy%20Sector%20Risk%20Profile.pdf)
- State Energy Resilience Framework (Technical Report) | OSTI.GOV https://publications.anl.gov/anlpubs/2017/02/133591.pdf

The roles and responsibilities of the state agencies involved with Critical Infrastructure Protection are:

- Protection is coordinated between U.S. DHS, Nevada's Fusion Centers, and the Department of Public Safety (DPS), and industry partners.
- The Office of Emergency Management brings state agencies together to respond to emergency situations. Prior to the state of emergency, the Governor's Office of Energy monitors energy issues, but is not responsible for protection.
- Nevada supports the federal Critical Infrastructure Protection Program focused on Critical Infrastructure Key Resource (CIKR) assessments through the NTAC in conjunction with SNCTC and DHS.
- Public Utilities Commission of Nevada (PUCN) - Natural Disaster Preparedness and Electric Utilities. The 2019 Nevada Legislature passed Senate Bill 329 (SB 329) requiring electric utilities in Nevada to submit a Natural Disaster Protection Plan (NDPP) to the PUCN every third year beginning on or before March 1, 2020. The NDPP must outline procedures and protocols relating to the efforts of the electric utility to prevent or respond to a fire or other natural disaster. On June 6, 2019, the PUCN opened an investigation and rulemaking to implement SB 329 in Docket No. 19-06009. On October 11, 2024, the PUCN adopted regulations to conform with the requirements of SB 329. As of 2025, electric utilities have jointly filed with the Commission two 3-year action plans in PUCN Docket Nos. 20-02031 and 23-03003, with multiple amendments to those action plans filed. Those electric utilities (Nevada Power Company and Sierra Pacific Power Company) are expected to filed a third 3-year NDPP action plan on or before March 1, 2026. (https:/ob.nv.gov/puc/).

GOE Policies and procedures for protecting sensitive information:

- The only sensitive information that the Governor's Office of Energy controls is primarily located on the agency shared drive and is marked confidential. This information consists of contact lists. The Governor's Office of Energy has access to other types of information on a need-to-know basis at the utility, fusion center, emergency management or DHS office. Nevada is a state with statutory exemptions from open government laws for critical infrastructure information. Further information on the overall state response to an emergency may be found in the State Comprehensive Emergency

Management Plan. For access to the State Comprehensive Emergency Management Plan, please contact the Office of Emergency Management at (775) 687-0300 or (https://dem.nv.gov/Resources/SCEMP/)

EMERGENCY RESPONSE PHASES

The Plan is structured in five levels, or phases, of increasing activity. The five phases are:

- Readiness
- Verification
- Pre-emergency
- Emergency
- After Action Assessment

During an energy shortage, the activities prescribed in each phase intensify depending on the severity of the shortage. The point of transition from one phase to the next is not an absolute. To a large degree, it is qualitative; the implementation of each phase is a Governor's Office of Energy (GOE) decision, recognizing public perception of the seriousness of the energy emergency. Specific operational details related to carrying out any of the below activities are described under Section III, Office Operations.

The Energy Program Manager (EPM) and Management Analyst III (MA III) may be the same individuals throughout this section. Staff designations will be maintained internally and updated as needed should GOE staff change.

READINESS PHASE

Encompasses the ongoing activity of the Governor's Office of Energy staff under normal operating conditions. The staff routinely monitors Nevada, regional, and world events that have the potential to cause an energy supply disruption. The Director will designate an Energy Program Manager to oversee readiness and verification activities, as described below. Specific additional staff will have the designated responsibly to carry out regular contingency planning operations, which will include:

- Task: Update and maintain a network of public and private-sector contacts, attached as Appendix A "Industry and Government Contacts List."
    - Designated GOE Staff: Management Analyst III
      Director will designate an Energy Program Manager to oversee verification activities.
- Task: Monitor international and domestic events.
    - Designated GOE Staff: Deputy Director and Management Analyst III
        - Task: Notify the Director of any data or circumstances which could significantly impact energy supply and prices.
    - Designated GOE Staff: Energy Program Manager
- Task: Conduct periodic testing, exercising, and training of the Plan (usually in conjunction with NVOEM.)
    - Designated GOE Staff: Director, Deputy Director, and Management Analyst III as ESF-12.
- Task: Determination of and communications appropriate for normal operating conditions.
    - Designated staff from the Governor's office, NVOEM, the Nevada Department of Agriculture, and the PUCN.

VERIFICATION PHASE

Marks the activation of a more formal communication network as established in this Plan to contact designated credible sources of information to verify the energy situation. The Coordination is

initiated with the NVOEM, the U.S. DOE-CESER, other states, Nevada state agencies, local governments, and private industry, as appropriate. Activities are completed by the designated Energy Program Manager and/or Management Analyst III depending on the extent of the incident.

The GOE, in coordination with NVOEM, utilities, and other available expertise, will determine the nature, extent, and duration of a potential or impending energy shortage. Staff will assess the potential impacts of anticipated petroleum, natural gas, propane (LPG), ethanol, or electricity shortages on energy prices and availability, and recommend further action to the Director. This assessment serves as the basis of a formal Verification Report for submission to the Governor by the Director or Designated Energy Program Manager.

If the Director determines the existence of a protracted energy problem, he or she may recommend transition to the Pre-Emergency or Emergency phase of the Plan. Ongoing activities will include contacting suppliers identified in Appendix A.

PRE-EMERGENCY PHASE

Involves an increased level of government activity as the energy shortage or supply disruption worsens. The Governor's Office of Energy, in coordination with NVOEM, will begin to establish additional resources and activate the Nevada Emergency Operations Center (as necessary).

Media contacts will be managed through a Joint Information Center including the GOE Director and Governors' Press Secretary.

The Governor, upon recommendation by the Director, may appeal to the public to begin voluntary conservation measures to mitigate the impacts of an energy supply disruption. The Governor's Office of Energy staff will contribute to and/or facilitate discussion of the effectiveness of these voluntary demand reduction measures and make recommendations where appropriate.

If the Director determines that voluntary action has mitigated the expected impacts of the event, no need will exist for additional state action, unless the federal government directs such action. If, however, the crisis becomes more severe and warrants implementation of mandatory emergency measures, the Director may recommend that the Governor proclaim a state of emergency, thereby activating this Plan's Emergency Phase.

EMERGENCY PHASE

Involves all activities initiated during the Pre-Emergency phase, plus any additional voluntary or mandatory programs that may be needed to respond to a worsening energy shortage. The initiation of an Emergency Phase signifies the development of a widespread or prolonged problem that may not improve through normal market functions, and therefore actions designed to interfere minimally with the market may be implemented to alleviate the situations. Such actions may include mandatory conservation programs, fuel set-aside programs, and economic assistance programs. The designated Energy Program Manager will notify the Director, who will notify the Governor and NVOEM.

To impose mandatory programs, the Governor must first proclaim an energy emergency or impending energy emergency pursuant to NRS 416.050 (www.leg.state.nv.us/NRS/NRS-416.html#NRS416Sec050) and/or NRS 414, and then sign Executive Orders necessary to implement mandatory conservation programs. All mandatory measures automatically cease when the Governor rescinds the proclamation of energy emergency or impending energy emergency. With the activation of the Emergency Order, the Governor's Office of Energy will be activated as ESF-12 under NIMS as the NVOEM takes over the lead.

AFTER ACTION ASSESSMENT

After an energy event has diminished or been resolved at any emergency phase level, an "After Action Assessment" will be conducted to review and evaluate the performance of the Plan and implementation activities. An After-Action Assessment memo will be developed and delivered to the appropriate representatives (For example, NVOEM, Governor's Office.) Any observed and necessary modification to the Plan and implementation activities can be addressed at that time. This activity will be as an ESF-12 function under NVOEM.

EMERGENCY RESPONSE ACTIONS

Emergency response actions will be performed under the direction of NVOEM with the Governor's Office of Energy activated as an ESF-12 responder. Actions necessary to respond to any potential event can be described generally in four broad categories:

- Coordination, planning and analysis
- Public communication programs
- Mitigation and conservation programs
- Economic assistance programs

COORDINATION, PLANNING, AND ANALYSIS

Before and during an energy event, it is the responsibility of the Governor's Office of Energy to monitor, report, and assess energy supply issues affecting the state. Monitoring activities require coordinating and maintaining relationships with industry contacts, and to be adequately informed of all energy-related issues. In maintaining relationships with industry contacts, planning activities may take place to better understand the resources essential to Nevada. Such planning activities include the development of this Plan and the testing and training of its use by coordinating Nevada energy industry groups.

Additionally, information regularly collected through coordination and planning activities is analyzed to evaluate any potential impacts to energy supply in Nevada. The Governor's Office of Energy will regularly review Nevada's energy profile and assess vulnerabilities and potential impact to its supply. These same evaluation and assessment processes, which are implemented by the Governor's Office of Energy on a regular, day-to-day basis to evaluate the energy supply in Nevada will be utilized and carried out as an emergency verification assessment during an event or impending event.

Planning and analysis activities are detailed in Section III and in the appendices of this Plan. Existing energy profile data is compiled and accessible in the Status of Energy Report at: (www.energy.nv.gov).

PUBLIC COMMUNICATION PROGRAM

A public communication program is an essential part of an emergency response plan to consistently and accurately inform the public about the status of an event, as well as to educate and coordinate participation in mitigation programs which help to alleviate the situation. It is critical to develop clear lines of communication and reporting mechanisms to assure consistency in information distributed. To that end, throughout this Plan, protocols are provided for communication between all parties identified in this Plan and tools to report information are

described. Additional detail is discussed in Section III of this Plan. In a non-emergency activity, the communications will initiate from Governor's Office of Energy staff to the Director to the Governors' Press Secretary. During an emergency, NVOEM will assist in issuing public information.

The Governor's Office of Energy staff will monitor appropriate social media platforms, news media, and other channels.

CONSERVATION AND MITIGATION PROGRAMS

In the event of an energy supply shortage or disruption, a strategy for reducing energy demand is critical. Two broad types of demand reduction measures are:

- Public appeals for voluntary energy conservation
- Mandatory mitigation measures for use in the Emergency Phase

The NVOEM, with input from the Governor's Office of Energy, will identify those measures appropriate to the situation and the perceived duration of the disruption. Mandatory measures should be applied in a coordinated manner statewide. Specific measures, both voluntary and mandatory, are contained in Section III of this Plan.

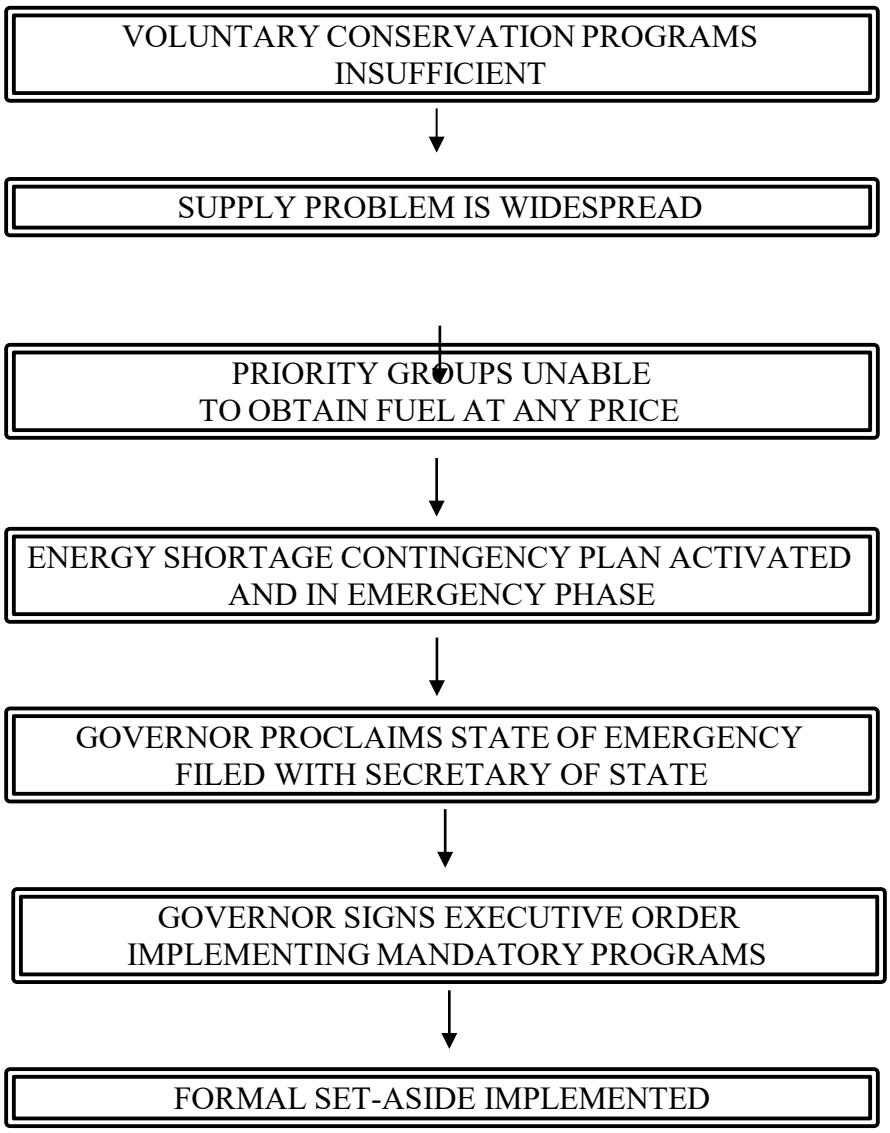
Suggested voluntary measures are a compilation of conservation options, sorted by energy type including electricity, natural gas, propane (LPG), heating oil, transportation fuels (including aviation fuel), ethanol and other petroleum products. These measures address energy events resulting from both local and remote disasters and market disruptions. Measures are applicable to long- and short-term shortages in urban, suburban, and rural localities. Many of the measures are also applicable in non-shortage times and can decrease the overall vulnerability to energy shortages.

After implementation of voluntary conservation measures, the Governor's Office of Energy in coordination with NVOEM, and input from affected Utilities and other agency/stakeholders and PUCN where appropriate, will evaluate the results. This information will be used to develop recommendations to the Governor either to continue current programs or to begin emergency programs. Emergency programs may include mandatory implementation of previous voluntary measures and other measures such as the Emergency Fuel Allocation Program or Economic Assistance.

The Emergency Fuel Allocation Program has two components: first, the disaster support function for use during a specific, isolated event; and second, the Petroleum Fuels Set-Aside program for use during a more widespread or prolonged shortage. Specific measures are contained in Section III of this plan. The criterion for implementation of any set-aside program is outlined in Figure 1.

The program implementation and application processes are contained in the Fuels Allocation Office Operations Manual discussed in Section III and attached as Appendix B. This manual is designed to assist the Fuels Allocation Officer, appointed by the Director, in establishing the Fuels Allocation Office. It is conceivable that both the disaster support function and the set-aside function are operating at the same time. For example, an earthquake in the Las Vegas area could damage the transportation fuel pipeline and roadways leading to the Las Vegas area and cause a temporary fuel shortage throughout Southern Nevada. In this case, the Governor's Office of Energy would continue to support efforts to ensure adequate fuel supplies are available to those responders directly involved in the disaster. However, the amount to be allocated outside of the disaster would be limited by a maximum 5 percent volume further discussed in Section III.

Figure 1
CRITERIA FOR IMPLEMENTATION OF SET-ASIDE



ECONOMIC ASSISTANCE PROGRAMS

Although market mechanisms usually affect an efficient balance of supply and demand, disproportionate economic impacts on low-income households may occur during energy events. In recognition of this, the Governor's Office of Energy and the Division of Welfare and Supportive Services (DWSS) have identified programs that could be augmented in an emergency.

The three main energy-related economic assistance programs are:

1. The Community Services Block Grant.
2. The Low-Income Home Energy Assistance Program, which contains two components: Energy Crisis Intervention Program and Home Energy Assistance Program.
3. The U.S. DOE Weatherization Assistance Program (WAP).
4. In addition, some utilities maintain programs to assist with or defer payment of utility

bills for eligible parties. Detailed measures are contained in Section III of this Plan.

The DWSS works with a network of community-based organizations, providing the resources needed to break the poverty cycle. These agencies include local governments and other community-based organizations servicing low-income people. Because of the existing network, there is flexibility in place to implement energy emergency assistance.

SECTION II - PLAN OPERATING GUIDELINES

MANAGEMENT STRUCTURE

The management structure listed herein applies to pre-emergency activities. If an emergency is declared, the organizational structure would follow NIMS and NVOEM would be the lead agency. The importance of the management system is knowing who is in charge, the lines of authority, and the process for providing essential information to those who need it to direct appropriate responses. Successful implementation of the Plan in an emergency depends upon the management structure and understanding by staff of their operational responsibilities.

The Governor's Office of Energy, Energy Response Organizational Chart and the Operating Guidelines provide the structure and specific responsibilities. Figure 2 displays the relationships, lines of authority, communication, and points of cooperation between the Director and staff involved in implementing the Plan. Specific reporting and review procedures are included in the individual operating guidelines.

ROLES AND RESPONSIBILITIES

Upon notification of an impending energy emergency, persons in the positions listed below are to review the operating guidelines contained in this section and begin activities as directed and as appropriate to the situation. A summary follows that describes the general responsibilities of each position.

Governor: (NRS Chapter 416 & 414) Directs the public, as well as all state government agencies, in voluntary energy conservation measures. When appropriate, declares a State of Emergency and signs proclamations necessary to implement mandatory conservation programs deemed necessary upon recommendation of the Director.

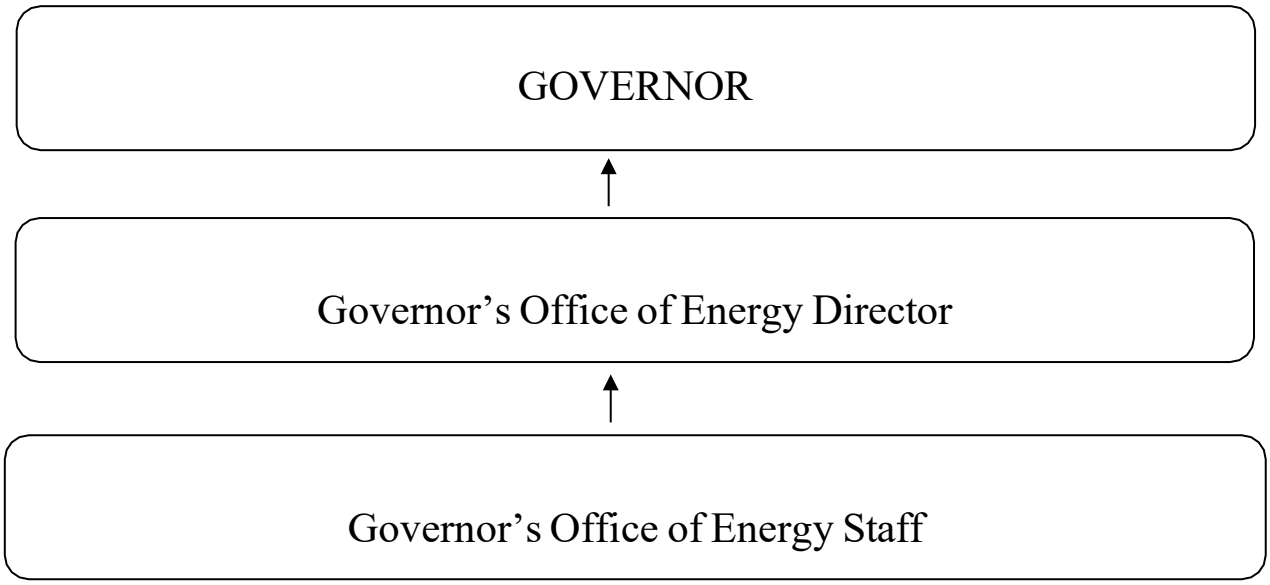
Director-Governor's Office of Energy: Directs staff to proceed with specific elements of the Plan. Using the data and analysis provided by staff, the Director will present recommendations to the Governor on how best to respond to the energy event. The Director performs the role of the EEAC as designated by the U.S. DOE-CESER. If, for any reason, the Director is unavailable, the Governor's Office of Energy's Deputy Director will be responsible for implementing the Plan. The Director will be responsible for making sure the appropriate staff will be trained in compliance with NIMS training requirements such as ICS-100, -200, -300, etc.

Energy Program Manager, Energy Security & Emergency Operations: The Energy Program Manager, when designated by the Director, is responsible for specific staff assignments. The Energy Program Manager initiates multi-level communications with government and private industry. The Manager provides frequent briefings to the Director and other staff on the results of the staff's information gathering and analysis.

Public Information Officer: The Public Information (PIO) works with the Director to schedule and prepares briefings for the Governor's Office, Legislature, and the media, as well as responds to inquiries from media, the public, and state and local officials. The PIO is responsible for disseminating accurate information approved by the Director and the Governor to the public,

advising them on the status of the situation and providing guidelines for energy demand reduction. The PIO is also responsible for monitoring and posting on the appropriate social media platforms, including developing content for the Governor's social media platforms.

Figure 2
ENERGY RESPONSE ORGANIZATION CHART



Governor's Office of Energy Staff: Under the direction of the Director and the designated Energy Program Manager, monitors situations, analyzes impacts, plans responses, prepares reports, and implements programs. The staff will maintain a network of contacts with other government levels and private industry.

Under the direction of the Director, Staff will work with the DWSS to prepare options for revenue assistance and program implementation. Much of this activity is done by ESF-6 during an emergency, but there are needs for support for excessive energy costs and Low-Income Home Energy Assistance Program (LIHEAP) and Home Energy Assistance Program (HEAP)coordination to mitigate energy cost hardship in non-emergency events. ESF-6 coordinates and provides life-sustaining resources, essential services, and statutory programs when the needs of disaster survivors exceed local, state, tribal, territorial, and insular area government capabilities.

OPERATING GUIDELINES

Operating guidelines provide the general responsibilities and specific duties, by phase, of the people involved in the implementation of the plan. Guidelines were developed for the following positions and are intended to be reviewed and followed, as appropriate, during an energy event.

GOVERNOR

Directs the public, as well as all state government agencies, in voluntary energy conservation measures. When appropriate, the Governor proclaims an energy emergency and signs Executive Orders necessary to implement mandatory conservation programs.

Verification Phase

- Receives periodic reports from the Governor's Office of Energy on the status of Nevada's

energy price, supply, and distribution systems.
- Obtains briefings from the Director.
- Alerts Governor's Office Press Secretary to coordinate with the Director, or GOE staff, for any news releases or response to media inquiries.

Pre-Emergency Phase
- Issues public appeal for voluntary energy demand reduction.
- Meets and confers with the NVOEM Emergency Operations
- Directs all state government agencies to reduce energy consumption.
- If the energy event severity increases, prepares to proclaim a state of emergency.

Emergency Phase
- Reviews emergency response recommendations submitted by the Governor's Office of Energy.
- Issues public appeals for increased energy conservation efforts.
- Files proclamation and signs Executive Orders as necessary to implement mandatory energy conservation programs.
- Directs all state government agencies to increase energy demand reduction efforts.
- If energy shortage level increases and becomes widespread, requests a Presidential declaration of emergency.
- Requests federal assistance and aid, where needed, to ensure order and protect the health, safety, and essential services of the citizens of Nevada.

DIRECTOR, GOVERNOR'S OFFICE OF ENERGY
Directs staff to proceed with specific elements of the Plan. Using the data and analysis provided by staff, presents recommendations to the Governor on how best to respond to the impacts of the energy problem.

Readiness Phase
- Oversees staff operations to regularly monitor energy events, conduct periodic emergency testing and training, and maintain the list in Appendix A.
- Reviews and considers any reports from staff notifying of events which are likely to impact energy affordability and availability.
- Regularly monitors and distributes information obtained from the EEAC carrying out the role of the Energy Emergency Assurance Coordinator. For a description of this role, see (www.naseo.org/eeac).
- Communicates regularly with other relevant agencies (NVOEM, PUCN, etc.) as necessary.

Verification Phase
- After notification of a potential event, designates an Energy Program Manager and instructs staff to confirm reports and monitor the situation.
- Establishes a briefing schedule with the Energy Program Manager to evaluate the situation.

- Meets with Energy Program Manager and Governor's Press Secretary to review news releases.
- Directs preparation of a Verification Report and Situation Report for submittal to the Governor's Office.
- If the probability of an energy event is likely or the situation worsens, go to the Pre-Emergency Phase.
- If the situation is resolved, directs staff to prepare After-Action Memo and returns to Readiness Phase.

Pre-Emergency Phase

- Increases briefing regularity to discuss current situation and strategy.
- Confers with Energy Program Manager and the Governor's Press Secretary to coordinate press releases with the NVOEM Public Information Officer.
- Reviews press release and media briefing packages.
- Directs Energy Program Manager to prepare regular reports containing major energy developments and recommendations for further action.
- If energy event severity increases to serious, prepares a recommendation for the Governor to proclaim an energy emergency, coordinating with the NVOEM Chief.
- If the situation is resolved, directs staff to prepare After-Action Memo and return to Readiness phase.

Emergency Phase

- Confers with staff regarding status of the situation and supports activation of ESF-12.
- Ensures that the Governor receives regular Situation Reports.
- Discusses possible mitigation strategy with the Energy Program Manager.
- Directs the Energy Program Manager to draft emergency response recommendations.
- Meets with the Energy Program Manager and staff to review potential emergency response actions and other options.
- Presents emergency response recommendations to the Governor.
- If the Petroleum Fuels Set-Aside Program is implemented, appoints the Fuels Allocation Officer.
- If low-income assistance is required, directs the designation of an Economic Assistance Coordinator to serve as liaison to ESF-6.
- If energy event severity increases to severe, recommends that the Governor request a Presidential Declaration of Emergency.
- If the situation is resolved, directs staff to prepare an After-Action Memo and return to the Readiness phase.

ENERGY PROGRAM MANAGER, ENERGY SECURITY AND EMERGENCY OPERATIONS

The Energy Program Manager initiates multi-level communications with government and private industry. The Energy Program Manager regularly briefs the Director on the results of the staff's information gathering and analysis.

Verification Phase

- Prepares and coordinates regular briefings of the Director.
- Directs Contingency Planning Staff to monitor, collect and analyze data, maintaining an activity log.
- Reviews staffing, resources and equipment needs; directs requests to the Director.
- Contacts NVOEM and U.S. DOE-CESER for information and coordination.
- At the instruction of the Director, directs staff to prepare Status Report for the Governor's Office.
- If the probability of an energy shortage is likely, prepares to implement the Pre-Emergency Phase.
- If the probability of an energy shortage diminishes, confers with the Director to discontinue Verification Phase

Pre-Emergency Phase

- Meets with the Director for regularly scheduled status and situation briefings.
- Ensures that an adequate level of staffing is maintained.
- Ensures that adequate communication systems and appropriate materials are available to the Director.
- Confers with the Director to coordinate press releases and plan briefings with Governor's Press Secretary for the Legislature and the public.
- If energy event severity increases to serious, assists the Director with transition to the Emergency Phase.
- If energy event severity diminishes, reduces activity to Verification or Readiness Phase; directs staff to prepare After-Action Memo.

Emergency Phase

- At the instruction of the Director, manages staff in the implementation of Emergency Phase activities as ESF-12.
- Reassesses staff, equipment and communication needs in the Energy Emergency Center.
- Directs staff to prepare regular updates and attend briefings with the Director.
- Directs staff to monitor impact of event on local jurisdictions.
- Ensures that staff works closely with NVOEM. At the instruction of the Director, drafts emergency response recommendations and implements mandatory demand reduction programs.
- If the Petroleum Fuels Set-Aside Program is implemented, assigns Governor's Office of Energy support staff for the Fuels Allocation Officer and program as instructed by the Director or from coordinating agencies as authorized by and in coordination with those agencies' Directors.
- If low-income assistance is required and at the instruction of the Director, designates an Economic Assistance Coordinator to serve as liaison to ESF-6.
- If energy event severity increases to severe, directs staff to intensify all programs and activities as directed.
- If energy event severity decreases to less than serious, directs staff to reduce monitoring and mandatory programs. Upon instruction by the Director, directs staff to prepare an After-Action Memo and return to Readiness Phase.

GOVERNOR'S PUBLIC INFORMATION OFFICER

At the recommendation of the Director or Governor, schedules briefings for the press. The Governor's Public Information Officer delivers copies of Situation Reports to Legislators, prepares briefing packages for the Director to present to the Legislature, and responds to inquiries from state and local elected officials. The Press Secretary is also responsible for disseminating accurate information obtained from the Director, and approved by the Governor, to the public and state and local representatives, advising them on the status of the situation and providing guidelines for energy demand reduction and mandatory programs.

Verification Phase

- Determines staffing and equipment needs for response to media and public inquiries.
- Establishes and maintains an activity log and legislative, media, and public contact log.
- Attends briefings, as needed, with the Governor, Director, and Energy Program Manager.
- Establishes lines of communication with the NVOEM PIO, Governor's Office Communications Director, U. S. DOE-CESER PIO, and communications staff at any other relevant organizations, like utilities, state agencies, local governments, etc.
- Prepares messaging for use in all stages of the pending emergency, upon approval from the Director and Governor.
- Develops press releases and media briefings for review by the Director and Energy Program Manager and approval of the Governor.
- Provides as-needed updates on media coverage to the Director and Energy Program Manager.
- Delivers Situation Reports to the Legislature.
- Monitors relevant news and social media outlets for the development of new information, identification of issues, and rumors.
- Responds to inquiries from elected officials, informing the Director of such responses.

Pre-Emergency Phase Includes all the above, plus:

- Sets up and staffs Media Center to monitor and record media coverage.
- Attends briefings with the Governor, the Director, and Energy Program Manager to report media coverage.
- Attends operations briefings and reports out as appropriate.
- Assists the Director and Energy Program Manager with preparation of the Governor's voluntary conservation message.
- Coordinates Legislative inquiries with the Director, Energy Program Manager, and the Governor.

Emergency Phase
Includes all the above, plus:

- Integrates into and staffs the Joint Information Center (JIC) with the NDEM PIO for centralized communications monitoring, planning, and implementation.
- Evaluates the need for additional staff and equipment; directs requests to Director.
- Intensifies the level of coordination with state and local government representatives.

- With instruction from the Governor, assists the Director and the NVOEM PIO with public messages on emergency conservation measures, requesting public cooperation.
- Distributes press releases to media and stakeholders.
- Continues to provide updates on media and public inquiries to Director and Energy Program Manager.
- Prepares briefings for the Legislature, coordinating with the Director, and the Energy Program Manager.
- Continues to respond to inquiries.
- When the shortage is resolved and Emergency Phase is discontinued by the Director/Governor, forward activity log to assist in preparation of After-Action memo.

GOVERNOR'S OFFICE OF ENERGY CONTINGENCY PLANNING STAFF

Under management of the Director, or at times of Verification Phase or higher, the designated Energy Program Manager is responsible for situation monitoring, analysis of impacts, response planning, report preparation, and program implementation. The staff will maintain a network of contacts with other government levels and private industry. **The Energy Program Manager (EPM) and Management Analyst III (MA III) may be the same individuals throughout this section.**

Readiness Phase

- Task: Monitor international and domestic events that have possible impacts on energy availability and affordability.
  - Designated GOE Staff: Energy Program Manager and/or Management Analyst III
- Task: Conduct periodic testing and training.
  - Designated GOE Staff: Director, Deputy Director, Energy Program Manager
- Task: Update and maintain a network of public and private sector contacts, attached as Appendix A – Industry and Government Contacts List. (Confidential.)
  - Designated GOE Staff: Management Analyst III
- Task: Immediately notifies the Director of developments that are likely to have impacts on energy availability and affordability.
  - Designated GOE Staff: Energy Program Manager

Verification Phase

- Task: Using the Industry and Government Contacts List of designated industry contacts, collect and analyze data, prepare preliminary fact sheets, and brief the Deputy Director.
  - Designated GOE Staff: Energy Program Manager and Management Analyst III
- Task: Continue information collection and analysis, providing periodic updates, coordinating with the NVOEM. Participate in briefings and conference calls.
  - Designated GOE Staff: Public Information Officer.
- Task: Prepare the Verification Report, and Situation Reports, following approval process.
  - Designated GOE Staff: Energy Program Manager or Management Analyst III
- Task: Maintain status information, ensuring confidentiality of sensitive data.
  - Designated GOE Staff: All GOE staff
- Task: Provide information to the Director for Situation Reports, press releases and inquiries.
  - Designated GOE Staff: Public Information Officer

Pre-Emergency Phase

- Task: Intensify data collection process; respond to requests for additional staff from the Director or Deputy Director.
  - Designated PE Staff: Energy Program Manager
- Task: Activate a pre-emergency work location at the Governor's Office of Energy.
  - Designated GOE Staff: Energy Program Manger
- Task: Prepare recommendations for voluntary demand reduction measures.
  - Designated GOE Staff: Energy Program Manager, Management Analyst III
- Task: Evaluate results of voluntary measures; prepare recommendation for continuation or need for additional resources.
  - Designated GOE Staff: Deputy Director

Emergency Phase

- Task: Request support staff and equipment from the Energy Program Manager, as needed, to activate ESF-12 at the Emergency Operations Center. Director or Deputy Director
- Task: Continue to provide frequent information updates and Situation Reports.
  - Designated GOE Staff: Public Information Officer
- Task: If ordered by the Governor, and at the instruction of the Director, implement energy conservation programs.
  - Designated GOE Staff: Deputy Director
- Task: Work closely with the Director to ensure that press releases and media briefing packages contain a description of each emergency program being implemented, along with the rules for compliance.
  - Designated GOE Staff: Public Information Officer
- Task: If the Petroleum Fuels Set-Aside Program is implemented, provide necessary information to the Energy Program Manager.
  - Designated GOE Staff: Management Analyst III
- Task: If an Economic Assistance Coordinator is assigned as liaison with ESF-6, provide information and coordinate activities.
  - Designated GOE Staff: Program Manger
- Task: If the energy event severity diminishes, reduce level of activity; discontinue mandatory programs as soon as practical.
  - Designated GOE Staff: Deputy Director
- Task: At the conclusion of energy event, assist Energy Program Manager with response evaluation and preparation of After-Action Memo.
  - Designated GOE Staff: Management Analyst III

ECONOMIC ASSISTANCE COORDINATOR

If an Economic Assistance Coordinator is assigned as liaison to Mass Care (ESF-6), provide information to coordinate activities. With direction from the Director, the Economic Assistance Coordinator will work with ESF-6 to prepare standby options for program implementation.

Emergency Phase

- Reviews Situation Reports and attend briefings by the Designated Energy Program Manager. Public Information Officer
- Notifies ESF-6 of the status of the energy shortage and transition to the Emergency Phase. Determine additional support required from ESF-6. Designated Energy Program Manager
- Provides information to ESF-6 on the potential extent and duration of economic impacts caused by the energy supply disruption. Designated Energy Program Manager
- Works with ESF-6 in preparing stand-by options for implementation; assist with finalizing stand-by legislation for funding. Designated Energy Program Manager
- Briefs the Director regarding proposed policies and programs, and action necessary for implementation of low-income assistance programs. Designated Energy Program Manager and Management Analyst III
- Assists ESF-6 in preparing public announcements of program availability and the application process, coordinates with the Director. Public Information Officer
- Assists ESF-6 in preparing energy saving tips for distribution to recipients and applicants of economic assistance programs. Public Information Officer
- In conjunction with ESF-6, prepares an evaluation of the program results. Designated Emergency Program Manager or Management Analyst III
- As the energy shortage diminishes, prepares a program evaluation, and assists in the preparation of the After-Action Memo. Designated Energy Program Manager and/or Designated Management Analyst III

EMERGENCY MANAGEMENT DIRECTORS/COORDINATORS

Other contacts and resources during an emergency may be found in the contact listing in Appendix E. These contacts are local, county and state contacts that may be affected during an emergency.

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SECTION III - GOVERNOR'S OFFICE OF ENERGY OPERATIONS

As introduced in the Section I Plan Description – Emergency Response Actions, action with the Governor's Office of Energy necessary to respond to any potential event can be described generally in four broad categories:

- Coordination, planning and analysis
- Communication program
- Mitigation and conservation programs
- Economic assistance programs

Office operational details are provided in this section.

COORDINATION, REPORTING, PLANNING AND ANALYSIS

Coordination, reporting, planning, and analysis consists of activities conducted in a formal manner upon an impending energy emergency. Guidelines to conduct regular coordination and planning activities are detailed in Appendices B, C and D.

Section III describes the process by which data from energy supply disruption events will be recorded and tracked by the Governor's Office of Energy. A template of the Energy Disruption Event report is provided in Figure 3. Appendix A contains the list of entities that will be requested to provide energy supply disruption data. This list is to be utilized and maintained by the Governor's Office of Energy staff in their efforts to monitor and coordinate energy events. The sources of data for monitoring the Nevada energy supply are provided in Section I.

Figure 3
ENERGY DISRUPTION EVENT REPORT

NOTE: If the EOC is activated and an incident established in the EOC designated tracking system, , the Governor's Office of Energy will coordinate with NVOEM to ensure this information is recorded in this incident.

Case #	Date and Time Reported to the Governor's Office of Energy: (Within 2 hrs. of incident)
Reporting Entity:	
Person filing the report: Name, Address, Phone, Fax, Cell (if applicable) and Email:	
Date and Time of Disruption:	Location, Site and Region of Disruption:
Description of Disruption:	
Affected Entities:	
Any other agencies notified? If yes, who contacted and when:	
Will any agency be providing assistance? If so, which ones:	
Actions taken:	
Recovery time:	
Report Revised by Governor's Office of Energy by: (Date and Time)	Entered in database on:

ACTIVITIES UPON RECOGNITION OF IMPENDING ENERGY EMERGENCY

Upon recognition of an impending energy emergency, it will be necessary to evaluate the need to activate the Continuity of Operations Plan described in Appendix D. Emergency operation activities are outlined below.

Incoming Notification: Governor's Office of Energy staff may receive notification of an event with impending or probable energy impacts from several sources including:

- Governor's Office
- NVOEM
- DHS
- PUCN
- U.S. DOE-CESER
- Energy Industry Contacts, or
- Media
- Nevada Department of Agriculture

Action Planning and Preliminary Assessment: Immediately following notification, the Director will decide on a course of action to make a preliminary assessment. The action plan should include:

- What information is required, using the technical appendices?
- What sources are to be used from Appendix A, Industry and Government Contacts List?
- What questions are to be asked, using the technical appendices?
- Specific staff assignments
- Task: Maintain a contact log of who was called, the phone number, the date and time, and a summary of the conversation. In addition, status sheets or a status board will be maintained so that current information is readily available to all Governor's Office of Energy staff. The process of planning and briefing will be repeated as necessary to ensure coordination and accuracy.
  - Designated GOE Staff: Management Analyst III
- Task: Gather information initially to determine if the notification is valid, and if there is a possible or probable impact on energy. Determine the nature, extent and duration of the event which is likely to impact energy supply, price, and distribution. Assessment guidelines can be found in Section I.
  - Designated GOE Staff: Energy Program Manager
- Task: Ensure credible data, use the established primary liaison for industry and government sources, as listed in Appendix A. Sources of information must be reliable, established, and verifiable. In any event, and particularly during a natural disaster, make immediate contact with NVOEM to determine if Governor's Office of Energy staff is needed at the State Emergency Operations Center, and what energy impact analysis is needed.
  - Designated GOE Staff: Energy Program Manager or Management Analyst III

Outgoing Notification: After making a preliminary assessment, the designated Energy Program Manager staff will immediately notify the Director or Deputy Director. The Deputy Director Energy Program Manager will then notify the following (as appropriate to the situation):

- Director
- Governor
- Governor's Press Secretary
- NVOEM
- PUCN
- U.S. DOE-CESER

PUBLIC COMMUNICATION AND REPORTING PROGRAM

Depending on the nature and urgency of the situation, staff will prepare written reports reflecting the analysis of energy impacts. Four basic types of reports may be used at the instruction of the Director:

1. **Verification Report:** A verification report will be developed upon the direction of the Director by the Governor's Office of Energy staff to assess and confirm any energy information received that may be considered to cause impact to the energy supply in Nevada.
2. **Situation Report:** To distribute a situation report, follow the Situation Report Procedures Checklist Verification in Figure 4. The distribution list usually will include the NVOEM, U.S. DOE-CESER, the Governor, and the Legislature, PADD V states and industry contacts, as appropriate. Confidential situation reports for the Governor will be delivered only to the Governor. In an event that impacts multiple states this information should be shared with those impacted states, and this should not include any confidential information unless there was an important need to do so, and they it would need to be kept separate from the other analysis and labeled appropriately as confidential or other designations as used by the State for this purpose.
3. **Press Release:** Used upon inquiry and proactively when necessary to calm public fears.
4. **After-Action Memo:** Drafted when an energy event has diminished to document and evaluate the performance of the Plan and implementation activities. An After-Action Memo will be developed and delivered to the appropriate representatives.

Public information needs to be as accurate as possible and presented in terms that will not panic the populace into actions that would be counter-productive to mitigating the emergency.

If this is an emergency, turn directly to Appendix F, "Communications" for templates of public information communication.

CONSERVATION AND MITIGATION PROGRAM IMPLEMENTATION

The Governor's Office of Energy, in conjunction with the PUCN and other ESF-12 partners, will determine the most appropriate mitigation and conservation strategies to be implemented. All program implementations must be coordinated with other appropriate state and local agencies. The staff will also evaluate and assess the results of the programs implemented to make recommendations to the Governor for continuation of voluntary programs, a need for additional voluntary programs, or the need for mandatory programs. To impose mandatory programs, the Governor must first proclaim an energy emergency and sign Executive Orders to implement programs. The Executive Order will take effect immediately upon being filed. All mandatory programs automatically terminate when the Governor rescinds the emergency proclamation, or the order expires. Draft proclamations for energy emergencies are maintained by the Governor's Office of Energy as part of the Fuels Allocation Office Operations Manual attached as Appendix B.

Figure 4
SITUATION REPORT PROCEDURES CHECKLIST

Title/ Date of Report:	Task
	Give draft copy to Energy Program Manager for review.
	Give draft Situation Report and cover memo to the Director for review.
	Once all changes have been made, print final version (first page of Situation Report is printed on letterhead).
	Cover memo signed by Director.
	Make appropriate number of copies of the complete package.
	Deliver original and 3 copies to Governor's Office.
	ONLY AFTER GOVERNOR'S OFFICE HAS RECEIVED IT, distribute to: GOE EEAC Governor's Public Information Officer NVOEM (Nevada Office of Emergency Management PUCN (Public Utilities Commission of Nevada) Governor's Office of Energy Staff EEAC in other impacted States in the region and U.S. DOE-CESER
	Make additional copies of the Situation Report only for internal distribution to interested agency staff.
	Place a copy in file.

SUGGESTED VOLUNTARY MEASURES (Electricity)

The Governor's Office of Energy will work with the utilities to identify the measures most appropriate for the situation and to explore cooperative mechanisms for encouraging conservation.

Residential customers can:

- Adjust thermostat settings.
- Implement load management measures.
- Use appliances at off-peak times (early morning or late evening).
- Clean or replace heating and air conditioning air filters.
- Close off unused rooms, and close heating and cooling ducts in these rooms.
- Close off openings which could be a source of unconditioned air.
- Use energy intensive appliances (dryers, washers, dishwashers) in early morning or late evening.
- Turn off lights and appliances such as radio and TV when not in use.
- Minimize use of nonessential electric labor-saving devices.
- Reduce outdoor lighting to essential use only.
- Reduce wattage and number of bulbs whenever possible.
- Replace less efficient incandescent lights with high efficiency bulbs, such as LEDs.
- Lower the thermostat setting on the water heater.
- Minimize the use of hot water; use cold water where possible.
- Install flow restrictors in shower heads to reduce water flow.
- Take short showers rather than baths.
- Repair leaky faucets.
- Air-dry dishes by turning off the dry cycle on the dishwasher.
- Run the dishwasher only when full.
- Clean the condenser coils on the refrigerator.
- Avoid frequently opening the refrigerator and freezer doors.
- Remove clothes from dryer as soon as dry (don't over dry) or line dry.
- Keep the lint screen clean on washers and dryers.
- Use oven for several items at a time.
- Select the right size burner for the size of the pan.
- Avoid using self-cleaning cycle on oven.
- When cooking on a burner, use glass or ceramic pans with tight fitting lids.
- Avoid frequently opening oven door or lifting cooking utensil lids to check cooking progress.

Commercial and industrial customers can:

- Make sure equipment is turned off overnight and weekends. Use the energy saving feature on printers, monitors, copiers, and keep the thermostat at 78-80 degrees, in the cooling season, when people are in the building, 85 degrees at night and on weekends during the cooling season. In the heating season, keep the temperature at 68 degrees when people occupy the building, 55-60 degrees at night and on weekends.
- Turn down the water heater to 120 degrees.
- Make sure outdoor lighting is turned off during the day.
- Do not use screen savers - they prevent CPUs and monitors from going into power-saver mode.

- Make sure equipment is turned off overnight and weekends. Use the energy saving feature on printers, monitors, copiers, and computers if the option is available.
- Make double-sided copies whenever possible.
- Allow your workers to wear comfortable clothing during hot weather. It makes little sense to keep a room cold enough that workers must wear coats.
- To save energy, keep exterior and freight doors closed as much as possible.
- Make sure that bulbs, fixtures, lenses, lamps and reflective surfaces are cleaned regularly. By removing grease, dust and other dirt, you can increase the output of your lights.
- Remove under desk space heaters.

SUGGESTED VOLUNTARY MEASURES (Natural Gas)

- Residential customers can:
- Clean or replace heating and air conditioning air filters.
- Close off unused rooms, and close heating and cooling ducts in these rooms
- Lower the thermostat setting on the water heater.
- Minimize the use of hot water; use cold water where possible.
- Use oven for several items at a time.
- Select the right size burner for the size of the pan
- When cooking on a burner, use glass or ceramic pans with tight fitting lids.

Commercial and industrial customers can:

- In the heating season, keep the temperature at 68 degrees when people occupy the building, 55-60 degrees at night and on weekends.
- Turn down the water heater to 120 degrees.

SUGGESTED VOLUNTARY MEASURES (Petroleum)

An overview of various petroleum mitigation and conservation measures is provided below. Details regarding measures and set-aside programs, including a summary "Guidance for Petroleum Shortage Response Programs and Measures are included in Appendix B – Fuel Allocation Office Operations Manual.

- **Increased use of rideshare programs.** Work with Nevada Department of Transportation and local Regional Transportation Commissions to implement or intensify their rideshare programs.
- **Increase use of public transit vehicles.** Maintain contact with local public and private transit services, exchanging information on ridership and fuel supplies. Work with county officials to encourage greater use of mass transit facilities.
- **Increased use of bicycles.** Encourage commuters who live within bicycling distance of their places of employment to use their bicycles. Work with local governments and employers to provide more lanes, racks, or secured parking areas for bicycles.
- **Flexible work schedules.** This program allows employees to stagger their commute hours, while still working during core hours, usually 10 a.m. to 2 p.m.

- **Telecommuting.** This program offers a means of reducing transportation fuel use by allowing employees to work independent of their employer's location, using their homes or neighborhood offices close to their homes.
- **Teleconferencing.** This program can be used as a substitute for business trips to meetings and conferences, especially by State agencies.
- **Miscellaneous.** The following list of energy savings tips is suitable for public appeals for voluntary conservation:
    - Observe speed limits
    - Combine trips whenever possible
    - Do not idle engines unnecessarily and do not race engines
    - Properly inflate tires
    - Avoid excessive braking
    - Reduce use of car air conditioner
    - Check air filters and PCV valves

SUGGESTED MITIGATION MEASURES

These mitigation measures are worthy of consideration during readiness phase, as the implementation of the State Petroleum Set-Aside Program can take up to a month to get functioning and, in an emergency, these alternatives will allow a faster method of addressing fuel issues. These mitigation measures should be implemented prior to an actual event.

- Adopt a state priority end-user program.
- Develop separate agreements by working with legal.
- Expand fuel storage capacity on existing storage locations or incorporate larger storage in new facilities that may be constructed in the future.
- Maximize the use of alternative fuels through increased use of vehicles with flexible or alternative fueling capabilities. This includes the use of hybrid electric and electric vehicles.

STATE PRIORITY END USER PROGRAM

A priority End User Program requires petroleum suppliers to provide sufficient fuel to critical end users as listed below alphabetically:

- Agriculture
- Aviation
- Emergency Services
- Energy Production
- Government
- Health Care Services
- Passenger Services
- Trucking
- Utility Services

This program brings together energy assurance officials and fuel marketers to examine options and legislation necessary for expediting the sale of critical fuels in times of drastic shortages. An accepted measure for supply would be based on an average of previous supply volume during normal conditions. The supply may need to be supplemented by the nature and scope of the event such as a power shortage coupled with the fuel shortage. If the event will be for an extended period, this would be the starting point for enacting the fuel set-aside program.

CONTRACTUAL OPTIONS

Many groups and agencies purchase fuel at spot-market pricing and do not have fuel contracts. Fuel contracts may have higher prices than spot-market pricing, but generally fuel contracts provide a higher priority for delivery of fuel. Sources of spot-market fuel generally disappear during a fuel shortage. Risk management activity can determine advantages of fuel contracts vs. spot-market purchasing for fuel.

Currently, the majority of NDOT fuel sites have "keep full" agreements with vendors. NDOT would receive priority deliveries in the event of a fuel shortage.

STORAGE OPTIONS

NDOT fuel sites are limited in the amount of storage that is available. The storage amounts are based upon normal fuel consumption for the area. With anticipated use of NDOT fuel sites for emergency operations, supplementing the amount of storage with additional tankage as a hedge against a fuel shortage must be evaluated. The evaluation would be based on the following:

- Location
- Site additional fuel source (distance from supply)
- Space available for additional tankage
- Cost of increased storage
- Risk

FLEET MANAGEMENT OPTIONS

Certain State and Federal fleets have been purchasing alternative fueled vehicles to be in compliance with the Energy Policy Act of 1992 (Clark and Nye Counties only). NV Energy has been purchasing hybrid and electric vehicles in small numbers to supplement their operations during fuel shortages.

The Initiative for Resiliency in Energy through Vehicles (iREV) supports state and local emergency management decision makers by providing customized tools, information, and strategies about alternative fuel vehicle technologies, infrastructure, and potential uses in emergency scenarios. iREV's resources and technical assistance aid emergency management entities in examining the potential costs, benefits, and interdependencies associated with diversifying their fleets, reducing dependence on petroleum, and investing in electric, natural gas, propane, and biodiesel vehicles and infrastructure in support of energy security. Additional information about using AFVs for emergency response can be found at: (www.naseo.org/irev)

EMERGENCY FUEL ALLOCATION PROGRAM

The Emergency Fuel Allocation Program has two components: first, the disaster support function for use during a specific, isolated event; and second, the Petroleum Fuels Set-Aside program for use during a more widespread or prolonged event.

The program details, implementation and application process are contained in the Fuels Allocation Office Operations Manual, attached as Appendix B. This manual is designed to assist the Fuels Allocation Officer in establishing the Fuels Allocation Office. It contains:

- Fuels Allocation Officer (FAO) Checklist
- Staffing the Fuels Allocation Office
- Space and Equipment
- Monitoring and Reporting
- Appeal Process

DISASTER SUPPORT

During a disaster, the NVOEM is the lead agency. The Governor's Office of Energy provides support by coordinating the fuel supply as directed by the NVOEM. The Nevada Department of Agriculture will take the lead on communications with wholesale and retail petroleum providers. The disaster support function consists of both an informal and a formal process. The informal process is based on the voluntary cooperation of oil companies. It is generally used during a disaster when fuel needs to be redirected immediately to one or two areas for a particular use, normally related to an ESF. This informal process can be very effective because action can be taken quickly to help mitigate the appearance of a widespread problem and, thereby, prevent a panic. The formal part of the program will be implemented at the direction of the Governor only after proclamation of an energy emergency pursuant to NRS 416.050. Such a proclamation will enable the Governor to issue regulations or orders to manage the emergency as necessary, including fuels allocation and conservation measures. In coordination with the NVOEM, the Governor's Office of Energy will coordinate and direct oil companies to provide the amount of fuel needed by emergency service providers who are responding to the disaster.

PETROLEUM FUELS SET-ASIDE PROGRAM

During a more prolonged and widespread shortage, such as an oil embargo, the Governor's Office of Energy may be designated as the lead state agency, in coordination with NVOEM. If market forces and voluntary conservation measures are unable to provide for adequate fuel distribution, the Governor may proclaim an energy emergency pursuant to NRS 701.210 and implement the Petroleum Fuels Set-Aside Program (Set-Aside Program).

When certain critical services and industries cannot obtain adequate supplies of fuel at any price, these priority users can apply to the Fuels Allocation Officer at the Governor's Office of Energy for additional fuel through a priority distribution system. Each application will be reviewed and evaluated by the Fuels Allocation Officer using the basic priority criteria of: (1) protection of life; (2) protection of property; (3) provision of essential services; (4) restoration of infrastructure; and (5) continuity of economic viability.

Specific customer requests within these criteria may vary from event to event, but should include the following priority customers (listed alphabetically):

- Agricultural production, including agricultural trucking and agricultural aviation
- Aviation ground support vehicles and equipment
- Cargo, freight, and mail hauling by truck, including diesel truck stations
- Emergency services
- Energy production
- Health care facilities
- Public passenger transportation services
- Sanitation services
- Snow removal and other non-normative road service
- Telecommunication services
- Utility services (including water supplies)
- Visitor services (tourism)

The set-aside volume is designed to achieve maximum flexibility in the distribution of set-aside fuels and to minimize government interference with the market mechanisms. The Fuels Allocation Officer, in consultation with the Director, will designate the set-aside volume up to a maximum of 5 percent of the total monthly supply of each fuel type available within the state. The percent volume will be determined

according to the severity of the supply shortage. In no event shall one supplier be required to set aside more than the volume percent designated by the Fuels Allocation Officer for any single fuel assigned for allocation.

SECTION IV – NEVADA ENERGY PROFILE

Overview

Known as the Silver State, Nevada is rich in mineral deposits, particularly gold and silver. It is also rich in renewable energy resources. The Sierra Nevada Mountains brush the western edge of Nevada, and the open prairie and deep canyons of the Columbia Plateau occupy the northeastern part of the state. However, almost all of Nevada is within the Great Basin, an arid area with no outlet to the sea. The state's iconic buttes and flat-topped mesas are scattered between the mountain ranges that rise from the desert floor. The sun-bathed desert provides Nevada with the greatest solar power potential in the nation, and the state has substantial solar energy development. Geothermal resources are also widespread in Nevada, and the state ranks second in the nation, after California, in its electricity generating capacity at geothermal power plants. Although Nevada has the lowest average annual precipitation in the nation, it has one of the nation's largest hydroelectric facilities, Hoover Dam. The Dam spans the Colorado River between Nevada and Arizona and supplies the region with electricity. Nevada's mountain slopes are home to the state's mostly juniper and pinyon pine forests, and the mountain ridges have the state's greatest wind power potential, but only a small amount of the state's electricity is generated from wind or biomass. Nevada does not have any significant crude oil, natural gas, or coal reserves and has no nuclear power plants. However, the state is the nation's only lithium producer. Lithium is used in the manufacturing of the rechargeable batteries used in portable electronic devices, electric vehicles, and grid storage applications. A northern Nevada lithium deposit is thought to be the largest in North America, and construction of an open pit mine began at that location in 2023.

Nevada is one of the largest sources of gold in the world and the state's mines account for about three-fourths of the gold produced in the United States. In 1859, the discovery of silver and gold drew a rush of settlers to Nevada. Today, the state's population growth is among the fastest in the nation, but Nevada remains among the 10 least densely populated states. The federal government owns about four-fifths of Nevada's land, the largest share of any state. The U.S. Bureau of Land Management manages grazing, mining, and energy development on most of those public lands. Although mining for gold, silver, lithium, and other minerals remains important, the state's economy now includes aerospace and defense; information technology; health; manufacturing and logistics; natural resource technologies; and tourism. Las Vegas and Reno are tourist destinations for gaming and entertainment, and the leisure and hospitality industry is the state's largest employer despite a sharp drop in early 2020 as a result of the economic impacts of the COVID-19 pandemic.

In part because of tourism, Nevada's transportation sector accounts for about one-third of the state's total energy consumption. The residential sector consumes more than one-fourth of the total energy used in the state, the industrial sector accounts for more than one-fifth, and the commercial sector uses one-fifth. Almost three-fourths of the state's residents live in southern Nevada in Clark County, which borders the Colorado River and includes the city of Las Vegas. Despite the heavy use of air conditioning in the state during the long, hot summers, Nevada's per capita energy consumption is less than in about three-fourths of the states. The amount of energy consumed for each dollar of Gross Domestic Product (GDP) in Nevada is well below the national average. Overall, Nevada ranks sixth lowest among the states in energy production and uses more than six times as much energy as is produced in the state.

Energy Indicators		
Demography	**Nevada**	**Share of U.S.**
Population	3.2 million	1.0%
Civilian Labor Force	1.6 million	1.0%
Economy	**Nevada**	**U.S. Rank**
Gross Domestic Product	$ 215.9 billion	32
Gross Domestic Product for the Manufacturing Sector	$ 10,859 million	38
Per Capita Personal Income	$ 61,282	26
Vehicle Miles Traveled	27,077 million miles	35
Land in Farms	5.9 million acres	37
Climate	**Nevada**	**U.S. Rank**
Average Temperature	51.5 degrees Fahrenheit	27
Precipitation	8.5 inches	49
Demography	**Nevada**	**Share of U.S.**
Population	3.2 million	1.0%

Table 1. Energy Indicators

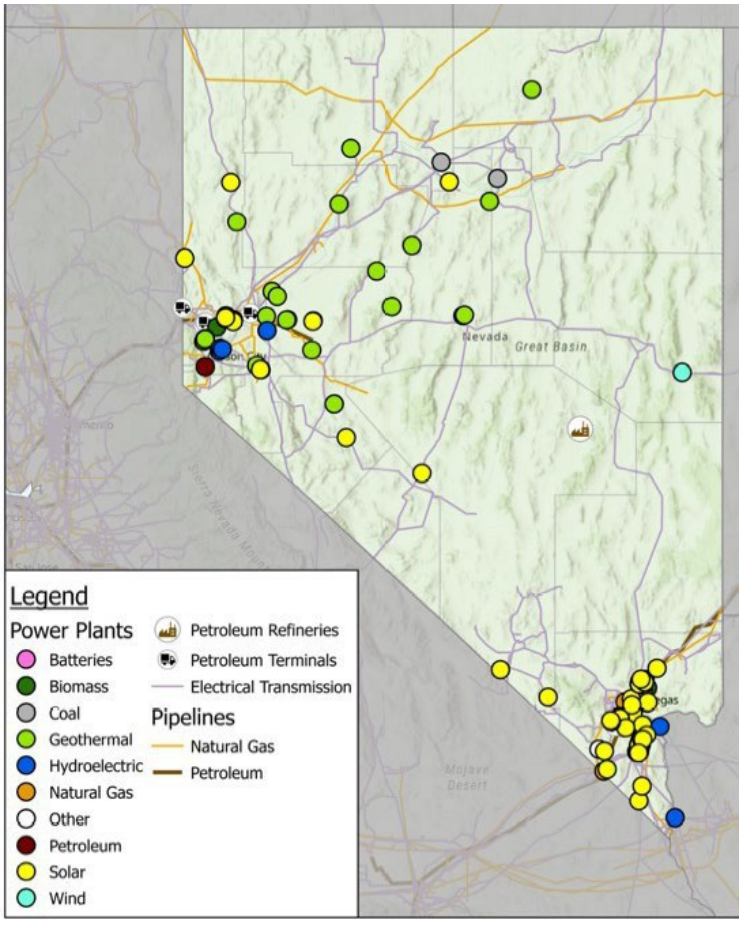
Energy Indicators (Table 1) give context to the state's make-up, economy, and external factors that could impact energy production and consumption. Nevada, despite having less than ten inches of yearly rainfall, produces almost two million megawatt hours of renewable hydroelectric energy. Further, the slim manufacturing GDP points to lower industrial energy consumption in relation to other end use sectors.

Nevada has 28 federally recognized tribes and is home to more than 50,000 Native Americans. There are a total of 32 reservations or tribal colonies in the state. The largest of the state's reservations covers almost a half-million acres, but most of Nevada's reservations are small, and the state's tribal areas cover about 1.2 million acres in total, which is less than 2% of the state.

Tribal lands, like most of Nevada, have abundant solar resources, and solar energy is the primary renewable energy resource used by the state's tribes. Nevada's Moapa River Indian Reservation is the site of the nation's first utility-scale solar power plant built on tribal land. Construction of the 250-megawatt Moapa Southern Paiute Solar Project—located about 30 miles northeast of Las Vegas on land leased from the Moapa Tribe—began in 2014, and the facility became fully operational in 2017. It is one of the largest solar installations in Nevada. The project's solar power is sold to the Los Angeles Department of Water and Power, and the Moapa Band of Paiutes receives revenues from the project. A second, larger, solar power plant is under construction on the reservation. The 300-megawatt Eagle Shadow Mountain project is scheduled for completion in August 2023. Two other large solar projects are also in development on the Moapa reservation. The 300-megawatt Southern Bighorn Solar Project has received final approval, and the 200-megawatt Arrow Canyon Solar Project is complete but is not yet operational. Other Nevada tribes also have built solar projects on their reservations. The Washoe Tribe of Nevada and California installed seven ground-mounted small-scale solar PV projects at community buildings on tribal land. The Yerington Paiute Tribe created an energy plan and has installed solar panels as it works toward a goal of energy self-sufficiency. Ground-mounted solar panels provide power to several buildings as well as to well pumps used for irrigation and at a water treatment plant on the reservation.

Geothermal energy potential also exists on Nevada's tribal lands. The Pyramid Lake Paiute Tribe's reservation near Reno, the largest reservation in Nevada, and the Walker River reservation are ranked among the top five reservations in the nation with the greatest potential for geothermal-sourced electricity generation. The Pyramid Lake tribe investigated their reservation's geothermal resource potential. Although the reservation is in an area where other non-tribal geothermal power plants are located, the reservation's geothermal resources have not been developed, and there are no geothermal projects on Nevada's tribal lands.

The following map (Picture 1) shows an overview of Nevada's energy assets. Power plants are sorted by their source fuel rather than by their capacity. Transmission and transportation infrastructure, such as power lines and pipelines, are represented by solid lines. Finally, petroleum facilities are represented by icons. This map emphasizes the diversity of power production in Nevada in addition to highlighting the need to import some of the products needed for production, such as natural gas, coal, and petroleum.



Picture 1 Nevada Energy Overview Map

Resources and Consumption

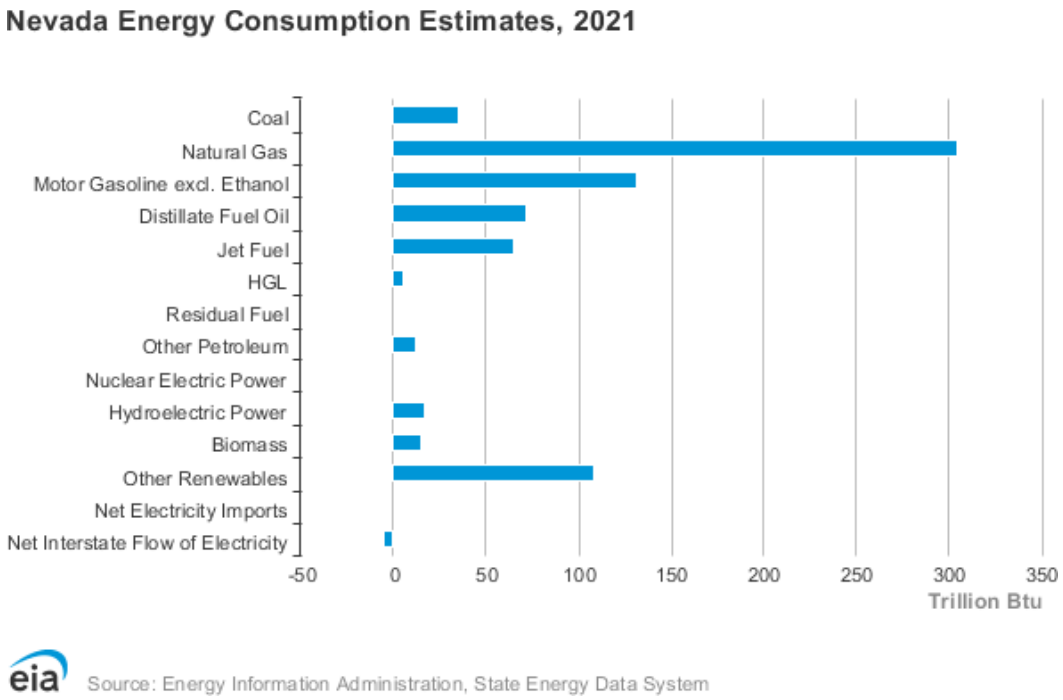
Nevada's strongest energy production sector is renewable energy. The state has no nuclear power or coal resources, limited oil, and natural gas resources. Nevada boasts high potential for both solar and geothermal power production in addition to other renewable sources such as wind, hydroelectric, and biomass resources.

Among the 50 states, Nevada ranks as 38th in Total Energy Consumption by Capita; however, Nevada consumes 6 times as much energy as it consumes. The majority of this consumption is natural gas, followed by motor gasoline and renewable energy (including solar). To ensure enough fuel is available for electricity production, Nevada receives natural gas from other states- around 1 million of cubic feet per year from Utah with smaller amounts supplied by California, Idaho and Arizona. Additionally, Nevada energy producers purchase coal and petroleum liquids from across state lines in relation to seasonal demands. Across all sectors, summertime retail sales of electricity peaked around 4,000 million kilowatt hours over the past 5 years, while the winter peak was just under 2800 million kilowatt hours.

The following Consumption and Expenditures table (Table 2) below shows Nevada's total consumption and expenditures for 2021. By further organizing consumption and expenditures into end-use sectors, a clearer picture of where energy is used the most comes into view. The residential sector includes homes and apartments; the commercial sector includes officers, malls, hospitals, restaurants, etc.; the industrial sector includes manufacturing sites, agriculture, mining, and construction; the transportation sector includes vehicles like cars, trucks, busses, aircraft, etc. The end-use sector that consumes the most energy is the transportation Consumption by source includes consumption for use of electrical production, such as coal-fired electrical plants, as well as other uses, such as natural gas used for residential heating. By comparing Nevada's use to the rest of the United States, we can understand we can understand how Nevada fits into the overall energy picture across the Country.

Consumption and Expenditures (2021)			
Summary		**Nevada**	**U.S. Rank**
Total Consumption		762 trillion Btu	36
Total Consumption per Capita		228 million Btu	38
Total Expenditures		$ 11,276 million	34
By End Use Sector		**Nevada**	**Share of U.S.**
Consumption	Residential	187 trillion Btu	0.9%
	Commercial	151 trillion Btu	0.9%
	Industrial	164 trillion Btu	0.5%
	Transportation	260 trillion Btu	1.0%
Expenditures	Residential	$ 2,174 million	0.8%
	Commercial	$ 1,370 million	0.7%
	Industrial	$ 1,491 million	0.6%
	Transportation	$ 6,241 million	1.0%
By Source		**Nevada**	**Share of U.S.**
Consumption	Petroleum	55 million barrels	0.8%
	Natural Gas	294 billion cu ft	1.0%
	Coal	2 million short tons	0.3%
Expenditures	Petroleum	$ 7,155 million	0.9%
	Natural Gas	$ 1,658 million	0.9%
	Coal	$ 90 million	0.4%

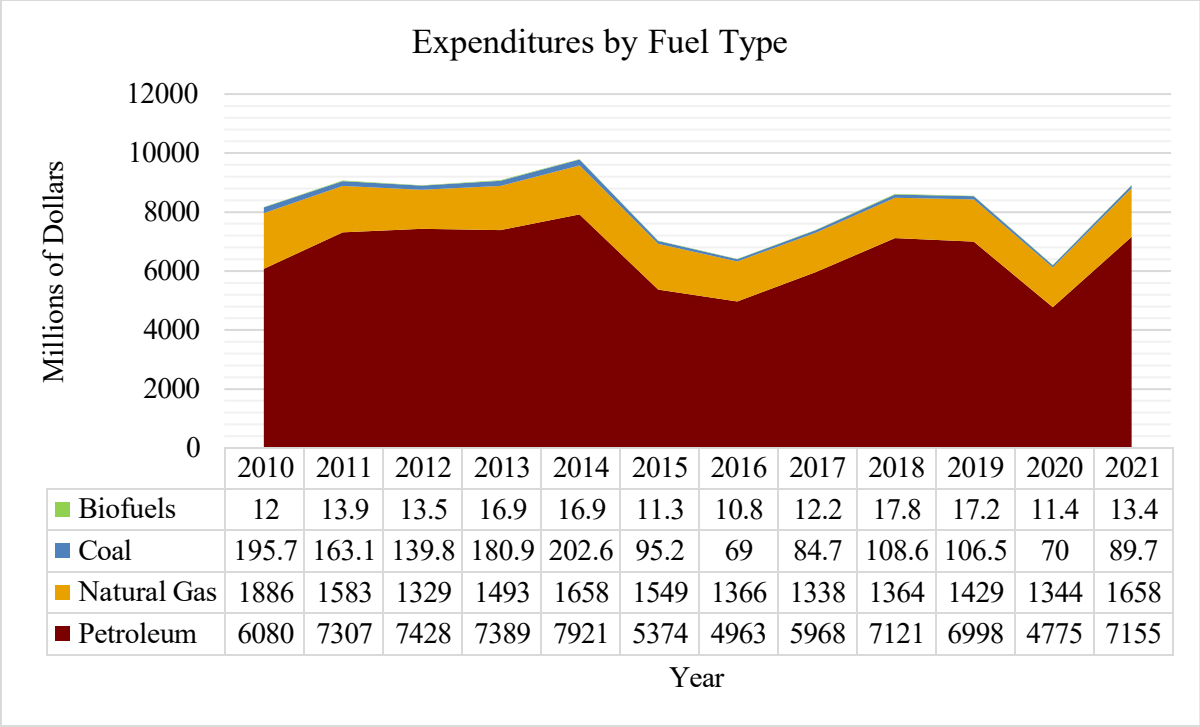
Table 2 Nevada Consumption and Expenditures



Picture 2. Nevada Energy Consumption Estimates

This graph above (Picture 2) shows Nevada's total energy consumption estimates for the past year. Each category is a fuel source, except for net electricity imports and net interstate flow of electricity. In 2021, Nevada consumed 305.2 trillion BTUs of Natural Gas, 131.8 trillion BTUs of Motor Gasoline, and 108 trillion BTUs of renewable energy (wind, solar, geothermal, etc.)- the remaining consumption consisted of 216.3 trillion BTUs of other petroleum products, hydropower, and coal.

On average, Nevada spends about 62% of their total fuel expenditures on petroleum products. Natural gas costs 14.38%, while coal accounts for 1.18% and biofuels .13% of the total expenditures on average. Last year, Nevada spent slightly more on petroleum and slightly less on coal. In the last 10 years, coal expenses have been reduced by over half.



Picture 3. Expenditures by Fuel Type

This chart above (Picture 3) shows expenditures on different types of fuel in millions of dollars over the past decade. While there are overall dips and increases, the overall proportions of expenditures remain largely the same.

Supply and Distribution

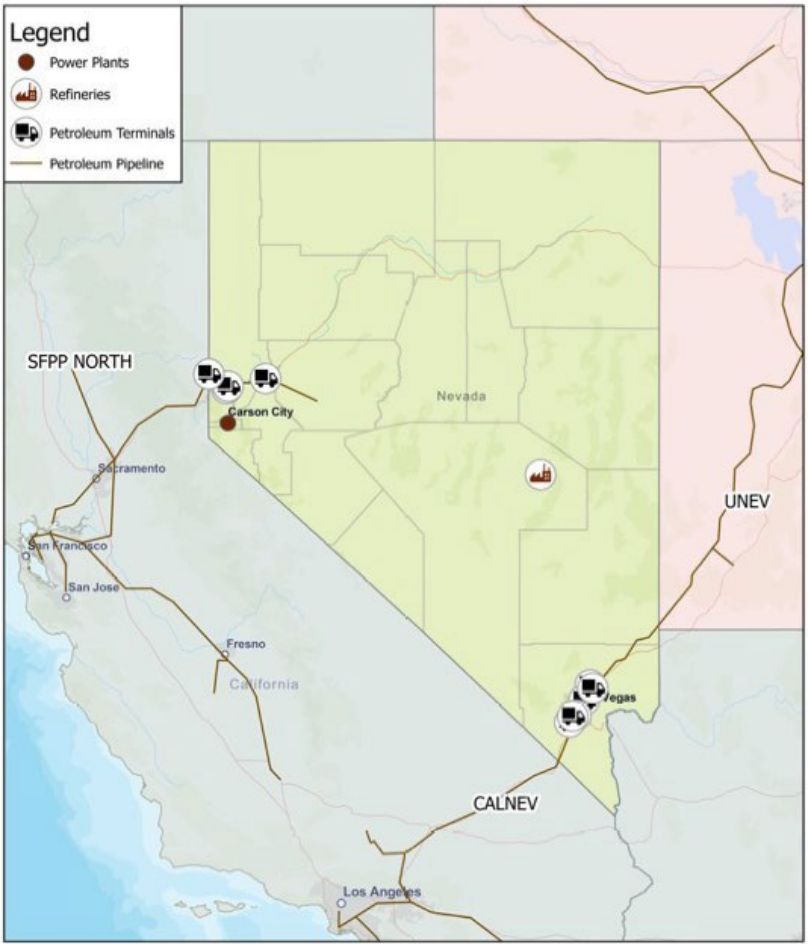
Production	Nevada	Share of U.S.
Total Energy	116 trillion BTU	.1%
Crude Oil	1,000 barrels/day	-
Natural Gas	4 million cu ft.	-
Net Electricity Generation	**Nevada**	**U.S. Average**
Natural Gas Fired	59.6%	40%
Coal Fired	4.5%	15.1%
Renewables	35.8%	25.1%

Table 3. Production and Generation

The table above (Table 3) references the production of energy and the net electricity generation of the State. Nevada produces negligible amounts of traditional fuels for electricity generation (crude oil and natural gas) and produces a small portion of the energy across the nation. Nevada produces almost 20% more electricity using natural gas than the average state, and much less than the national average using coal. Renewable energy in Nevada is higher than average, thanks to robust solar, hydroelectric, geothermal, and other resources.

Petroleum

Nevada does not have any significant crude oil reserves and has only a modest amount of production. According to the Nevada Division of Minerals, there are only 5 oil producers in the state. Petroleum exploration in the state was sporadic throughout the last century. Nevada's crude oil production reached a high of more than 4 million barrels per year in 1990, but annual production declined rapidly after that. In 2022, the state produced less than 230,000 barrels. Nevada has one crude oil refinery. It can process about 2,000 barrels of crude oil per calendar day and produces only asphalt and road oil. Nevada has one crude oil refinery. It can process about 2,000 barrels of crude oil per calendar day and produces only asphalt and road oil. The state gets its additional needed petroleum products from out of state. Las Vegas receives refined petroleum products like motor gasoline and diesel fuel by pipeline from refineries in Salt Lake City and Los Angeles, and the Reno area receives petroleum products from refineries in the San Francisco Bay area.



Picture 4. Map of Nevada petroleum assets

The map above shows some of Nevada's petroleum specific assets. Only petroleum fueled power plants are shown. Other infrastructure such as petroleum pipelines, product terminals, and a refinery are pictured. Though the state does produce small amounts of oil and natural gas, those well sites are not shown.

Because of their proximity, not all product terminals are visible on the map above. The following table (Table 4) summarizes what type of terminal is in use and what commodity is stored and used at the facility.

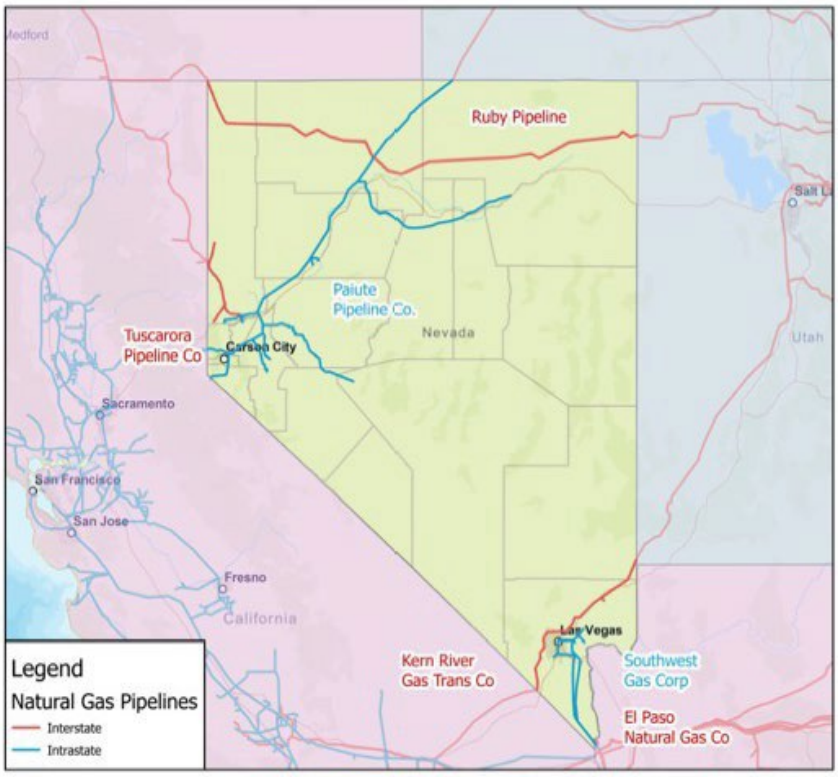
Petroleum Terminals			
Name	**Type**	**County**	**Commodity**
Swissport Fueling of Nevada, Inc	Airport Terminal	Clark	Refined
Swissport Fueling of Nevada, Inc	Airport Terminal	Washoe	Refined
Paramount Petroleum	Asphalt Terminal	Lyon	Asphalt
Las Vegas	Asphalt Terminal	Clark	Asphalt
Ergon Asphalt & Emulsions Incorporated - Las Vegas	Asphalt Terminal	Clark	Asphalt
Apex Terminal	Bulk Terminal	Clark	Refined, Chemicals
Kinder Morgan	Bulk Terminal	Clark	Refined, Chemicals
Pro Petroleum, Incorporated - Las Vegas Products Terminal	Bulk Terminal	Clark	Refined
Rebel Oil Company	Bulk Terminal	Clark	Not Available
Op Reno LLC	Bulk Terminal	Washoe	Refined
SFPP / Kinder Morgan Pacific Reno Terminal	Bulk Terminal	Washoe	Refined, Chemicals
SFPP, LP - Terminal 1	Bulk Terminal	Washoe	Refined
Western Energetix DBA Berry-Hinckley	Bulk Terminal	Washoe	Refined
North Las Vegas	Bulk Terminal	Clark	Refined, Biofuel
Kiva Energy - LP Terminal LLC Reno	LP Terminal	Washoe	Refined

Table 4. Nevada Petroleum Assets

Nevada's transportation sector consumes most of the petroleum products used in the state. In 2020, 86% of the petroleum consumed in Nevada went to that sector. Federal regulations require that both the Las Vegas and the Reno metropolitan areas use oxygenated motor gasoline during the winter months. Additionally, motor gasoline sold during the summer in Washoe County, including the Reno area, is a reduced volatility blend that lowers the emissions that contribute to the formation of ground-level ozone. Nevada's transportation sector consumes most of the petroleum products used in the state. In 2020, 86% of the petroleum consumed in Nevada went to that sector. Federal regulations require that both the Las Vegas and the Reno metropolitan areas use oxygenated motor gasoline during the winter months. Additionally, motor gasoline sold during the summer in Washoe County, including the Reno area, is a reduced volatility blend that lowers the emissions that contribute to the formation of ground-level ozone. Ethanol is used as an oxygenate for motor gasoline, but there are no fuel ethanol plants in Nevada. Ethanol is shipped into the state by rail and blended with motor gasoline at Nevada's petroleum product terminals.

The industrial sector consumes most of the petroleum that is not used in the state's transportation sector. It accounted for about 9% of Nevada's petroleum consumption in 2020. The commercial sector used about 3% and the residential sector, where about 3 in 100 Nevada households use petroleum products, mostly propane, for home heating, accounted for almost all the rest. A small amount is used for power generation. On a per capita basis, Nevada uses less petroleum than more than two-thirds of the states.

Natural Gas



Nevada has no significant natural gas reserves and only a minimal amount of natural gas production. Interstate pipelines bring the natural gas supply Nevada consumers use from other states. Natural gas is the leading energy source used to heat homes at 57.6%. In 2021, most of the natural gas that entered Nevada came through Utah. Nevada consumers used slightly more than one-fourth of the natural gas that entered the state. The rest continued on, with about three-fourths going to California and one-fourth to Oregon. Interstate pipelines bring the natural gas supply Nevada consumers use from other states. In 2021, most of the natural gas that entered Nevada came through Utah. Nevada consumers used slightly more than one-fourth of the natural gas that entered the state. The rest continued on, with about three-fourths going to California and one-fourth to Oregon. The commercial sector used about 12% of the natural gas delivered to Nevada consumers, and the industrial sector accounted for 6%. The transportation sector used a small amount of natural gas as compressed natural gas vehicle fuel. The map above shows only natural gas pipelines that operate in Nevada. Intrastate pipelines supply the state with natural gas while interstate pipelines generally carry products through and on to their destination. More information on natural gas pipelines can be found in Section VI, Energy Sources, as well as the Natural Gas Risk Profile.

Coal

There are no commercial coal deposits or coal mines in Nevada. However, the state's two coal-fired power plants, one utility operated and the other an industrial facility that generates power for its own use, are both located in northern Nevada. They are among the 10 largest power plants by generation in the state and they consumed about 1.6 million tons of coal in 2022. The North Valmy Generating Station is Nevada's only remaining utility-owned coal-fired power plant. It receives coal shipped by rail from mines in Wyoming, Utah, and Colorado. The TS Power industrial coal-

fired power plant receives the coal it needs by truck and rail from Utah. Annual total coal consumption in Nevada in 2021 was about one-fifth the amount used in the state in 2001. https://www.eia.gov/state/analysis.php?sid=NV

Renewables

In 2022, renewable energy sources generated 37% of Nevada's total electricity generation from both utility- and small-scale facilities. Utility-scale solar PV facilities generated more electricity than the state's hydroelectric plants for the first time in 2016, and more power than geothermal energy for the first time in 2017. Since 2016, the share of Nevada's in-state electricity generation from all solar sources has nearly tripled. In 2022, utility-scale and small-scale solar power—including from solar thermal power plants—provided almost two-thirds of Nevada's in-state generation from all renewable sources and 23% of the state's total electricity generation. Nevada leads the nation in solar power potential and ranks sixth in the nation in total solar capacity and generation.

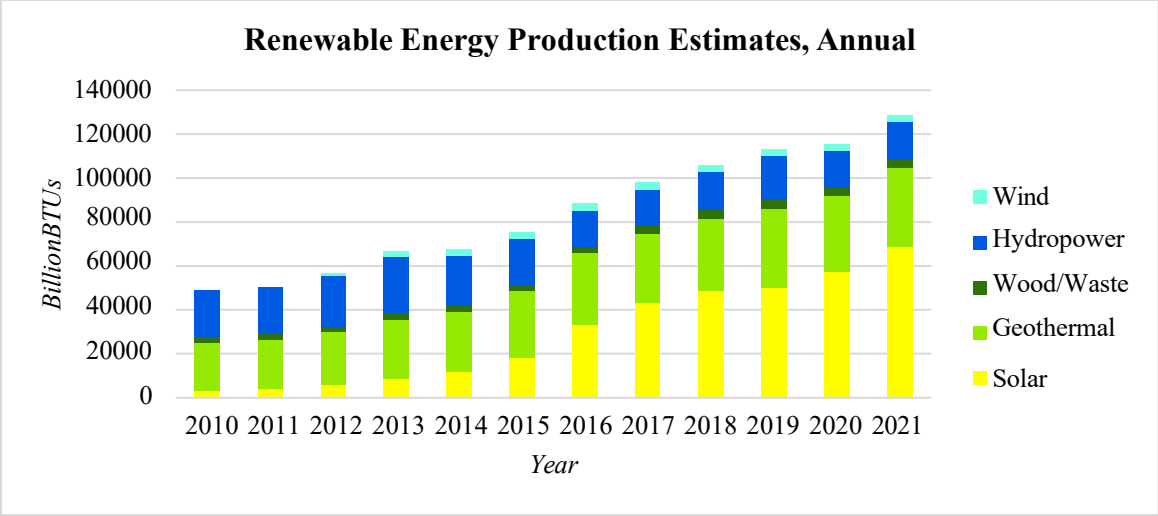
Nevada is one of seven states with utility-scale electricity generation from geothermal energy, and the state is second only to California in geothermal-sourced power production. Geothermal resources account for one-fourth of Nevada's generation from all renewable sources and 9% of the state's total electricity generation. https://www.eia.gov/state/analysis.php?sid=NV Among the state's electricity generating facilities is a first-of- its-kind hybrid geothermal-solar power plant, which combines geothermal power with solar PV and solar thermal generation. That facility began as a geothermal power plant in 2009, and PV panels were added later, creating a baseload geothermal facility with peaking solar generation in daytime, when air conditioning demand is greatest. In 2015, the facility added a solar thermal power plant, which raises the temperature of the geothermal fluids and increases the efficiency and amount of generation from the geothermal power plant.

Almost all of the rest of Nevada's renewable generation comes from its hydroelectric power plants, primarily Hoover Dam, the state's third-largest power plant by capacity and sixth largest by generation. Built in less than five years during the Great Depression, Hoover Dam has a generating capacity of about 2,080 megawatts, half of which is in Nevada and half is in Arizona. The U.S. Bureau of Reclamation operates the dam, which supplies electricity to Nevada, Arizona, and California. Hoover Dam is a National Historic Landmark.

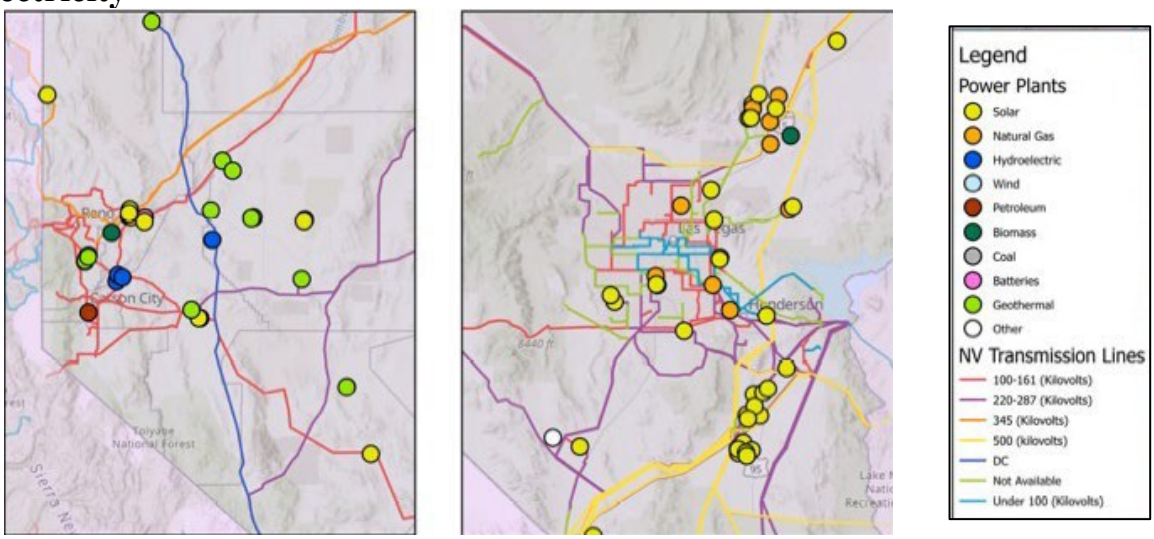
Nevada's wind resource potential is on scattered mountain ridges across the state. Because the federal government owns and manages 80% of the state's land, most utility-scale wind projects need federal approval. Nevada's first utility-scale commercial wind farm opened in 2012. The 150-megawatt wind farm is the only utility-scale wind project online in the state. No new utility-scale wind projects were in development as of February 2023.

Nevada first enacted a Renewable Portfolio Standard (RPS) in 1997 and has modified it several times since, most recently in 2019. It now requires that at least 50% of the electricity that utilities sell to Nevada customers must come from renewable sources by 2030. The incremental goal for 2022-23 was 29%, which included 6% from solar energy.

This graph below illustrates renewable energy production by fuel type across the last decade. Solar power has increased significantly, and geothermal power has continued to grow. Overall, renewable energy production totals have more than doubled since 2010.



Electricity



Natural gas fuels the largest share of Nevada's electricity generation, and 8 of the state's 10 largest power plants by capacity and 7 of the 10 largest by generation are natural gas fired. In 2022, natural gas fueled 56% of Nevada's total in-state electricity generation from both utility-scale (greater than 1 megawatt capacity) and small-scale (less than 1 megawatt capacity) plants. Because Nevada is the driest state in the nation, minimizing the use of scarce water is a priority. The state's largest generating plant, the 1,100-megawatt Chuck Lenzie Generating Station near Las Vegas, uses high-efficiency natural gas combined-cycle technology and recycles three-fourths of the water it uses. The facility also reduces water use with a dry-cooling system that allows the combined-cycle plant to use 7% as much water as an equivalent conventional water-cooled power plant. The map above on the left shows a closer view of electrical infrastructure near the Reno and Carson City (State's capital), including types of power plants and electrical transmission lines. The map above on the right shows a closer view of Nevada's most populous area, Las Vegas and Henderson. Note the high frequency of solar power plants: sunny southern Nevada has some of the highest solar potential in the country.

Ten Largest Plants by Generation, 2021

	Plant	Primary energy source	Operating company	Generation (MWh)
1	Chuck Lenzie Generating Station	Natural gas	Nevada Power Co	6,101,231
2	Tracy	Natural gas	Sierra Pacific Power Co	4,206,378
3	Harry Allen	Natural gas	Nevada Power Co	3,088,051
4	Higgins Generating Station	Natural gas	Nevada Power Co	2,842,790
5	Apex Generating Station	Natural gas	Los Angeles Department of Water & Power	2,796,245
6	Hoover Dam (NV)	Hydroelectric	U S Bureau of Reclamation	1,905,145
7	Silverhawk	Natural gas	Nevada Power Co	1,628,992
8	North Valmy	Coal	Sierra Pacific Power Co	1,568,146
9	TS Power Plant	Coal	Nevada Gold Energy, LLC	1,192,341
10	Desert Star Energy Center	Natural gas	Desert Star Energy Center SDG&E	999,264

Table 5. Ten Largest Plants by Generation, 2021

Natural gas fuels the largest share of Nevada's electricity generation, and 8 of the state's 10 largest power plants by capacity and 7 of the 10 largest by generation are natural gas fired. In 2022, natural gas fueled 56% of Nevada's total in-state electricity generation from both utility-scale (greater than 1 megawatt capacity) and small-scale (less than 1 megawatt capacity) plants. Because Nevada is the driest state in the nation, minimizing the use of scarce water is a priority. The state's largest generating plant, the 1,100-megawatt Chuck Lenzie Generating Station near Las Vegas, uses high-efficiency natural gas combined-cycle technology and recycles three-fourths of the water it uses. The facility also reduces water use with a dry-cooling system that allows the combined-cycle plant to use 7% as much water as an equivalent conventional water-cooled power plant.

In 2022, renewable energy resources—mainly solar, geothermal, and hydroelectric power—accounted for 37% of Nevada's total in-state electricity net generation. Solar thermal and utility- and small-scale solar photovoltaic (PV) energy together supplied about 23% of the state's total, while geothermal energy provided 9%. Hoover Dam, one of the nation's largest hydroelectric dams, is on Nevada's border with Arizona and has power plants in both states. Hydroelectric power, including Nevada's share of Hoover Dam, provided about 4% of the state's total electricity net generation in 2022. Wind and biomass provided the rest of Nevada's renewable generation.
Coal fueled about 6% of Nevada's total electricity generation in 2022, down from more than 51% two decades earlier. Two of the state's coal-fired power plants, which were located in southern Nevada, closed in the previous decade and a third coal-fired power plant that supplies electricity to northern Nevada towns is scheduled to retire in 2025. The only other coal-fired power plant in Nevada is an industrial facility that began operating in 2008. It provides electricity to gold and copper mining operations in the desert near Elko and sells its excess generation to the regional electricity transmission company.

Consumption for Electrical Generation	Nevada	Share of U.S.
Petroleum	1 thousand barrels	.1%
Natural Gas	14.767 million cu ft.	1.6%
Coal	97 thousand short tons	.3%

Table 6. Consumption for Electrical Generation

In 2022, total electricity consumption in Nevada was nearly evenly distributed among the state's residential, industrial, and commercial sectors, and Nevada's average electricity price was less than in more than half the states. The residential sector, where more than one in three households use electricity for home heating and most use air conditioning, accounted for more than one-third of the state's electricity consumption. The commercial sector, including the famously bright lights on the Las Vegas strip, used about one-third, and the industrial sector consumed almost all the rest. Nevada's transportation sector accounted for a small amount of the state's electricity consumption. Nevada also continues to add charging stations to its electric highway infrastructure. As of March 2023, there were almost 480 public electric vehicle charging stations in Nevada, more than 80 of which were direct current fast-charging facilities.

Nevada's electricity consumption sometimes exceeds in-state generation, and additional electricity supplies enter Nevada over high-voltage transmission lines from other states. Prior to 2014, two separate transmission grids provided power to Nevada. The one in the southern part of the state supplied the Las Vegas area, and the one in the northern part of the state supplied many communities, including the Elko and Reno areas. In 2014, the One Nevada transmission project, which runs the length of the state, connected the two grids. That connection, along with other newer transmission lines in the state, links renewable electricity generation near Las Vegas and Reno, as well as in more remote parts of Nevada, to the state's population centers. Another large-scale transmission project in development will cross through Nevada, allowing delivery of power generated from renewable resources in Wyoming to market centers in California, Arizona, and Nevada.

Utility Name	Ownership Type	Total Customer Count	% of State's Customers	Total Sales (MWh)
Nevada Power Co	Investor Owned	984,758	67.74%	20,721,171
Sierra Pacific Power Co	Investor Owned	365,420	25.14%	9,556,728
Valley Electric Assn, Inc	Cooperative	23,815	1.64%	556,055
Overton Power District No 5	Political Subdivision	17,050	1.17%	414,422
City of Boulder City - (NV)	Municipal	8,014	0.55%	152,717
Mt Wheeler Power, Inc	Cooperative	7,307	0.50%	572,030
Wells Rural Electric Co	Cooperative	5,677	0.39%	734,343
City of Fallon - (NV)	Municipal	4,890	0.34%	88,614
Lincoln County Power Dist. No 1	Political Subdivision	2,048	0.14%	55,526
Raft Rural Elec Coop Inc	Cooperative	1,813	0.13%	49,829
Harney Electric Coop, Inc	Cooperative	1,363	0.09%	119,652
Alamo Power District No 3	Political Subdivision	737	0.05%	14,133
Surprise Valley Electrification	Cooperative	10	0.00%	109

Table 7. Nevada Utility Companies

This table reflects utility companies in Nevada that provide the majority of the electricity in the State. Nevada Power, which serves Southern Nevada, and Sierra Pacific Power, which serves Northern Nevada, are both subsidiaries of NV Energy. Outside of those listed, remaining Nevada power is provided by smaller municipal systems and rural cooperatives.

SECTION V – NEVADA ENERGY SOURCES

The State of Nevada Public Utilities Commission compiles providers of Electric, Natural Gas, LP Gas, and Geothermal Heating services within the state.

Company Name	Sector
Harney Electric Cooperative, Inc.	Electric
Mt. Wheeler Power, Inc.	Electric
Nevada Power Company	Electric
Plumas-Sierra Rural Electric Cooperative, Inc.	Electric
Raft River Rural Electric Cooperative, Inc.	Electric
Sierra Pacific Power Company	Electric
Surprise Valley Electrification Corporation	Electric
Prospector Pipeline Company	Natural Gas
Sierra Pacific Power Company	Natural Gas
Southwest Gas Corporation	Natural Gas
AmeriGas Propane	LP Gas
Wendover Gas Company	LP Gas
Avalon Geothermal, LLC	Geothermal
Elko Heat Company	Geothermal
Constellation Energy Generation, LLC	New Electric Resources
EGP Nevada Power, LLC	New Electric Resources
Macquarie Energy LLC	New Electric Resources
Morgan Stanley Capital Group Inc.	New Electric Resources
Shell Energy North America (US), L.P.	New Electric Resources
Tenaska Power Services Co.	New Electric Resources
Brookfield Renewable Energy Marketing US LLC	New Electric Resources
BP Energy Company	Alternative Natural Gas
Calpine Energy Solutions, LLC	Alternative Natural Gas
CIMA ENERGY, LTD.	Alternative Natural Gas
EDF Energy Services, LLC	Alternative Natural Gas
EDF Trading North America, LLC	Alternative Natural Gas
IGI Resources, Inc.	Alternative Natural Gas
Just Energy Solutions Inc.	Alternative Natural Gas
North Star Gas Company, LLC	Alternative Natural Gas
Pacific Summit Energy, LLC	Alternative Natural Gas
Shell Energy North America (US), L.P.	Alternative Natural Gas
Shell Energy North America (US), L.P.	Alternative Natural Gas
Spark Energy Gas, LLC	Alternative Natural Gas
Summit Energy Marketing, LLC	Alternative Natural Gas
Symmetry Energy Solutions, LLC	Alternative Natural Gas
Tiger Natural Gas, Inc.	Alternative Natural Gas
Twin Eagle Resource Management, LLC	Alternative Natural Gas
U.S. Energy Services, Inc.	Alternative Natural Gas
World Fuel Services, Inc.	Alternative Natural Gas

SECTION VI – NEVADA THREATS AND HAZARDS

The following Threats and Hazards are listed in order of likelihood and energy-related impacts based on a High, Medium, Low potential or probability scale.

EARTHQUAKE

The State of Nevada is one of the most seismically active states in the Union. It ranks in the top three states subject to the largest earthquakes over the last 150 years, with only Alaska and California having experienced more events. Over 250,000 earthquakes have been recorded within or adjacent to the state since 1857. During this same period another one million earthquakes (estimated) occurred but were not recorded. The Nevada Seismological Laboratory (Seismo Lab) records between 8,000 and 17,000 background earthquakes each year in Nevada. The largest earthquakes were over magnitude 7 and shook the entire state. More than 25 Nevada communities have experienced damage from earthquakes during this same time period, at least eight of these communities experienced repetitive earthquake damage, and every community has felt significant shaking. Fifteen out of seventeen counties have experienced historical earthquake damage or surface faulting. Earthquakes are responsible for the formation of the Nevada mountain ranges, which continue to develop. Seismicity, earthquake faults, and geodetically measured deformation all indicate that future large earthquakes can occur anywhere in the state. In the short term, personal preparedness, emergency response planning, and community recovery planning are critical. In the long term, constructing seismically resilient buildings, planning future development around earthquake faults, and developing earthquake early warning systems will help reduce injuries and damage from future earthquakes.

Nevada is undergoing two fundamental Earth forces that create the stresses that cause earthquakes. One is extension, or the pulling apart, of the crust. Extension occurs throughout Nevada. As the crust extends, some portions drop down, creating valleys, while other areas are uplifted and become mountains. Normal dip-slip faults, faults with principally downward motion on a dipping surface, bound most mountain ranges in Nevada. The second force is from the boundary between the Pacific Plate and the North American Plate located primarily along the coast of California (where there is also an earthquake hazard). This boundary displays lateral motion and creates strike-slip faults. About a fifth of this plate boundary motion is accommodated in western Nevada in a region known as the Walker Lane belt. This region has experienced large strike-slip and normal dip-slip earthquakes.

Probability of Future Energy-Related Earthquake Events: High
Potential of Impacts to Energy Sector: Extremely High

In Nevada, earthquake faults occur along many of the range fronts, within ranges, and within valleys. Normal dip-slip faults, those that down-drop the ground during earthquakes, commonly appear as steps in the landscape because of the vertical offset. Strike-slip faults, that offset the ground sideways, are usually expressed as linear features in the landscape, such as elongate valleys, and alignments of features, such as springs and vegetation. Historical earthquakes have ruptured both kinds of faults in Nevada. An indicator of future earthquakes is recent past earthquake activity of faults. Faults have been created throughout Earth's history. Old faults are commonly inactive and are not considered threatening. For earthquake hazards, the most recently active faults are of concern. Three earthquake scenarios with energy-related impacts are included in the 2025 Threat and Hazard Identification and Risk Assessment (THIRA):

- A magnitude 6.9 earthquake occurred along the active Mount Rose Fault resulting in significant damage/disruption to infrastructure and energy/fuel delivery systems, the moderate to severe damage of 1,20045,000 residential structures, small to medium sized businesses, casinos, and other structures/facilities, out to 40 miles from the epicenter residential structures, moderate to severe damages to 300 small to medium sized businesses, and other damage out to 40 miles from the epicenter. An estimated 609,018 people are affected . There are an estimated 1,000 fatalities, 75,000 injured, and 60,000 animals affected. Approximately 285,000 – 310,000 customers are affected by the loss of water, wastewater, communications, and power. This event would displace +/- 5,000 persons, inflict moderate to severe injury to 3,000 persons, and cause 50 deaths.
- A magnitude 7.8 Earthquake on the San Andreas Fault with epicenter near Salton Sea. This earthquake will result in damage out to 60 miles from the epicenter, impacting fuel, vehicular transportation, and power through Cajon Pass and the I-15 corridor to Las Vegas. While mass migration from impact areas within Southern California may occur with as many as 50,000 persons seeking temporary shelter, fuel disruption to the Las Vegas area and McCarran Airport is ongoing for 7-10 days.
- A magnitude 6.0 earthquake occurs along a major fault in Northeast Nevada during the middle of the work/school day in February during a week of winter storms resulting in significant damage/disruption to critical infrastructure (water, sanitation, communications, power, transportation). There is moderate to severe damage to 50 residential structures, small to medium sized businesses, casinos, and other structures/facilities, out to 40 miles from the epicenter. Up to 200 buildings/facilities require inspection. An estimated 3,000 people are affected. There are an estimated 3 fatalities, 50 injured, and 150 animals affected. Approximately 1,000 customers are affected by the loss of water and wastewater service. An estimated 50 people require sheltering, including 4 with access and functional needs.

Mitigating the potential impact of earthquakes within the energy sector in Nevada, particularly from a catastrophic regional earthquake in California requires a comprehensive approach that focuses on both prevention and preparedness. Before the construction of future facilities, entities should conduct thorough geotechnical assessments and site investigations before constructing energy infrastructure, such as power plants, substations, and transmission lines. Entities should also consider the seismic hazard maps and geological data of the region. Government agencies should implement stringent building codes and standards that account for seismic activity, including appropriate structural design, reinforcement, and foundation engineering techniques. For existing facilities, agencies should identify older energy infrastructure that may be vulnerable to seismic activity and prioritize retrofitting or strengthening measures to enhance their resilience. Energy partners should retrofit transmission towers, power plants, and other critical facilities with seismic dampers, base isolators, and other structural enhancements to absorb and dissipate earthquake energy. Investments in diversification of fuel transmission and storage capability increases will require a strategic approach to mitigate regional catastrophic earthquake effects.

WILDFIRE

A wildfire is a type of fire that spreads by consumption of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildfires can be caused by human activities such as arson or campfires or by natural events such as lightning. Wildfires are not confined to forests but can easily ignite in other areas with adequate vegetation or fuel volumes and continuity such as sagebrush or annual invasive grasses. Additionally,

wildfires can be classified non-Wildland Urban Interface (WUI) or WUI fires based on their juxtaposition to structures and communities. The WUI is the zone of transition between unoccupied land and human development. It is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. WUI wildfires can then be further classified into urban fires, interface or intermix fires based on the density of structures and amounts of fire fuel between the structures.

Nevada is susceptible to weather that may range from prolonged periods of drought to periods that are marked by above average precipitation. These weather fluctuations result in millions of acres of dead or dying vegetation, which rapidly dry out under normal summer weather conditions. The dry, hot conditions and windy weather patterns characteristic of Nevada's summers combine with vegetation conditions that fuel fast-moving, high-intensity wildland fires. Nevada also experiences off-season wildfires in drier fall and winter conditions when adequate herbaceous fuels loads exist and are not covered by snow. These can easily be as devastating to communities in the WUI as wildfires occurring in the traditional wildfire season.

Probability of Future Energy-Related Wildfire Events: High
Potential of Impacts to Energy Sector: Medium

Nearly the entire State of Nevada is at risk to wildfires due to fuel-loading, ignition risk, weather, and topography. No specific area, other than playas, lakes, and parking lots, of the State are immune to this risk. Based on reported locations, wildfires are clustered largely near human population centers, though that is also where the best detection methods and suppression resources are located.

Based on historical data and current trends (including climate change), scale, severity and probability for large wildfires are increasing in all parts of the state. For example, during early July of 2016, the Hot Pot fire was burning at a rate of roughly 3 acres burned every second, 166 acres every minute and 10,000 acres every hour — for a total of 56,000 acres in one continuous run. This kind of fire behavior is becoming normal for many different fuel types and regions in Nevada.

To respond to changes in the climate and environment that are contributing to an increased risk of wildfires and other natural disasters, energy providers continue to implement a number of measures to help protect customers, equipment and environment from wildfires and extreme weather. This includes:

- Implementing a pilot program to install a fire mesh product on poles in most at-risk fire areas in Genoa. In the event of a wildfire, the mesh will expand to form a protective barrier for the wooden pole.
- Partnering with the Nevada Division of Forestry to reduce the risk of wildfire through goat grazing.
- Installing wildfire cameras and weather stations in natural disaster risk zones across service territories.
- Partnering with fire protection services to clear targeted areas of hazardous vegetation.
- Inspecting more than 85,000 wooden poles in high-risk areas and making any critical repairs and corrections.
- Increasing the frequency of vegetation management cycles in high fire risk areas. Since 2020, more than 70,000 unhealthy or hazardous trees in these areas have been trimmed or removed for safety. Providers also conduct weekly fuel sampling of live and dead fuels in these areas as part of monitoring efforts.

FLOOD

Flooding is the accumulation of water where there usually is none, or the overflow of excess water from a stream, river, lake, canal, reservoir, or coastal body of water onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods. Flooding may occur slowly over several days as a result of rainfall or snowmelt, or rapidly due to an event such as an earthquake or dam failure.

Floods also occur along streams and arroyos (stream channels that are normally dry) that do not have classic floodplains. These include flash floods in mountains (sometimes with rapidly rising water several tens of feet deep) and on alluvial fans, which are typically fan-shaped, gently sloping areas between the steep parts of mountain ranges and the nearly flat valley floors. Because much of Nevada is part of the Great Basin (an area of internal drainage, in which streams are not connected to rivers that flow to the oceans), flood waters commonly drain into interior lakes (e.g. Walker Lake at the terminus of the Walker River, Pyramid Lake at the terminus of the Truckee River), wetland areas (e.g. Carson Sink at the terminus of both the Carson and Humboldt Rivers), or playas (normally dry lake beds, such as Roach Lake, south of Las Vegas, where the Southern Nevada Supplemental Airport is planned). Floods are described in terms of their extent (including both the horizontal surface area affected and the vertical depth of floodwaters) and the related probability of occurrence.

Floods from snowmelt caused by heavy, long-duration rainfall can occur anytime between October and March. Flooding is more severe when antecedent rainfall has resulted in saturated ground conditions, when the ground is frozen and infiltration is minimal, or when warm rain on the snow in higher elevations of the tributary areas adds snow melts to rain flood run-off. These storms are also known as wet-mantle storms. Severe but localized flooding may also result from cloudburst storms centered over tributary basins. These storms may occur from late spring to early fall, but generally occur in June, July, and August. Runoff from cloud bursts is characterized by high peak flows with a short duration. These storms are also known as dry-mantle storms, causing flash floods or debris flows.

Probability of Future Energy-Related Flood Events: High
Potential of Impacts to Energy Sector: Medium

Floods are natural events that are considered hazards only when people and property are affected. Nationwide, on an annual basis, floods have resulted in more property damage than any other natural hazard.

Mitigating the impact of flooding on the energy sector in Nevada requires a combination of preventive measures and preparedness strategies. Mitigation measures that can help minimize the effects of flooding on the energy sector include:

- Risk assessment and planning: Conduct comprehensive risk assessments to identify areas prone to flooding and their potential impact on energy infrastructure. Develop floodplain maps and models to understand flood patterns and potential vulnerabilities.
- Infrastructure protection: Implement measures to protect critical energy infrastructure, such as power plants, substations, and transmission lines, from flood damage. This may include elevating equipment above flood levels, installing flood barriers, reinforcing structures, or relocating infrastructure away from flood-prone areas.
- Flood forecasting and early warning systems: Develop or improve flood forecasting systems to provide early warning of potential flooding events. This allows energy companies to prepare and take preventive measures in advance, such as shutting down equipment, securing vulnerable areas, or activating emergency response plans.

On April 27th, 2023, the then President Biden approved Nevada's Major Disaster Declaration for areas affected by the severe winter storms, flooding, landslides, and mudslides March 8-19th, 2023. According to the Disaster Declaration and Preliminary Damage Assessment, the primary impact of the event was over $10 million in damage to public utilities.

DROUGHT

According to the National Weather Service, drought is defined as a prolonged period of time during which there is an extended deficit of precipitation below normal amounts over one or more seasons spread over a considerable geographical area. This differs from normal desert conditions that exist in Nevada, where county-average annual precipitation ranges from four inches per year in Clark County to 12 inches in Storey County, averaging nine inches per year statewide, making it the driest State in the U.S. Severity of drought can be aggravated by other factors such as high temperature, high wind, and low relative humidity. Drought damages agriculture, tourism, fish and wildlife, water, and sewer systems, which in turn impacts the State's economic, environmental, social, and municipal structure.

The National Oceanic and Atmospheric Administration, in partnership with the United States Department of Agriculture (USDA) and the National Drought Mitigation Center, provides the weekly U.S. Drought Monitor, viewable by State, to help the public mitigate losses and maximize economic gains relative to drought. Since the drought outlook changes constantly and could change significantly before this report is revised, real-time updates for these maps are available at this link: https://droughtmonitor.unl.edu/. The site includes seasonal temperature and precipitation predictions out to 12 months and drought forecasts three months in advance.

Droughts have been a major cause of economic loss and environmental damage throughout the history of the State of Nevada. Prolonged drought has caused crop failures, livestock and wildlife loss, and potable water shortage. Additionally, drought has caused insect infestations, dust storms, and Wildland-Urban Interface (WUI) fires.

In 2022, after a sustained regional drought, the water levels at Lake Mead fell to 1,040 feet, its lowest point for 85 years (April 1937). Lake Mead is the largest manmade reservoir in the country, formed by the Hoover Dam, spanning the states of Arizona and Nevada. The Hoover Dam typically can produce around 2,080 megawatts of hydropower – enough electricity for roughly 1.3 million Americans each year, according to the National Park Service – for California, Arizona, and Nevada, as well as Native American tribes. The regional drought resulting in declining water flow has cut the dam's power generation capacity almost in half, around 1,076 megawatts, as of June 2022. Without the dam's electricity, Southwest energy suppliers were forced to look for alternative energy sources to fill the void.

Probability of Future Energy-Related Drought Events: High
Potential of Impacts to Energy Sector: Low

Periods of drought will continue to impact Nevada and the hydropower production within Nevada and at plants outside the State that transmit electricity into Nevada. During drought periods, alternate fuels compensate for the power shortfall. One such example, in March 2023, utility regulators in Nevada gave the State's largest power provider clearance to start work on a $333 million project to build a natural gas plant in the State for the first time in nearly 15 years, as a consequence of the extreme drought conditions in the southwestern U.S. The two gas-fired turbines to be erected north of Las Vegas by NV Energy are expected to come online by July 2024 amid hotter summers and longer wildfire seasons in a state that aims to have a carbon-free power grid by 2050. Nevada's Public Utilities Commission approved the plans and stated the turbines are needed to address peak electricity demand in the summer months, as ever-drying conditions in the

West continue to stress the region's power grids and slash hydroelectric output.

CYBERSECURITY-RELATED EVENT

CYBER WITHIN ENERGY

Energy systems (electric, oil and natural gas) within Nevada use computing technologies to manage business systems and to control and monitor the processes and transportation of energy from production/generation to end use. The energy sector relies heavily on both information technology (IT) systems and operational technology (OT) systems.

OT systems include industrial control systems (ICS) that consist of purpose-built hardware, software, and data networks developed specifically for industrial customers. These systems were designed and built using tools and technology created before the Internet and technology boom of the late 90s. While these older systems are still in use, they have evolved and adopted newer technologies, including IT technologies built to allow internet connections.

Today the energy sector is technology driven, and these changes have resulted in many benefits including improvements to efficiency, resiliency, and flexibility. However, cybersecurity vulnerabilities and the capabilities of malicious actors have also changed over the past 20 years. Cyber threats are not limited to personally motivated individuals. Threats also come from well financed criminal and nation-state groups focused on profit, political gain, or power. The skill level and ability of these groups to compromise Internet-connected, Internet-adjacent, or even traditional ICS assets that were never designed to connect to the internet continues to grow.

TECHNOLOGIES

OT systems interact with the physical environment or manage devices that interact with the physical environment. These systems monitor or control physical devices, processes, and events. Examples include:

- Energy Management Systems and Supervisory Control and Data Acquisition (SCADA)
- Oil refinery, gas processing and electricity generation distributed control systems
- Pipeline pump/compressor stations and electrical substations
- General industrial control systems used in energy processes

A key area of distinction between IT and OT systems is that a cyber incident within energy OT systems can result in a physical consequence in addition to potential losses of data or damage to an organization’s reputation. Some differences in the possible consequences/impact of an attack on an IT system compared with an OT system are described in Table 8.

Table 8. Potential Impacts of a Cyber-attack on Energy Infrastructure

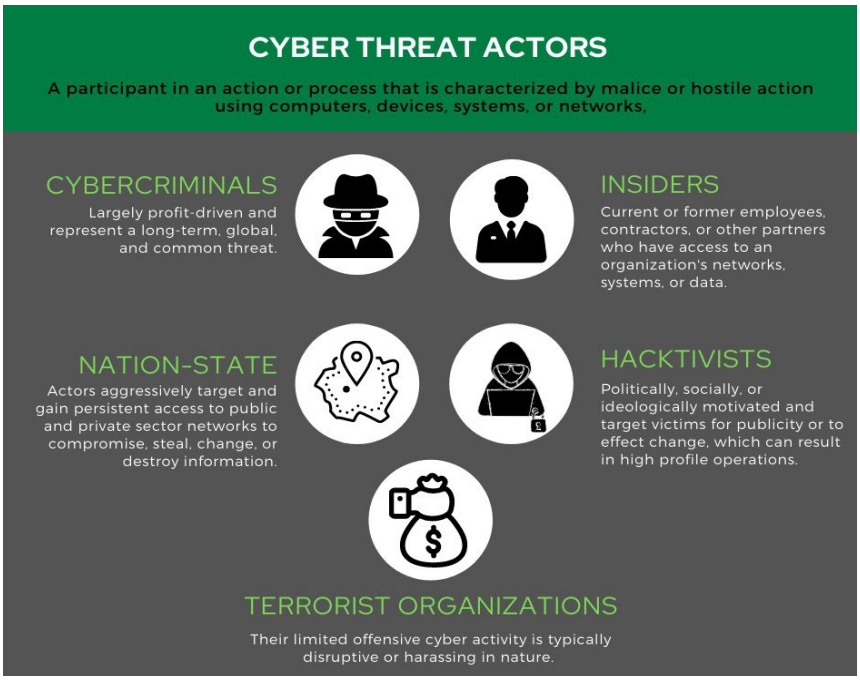
	Information Technology	Operational Technology
Impacts	• Brand damage/ loss of confidence in company • Loss of personally identifiable information (PII) • Loss of business data • Customer/supplier payment issues	• Operator loses visibility into operations • Operator forced to switch to manual operations mode • Supply fails to meet demand • Disruption to basic daily activities – loss of power or access to fuel. • Impacts from prolonged disruptions can cascade into larger consequences

A cyber-physical event can cause loss of power or access to fuel, initiate prolonged cascading impacts, create potential risks to health and safety, and result in economic impacts to not just the company but to the people and businesses that rely on that energy. For cybersecurity best practices for industrial control systems, CISA and DOE created an infographic outlining key areas of consideration.

CYBERSECURITY THREATS

The Annual Threat Assessment that the Office of the Director of National Intelligence (ODNI) released in 2022, emphasizes, as it has in the past, that cyber threats from nation states remain acute. ODNI's concerns are focused on Russia, China, Iran, and North Korea, all of whom currently possess the ability to remotely damage infrastructure in the US or compromise supply chains. We know that adversaries – whether politically, socially, or financially motivated – are targeting our nation's energy infrastructure and the digital supply chain. Graphic 1 shows categories of different kinds of threat actors and Graphic 2 shows different kinds of cyber-attacks used by attackers.

Graphic 1. Cyberthreat Actors



The energy sector is uniquely critical because all of the other critical infrastructure sectors depend on power and fuel to operate. Unfortunately, this makes the Nation's energy infrastructure an attractive target for cyber-attacks. Graphic 2 lists known cyber-attacks that have impacted energy systems. All energy systems have vulnerabilities to cyber threats, 100% security is not possible. But many steps can be taken to harden OT systems to mitigate these threats.

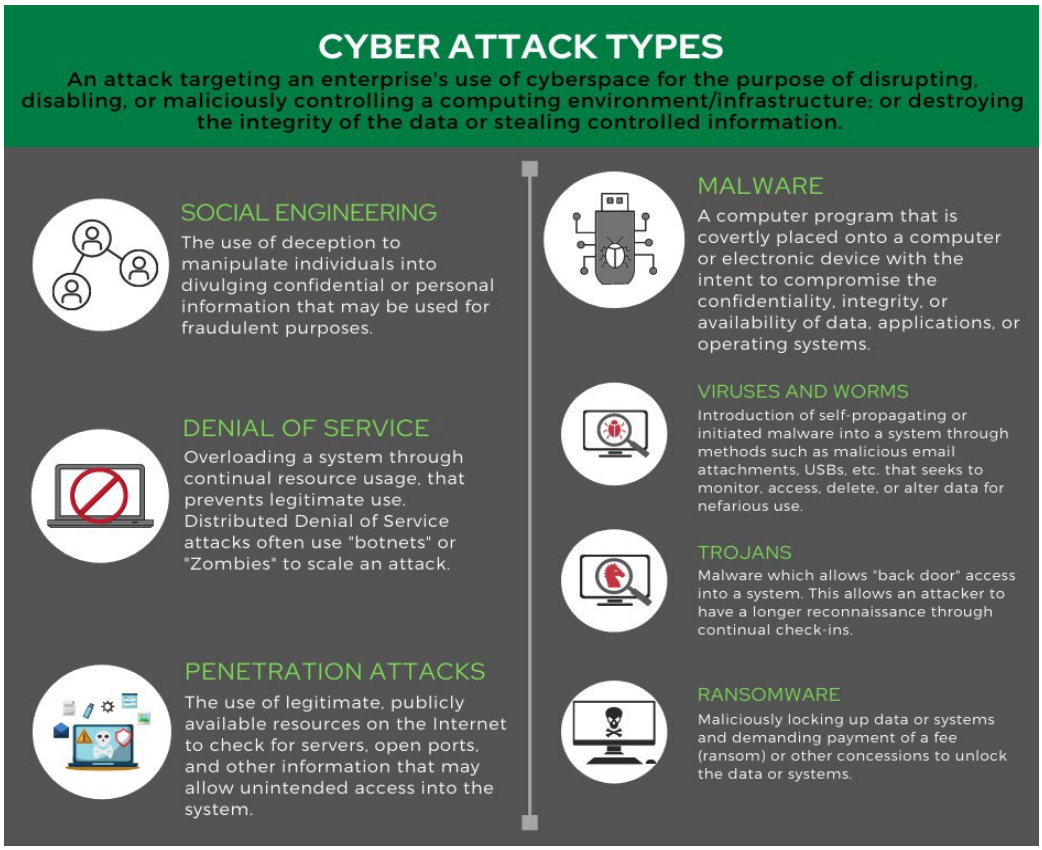
Understanding the current and evolving threat landscape as well as possible consequences of a cyber-physical event can help state officials and energy owners and operators understand the risks. Knowledge about risks can then be used to prioritize investments, such as purchases, staff resources, and training, based on the kinds of threats and vulnerabilities that pose the greatest risks to an organization. Investments can be focused on areas that can mitigate the highest risks. Because the majority of the nation's critical infrastructure is owned and operated by private companies, both the government and private sector have a common incentive to reduce the risks of disruptions to critical infrastructure. The National Infrastructure Protection Plan (NIPP) recognizes that public-private partnerships are vital to keeping critical infrastructure safe and secure, including from cyber-attacks.

CYBERATTACK TYPES

In addition to understanding who cyber threat actors are, it is also important to understand the different methods those actors may use to compromise important systems, networks, and infrastructure. Common types of cyber-attacks are listed in Graphic 2.

Graphic 2. Cyberattack Types

GOE ORGANIZATIONAL CYBERSECURITY



Cyber incidents require the involvement of many entities, and GOE is among those consulted for energy-specific subject matter expertise. Cyber incidents require the involvement of many entities, and GOE is among those consulted for energy-specific subject matter expertise. While the GOE will likely not be the lead agency during cyber incident response, as Emergency Support Function 12 (ESF-12 – Energy) in the Nevada Emergency Operations Center (NVEOC), GOE provides energy sector context to the broader response, is aware of major energy sector stakeholder cybersecurity plans and assets and knows which external partners are most appropriate to engage. GOE ensures that any future developments have energy sector buy-in, including private sector engagement and discussions with appropriate federal entities.

GOE is integrating the following measures into its cybersecurity plan:

- GOE is concerned with internal cybersecurity, as it is fundamental to ensure that the technology upon which we rely is secure. Following an energy sector cyber incident, GOE is likely to have some responsibility for consequence management and information-sharing. Communication with critical energy infrastructure entities is, in steady state, accomplished via email secured through the State of Nevada. GOE is in communication with the Governor's Technology Office that provides information technology services and support to GOE and other agencies to review their cybersecurity approach. GOE staff are also kept familiar with how and where its organization files, stores, and backs-up all records.
- For engagement with other state agencies, GOE's view of cybersecurity is broad, and it has taken a broad approach to engagement with other state agencies that overlap with ESF-12 functions or lead in emergency support incident management. This includes work with the Office of Emergency Management that leads the State EOC, the Public Utilities Commission, the Division of Environmental Protection (ESF-10), the Department of Agriculture (ESF-11 and the regulatory authority for petroleum).
- For engagement outside of state entities, GOE's view of cybersecurity is broad, and has adopted an inclusive portfolio to include regulated, non-regulated, and consumer-owned utilities (both electric and natural gas), liquid fuel distributors and producers, and renewable energy generators. Considerations for energy-interdependent and system- integrated critical infrastructure, such as water treatment facilities, microgrids at key government buildings, and significant petroleum facilities are also included.
- GOE continues to modify the annex for our continuity of operations plan (COOP) that accounts for a cyber disruption event, in anticipation of challenges that would arise from a cyber incident disrupting our operations. GOE is utilizing VPN technology while operating remotely to maintain a secure connection to the server.

STATE LEVEL CYBERSECURITY

The Nevada Office of Information Security and Cyber Defense (OISCD) serves as the state's lead for cybersecurity strategy, policy, planning, and coordination for the State of Nevada. GOE, the Nevada Office of Emergency Management (NVOEM), the Public Utilities Commission of Nevada (PUCN), as well as other agencies and public utilities, maintain awareness of vulnerabilities related to cybersecurity. Emerging security measures and standards along with remedies required for the protection of current systems are under consideration and being implemented.

Smart grid installations bring more cybersecurity challenges, but the capabilities are important to the grid. These include inherently different capabilities, security requirements and methodologies between traditional industrial controls and information technology systems. Security measures

emphasize an "enterprise-wide" approach to cybersecurity as recommended by NIST in its Special Publication 800-39 on Integrated Enterprise-Wide Risk Management, which places responsibility for information security throughout the entire organization from the highest levels.

The OISCD directs the state's response to prepare for, protect against, respond to and recovery from attacks on state government's cyber infrastructure. The OISCD also coordinates resources and expertise to support local government and private sector cyber-attacks in Nevada. The State Comprehensive Emergency Management Plan (SCEMP) outlines roles and responsibilities of Emergency Support Function (ESF)-17 Cybersecurity and identifies OISCD withing the Governor's Technology Office (GTO) as the primary support agency. The purpose of ESF-17 is to provide coordination of State actions to ensure a coherent response to cyber incidents in the State of Nevada. Additional state agencies providing a supporting role in an emergency, include the Department of Public Safety, Department of Administration Enterprise IT Services (EITS), as well as other agencies, private partners, and commercial incident response personnel. (https://it.nv.gov/Organization/OIS/)

Governor's Technology Office (GTO) is responsible for the planning and leadership of IT policy and strategy within the executive branch and the leadership of operational units to achieve its vision of becoming a trusted collaborative partner to state agencies and empowering the state by maximizing the value, security, and availability of enterprise technology services. The GTO is comprised of the agency's executive leadership, its direct support staff, and the Enterprise Architecture group. The Enterprise Architecture group manages the Technology Investment Notification and Cloud Investment Notification processes for state agencies as part of its charter to create a statewide technology strategy and architecture. The State Chief Information Officer is appointed by and serves at the pleasure of the Governor. The State Chief Information Officer serves on the Attorney General's Technological Crime Advisory Board (NRS 205A.040); Nevada Commission on Homeland Security's Cyber Security Committee; Nevada Public Safety Communications Committee (NPSCC); Nevada Commission on Educational Technology (NRS 388.790-805), ex-officio/non-voting; and Nevada Broadband Task Force (representing the agency by Executive Order). https://it.nv.gov/Organization/GTO/

Nevada Office of Information Security & Cyber Defense (OISCD) is an independent division within the Governor's Technology Office which reports directly to the State Chief Information Officer. OISCD sets the enterprise vision and strategy for information security; operates statewide programs for continuous monitoring, vulnerability management, security incident response, and physical access control; and leads the development of policies, standards, and controls which safeguard Nevada's information assets.

OISCD analysts identify, develop, and maintain enterprise security processes to reduce technology risk across executive-branch agencies and all State, Local, Tribal (SLTT) entities in the State of Nevada. The Chief Information Security Officer chairs the State Information Security Committee and serves on the Nevada Commission on Homeland Security's Resilience Advisory Committee. https://it.nv.gov/Organization/OISCD/

FEDERAL LEVEL CYBERSECURITY

In 2018, the U.S. Department of Energy's Office of Cybersecurity, Energy Security, and Emergency Response (CESER) was established to address the emerging threats of tomorrow while protecting the reliable flow of energy to Americans today by improving energy infrastructure security and supporting the U.S. Department of Energy's (U.S.DOE) national security mission. U.S. DOE-CESER's focus is preparedness and response activities to natural and man-made threats, ensuring a stronger, more prosperous, and secure future for the Nation. The creation of the U.S.

DOE-CESER office has elevated the Department's focus on energy infrastructure protection and will enable more coordinated preparedness and response to natural and man-made threats. (www.energy.gov/ceser/office-cybersecurity-energy-security-and-emergency-response)

The North American Electric Reliability Corporation (NERC)— Standards CIP-002 through CIP-009 (the Critical Cyber Asset Identification portion of the Critical Infrastructure Protection standards) provide a cybersecurity framework for the identification and protection of Critical Cyber Assets to support reliable operation of the Bulk Electric System. These are mandatory and enforceable standards that entail a comprehensive compliance program that includes periodic reporting, self-certification spot check, and compliance audits. (https://www.nerc.com/pa/stand/Pages/default.aspx)

Probability of Future Energy-Related Cybersecurity Events: Medium
Potential of Impacts to Energy Sector: Medium

According to the Energy Security Sentinel, Cyberattacks on energy and commodities infrastructure rose sharply in the third quarter of 2022 with five cyberattacks targeting the energy market occurring in Q3 this year compared to only two in the previous quarter. A total of 45 cybersecurity incidents targeting energy and commodities infrastructure have taken place since 2017. Eighteen took place in 2022, the highest annual level over the last six years. Oil assets and infrastructure were the biggest targets for hackers, accounting for a third of all incidents since 2017. Electricity networks were the next most vulnerable, making up over a quarter of all incidents. Gas and shipping were the two other sectors that experienced a moderate amount of cyberattacks.

Cybersecurity has emerged as a major threat to commodities industries and markets over the last decade, with hackers seeking to steal data and paralyze the flow of resources. In 2020, petroleum product prices in the US were hit when the Colonial Pipeline, which supplies around 45% of fuel to the East Coast, was hit by a ransomware attack. Although research did not reveal any history of cyber-attacks on energy infrastructure in Nevada, this threat is a growing concern. As such, on September 19, 2022, the PUCN opened an investigation and rulemaking, designated as Docket No. 22-09017, to consider adopting new regulations in Chapter 704 of the Nevada Administrative Code regarding cyber security reporting requirements for regulated public utilities in Nevada similar to CISA's federal reporting regulatory requirements. The PUCN anticipates CISA will finalize its federal cyber security reporting requirements in 2026, and continues to work with public utilities to foster situational awareness through voluntary reporting while establishing cybersecurity reporting requirements.

Strengthening cybersecurity measures and increasing vigilance against potential cyber threats is crucial during pandemics. Energy companies should regularly update and patch their systems, conduct cybersecurity audits, and educate employees about potential risks to mitigate cyber-attacks.

PANDEMIC

Pandemics pose significant challenges to various sectors of society, including the energy sector. These global health crises can disrupt energy production, distribution, and consumption, leading to economic instability and impacting the well-being of individuals and communities. Here is an overview of the threats that pandemics can pose to the energy sector. During a pandemic, workforce disruptions are a major concern for the energy sector. As employees fall ill or are required to quarantine, critical energy infrastructure operations may be severely affected. This includes power plants, refineries, drilling rigs, and other key facilities. The reduced workforce can lead to decreased operational efficiency, maintenance delays, and potential safety hazards.

Pandemics can disrupt global supply chains, affecting the energy sector's ability to source necessary equipment, components, and fuels. Restrictions on trade, travel limitations, and lockdown measures can hinder the transportation and delivery of critical energy infrastructure components, leading to project delays, increased costs, and compromised energy security.

During a pandemic, economic activity often declines due to business closures, travel restrictions, and reduced consumer spending. This decrease in overall energy demand can significantly impact the energy sector. Demand for electricity, transportation fuels, and industrial energy can plummet, causing financial strain for energy companies, particularly those reliant on high energy consumption industries. Pandemics can induce significant shifts in energy demand patterns, affecting the mix of energy sources. Increased reliance on remote work, reduced air travel, and changes in transportation modes can impact the demand for specific energy types. For example, decreased demand for gasoline and jet fuel may reduce revenues for oil refineries, while increased electricity demand due to remote work may strain power grids.

Probability of Future Energy-Related Pandemic Events: Medium
Potential of Impacts to Energy Sector: Medium
Pandemics can induce significant shifts in energy demand patterns, affecting the mix of energy sources. Increased reliance on remote work, reduced air travel, and changes in transportation modes can impact the demand for specific energy types. For example, decreased demand for gasoline and jet fuel may reduce revenues for oil refineries, while increased electricity demand due to remote work may strain power grids. Pandemics present significant threats to the energy sector, ranging from workforce disruptions to supply chain challenges and reduced energy demand. By implementing robust mitigation measures and prioritizing long-term planning, the energy sector can enhance its resilience and adaptability in the face of future pandemics, ensuring the reliable and sustainable supply of energy.

To address the threats posed by pandemics to the energy sector, many mitigation measures should be considered. Energy companies should develop robust business continuity plans that account for potential workforce disruptions, supply chain challenges, and changing energy demand patterns. These plans should include remote work arrangements, redundancy measures, and contingencies to ensure an uninterrupted energy supply. Encouraging a diversified energy mix can help mitigate the impact of shifts in energy demand patterns during pandemics. Promoting renewable energy sources and energy efficiency measures can create a more resilient and sustainable energy sector. Governments, energy companies, and public health agencies should establish collaborative partnerships to coordinate responses during pandemics. This can involve sharing information, resources, and expertise to address challenges and maintain energy supply.

THUNDERSTORMS AND LIGHTNING

Thunderstorms are formed from a combination of moisture, rapidly rising warm air, and a force capable of lifting air, such as warm and cold fronts or a mountain. A thunderstorm can produce lightning, thunder, and rainfall that may also lead to the formation of tornados, hail, downbursts, and microbursts of wind. Thunderstorms may occur singly, in clusters, or in lines. As a result, it is possible for several thunderstorms to affect one location in the course of a few hours.

Thunder and lightning are most commonly associated with thunderstorms. Lightning occurs when the rising and descending motion of air within clouds produces a separation of positively and negatively charged particles. This separation produces an enormous electrical potential both within the cloud and between the cloud and the ground. Lightning results as the energy between the positive and negative charge areas is discharged. As the lightning channel moves through the atmosphere, heat is generated by the electrical discharge to the order of 20,000 degrees (three times

the temperature of the sun). This heat compresses the surrounding clear air, producing a shock wave that decays to an acoustic wave as it moves away from the lightning channel, resulting in thunder.

In addition, hail can occur as part of a severe thunderstorm. Hail develops within a low-pressure front as warm air rises rapidly in the upper atmosphere and is subsequently cooled, leading to the formation of ice crystals. This cycle continues until the hailstone is too heavy to be lifted by the updraft winds and falls to the earth. The higher the temperature at the earth's surface, the stronger the updraft, thereby increasing the amount of time the hailstones are developed. As hailstones are suspended longer within the atmosphere, they become larger. Other factors impacting the size of hailstones include storm scale wind profile, elevation of freezing level, and the mean temperature and relative humidity of the downdraft air.

Also, downbursts and microbursts are associated with thunderstorms. Downbursts are strong, straight-line winds created by falling rain and sinking rain that my reach speeds of 125 miles per hour (mph). Microbursts are more concentrated than downbursts, with speeds reaching up to 150 mph. Both downbursts and microbursts can typically last 5 to 7 minutes. Microburst wind gusts of 50-70 mph are very common with Nevada thunderstorms due to the extremely dry lower layers near the surface being able to evaporate precipitation, creating strong winds. Typical microburst damage is to power lines and trees being blown down, roof and fence damage to homes and businesses.

Damaging microburst winds are fairly common in Nevada thunderstorms, while large damaging hail is less of a risk. That being said, there have been isolated large hail events recently which have resulted in property and vehicle damage. By far the greatest threats imposed by thunderstorms in Nevada are the associated lightning-caused wildfires and flash flooding due to cloudbursts. These risks are more completely discussed in the sections on Flood and Wildfire.

The current predictability of severe thunderstorms is marginal to poor. The current state of the science and forecasting technologies results in a broad heads up of days with numerous or severe thunderstorms to about 1-3 days in advance. Specific storm-scale warning lead time of severe thunderstorms and flash flooding is generally 15-30 minutes but can be zero.

Probability of Future Energy-Related Thunderstorm and Lightning Events: High
Potential of Impacts to Energy Sector: Low

Based on data of past occurrences, the probability of future events in all locations in the state is high. There is probably a slight favoring toward central and southern sections of Nevada where, based on National Weather Service experiences, severe thunderstorms are more common. Although these events are common, their consequences are usually concentrated in small areas and don't affect enough people to normally warrant a request for federal assistance, unless they start large wildfires or cause significant flash floods. The probability of future events for this hazard overall is high. Hailstorms are not as high a threat in the State and are generally very localized.

Mitigation measures for the energy sector related to thunderstorms and lightning in Nevada are essential for ensuring the reliability and safety of electrical infrastructure. Mitigation measures to consider:

- Lightning Protection Systems (LPS): Install lightning protection systems on critical energy infrastructure, such as power plants, substations, and transmission towers. These systems include lightning rods, conductors, and grounding systems designed to safely dissipate lightning strikes, reducing the risk of damage or fires.

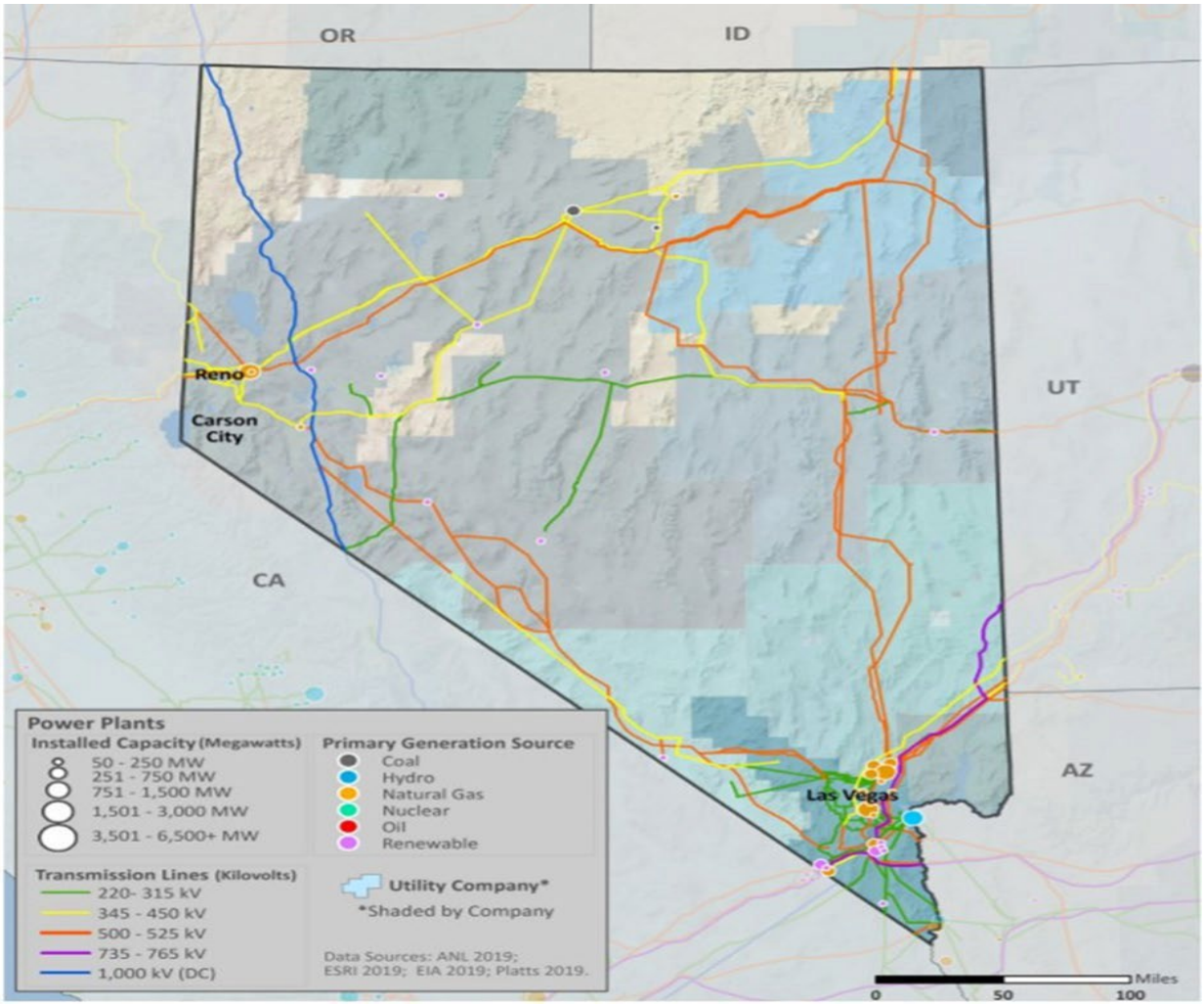
- Surge Protection: Implement surge protection devices (SPDs) at key points in the electrical grid, including substations and sensitive equipment. SPDs can divert excess voltage caused by lightning strikes away from critical components, preventing damage.
- Grounding: Ensure that all equipment and structures are properly grounded to minimize the risk of electric shock and fires in case of lightning strikes. Regularly inspect and maintain grounding systems to ensure their effectiveness.

It's essential to tailor these mitigation measures to the specific needs and risks of the energy sector in Nevada, taking into account the unique geographic and climatic conditions of the region. Regularly reviewing and updating mitigation plans based on changing risks and emerging technologies is also crucial for long-term resilience against lightning-related incidents.

SECTION VII - RISK ASSESSMENT AND RISK MITIGATION

U.S. DOE-CESER has developed a series of State and Regional Energy Risk Profiles that examine the relative magnitude of risks at a regional and State level highlighting energy infrastructure trends and impacts. The profiles present both natural and man-made hazards with the potential to cause disruption of the electric, petroleum, and natural gas infrastructures. The State of Nevada Energy Sector Risk Profile contains the following maps for Nevada's Energy Sector Risk Profile available at the time of this writing:

ELECTRICITY RISK PROFILE



Produced by Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER) March 2021

ELECTRIC INFRASTRUCTURE

- Nevada has 15 electric utilities:
  - *2 Investor owned*
  - *3 Cooperative*
  - *6 Municipal / Public Utility Districts*
  - *4 Other utilities*
- Plant retirements scheduled by 2025: 19 electric generating units totaling 999 MW of installed capacity.

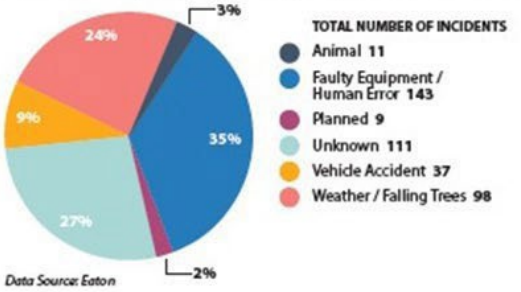
- In 2018, the average Nevada electric customer experienced 1 service interruption that lasted an average of 2.1 hours.
- In Nevada, between 2008 and 2017:
  - *The greatest number of electric outages occurred in **November** (10th for outages nationwide)*
  - *The leading cause of electric outages was **Faulty Equipment or Human Error** (2nd leading cause nationwide)*
  - *Electric outages affected 115,508 customers on average*

Electric Customers and Consumption by Sector, 2018

	CUSTOMERS	CONSUMPTION
Residential	88%	36%
Commercial	12%	32%
Industrial	<1%	32%
Transportation	<1%	<1%

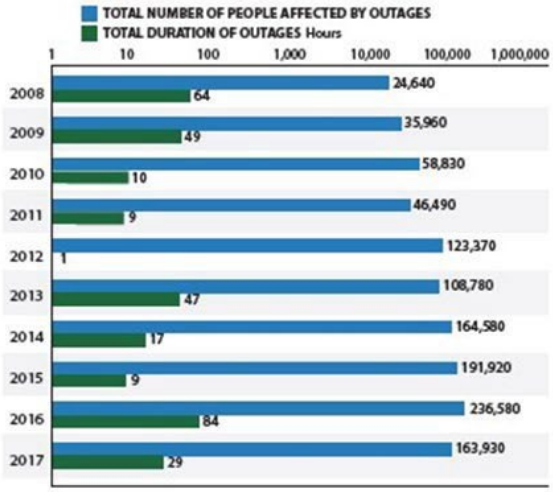
Data Source: EIA

Electric Utility-Reported Outages by Cause, 2008–2017



Data Source: Eaton

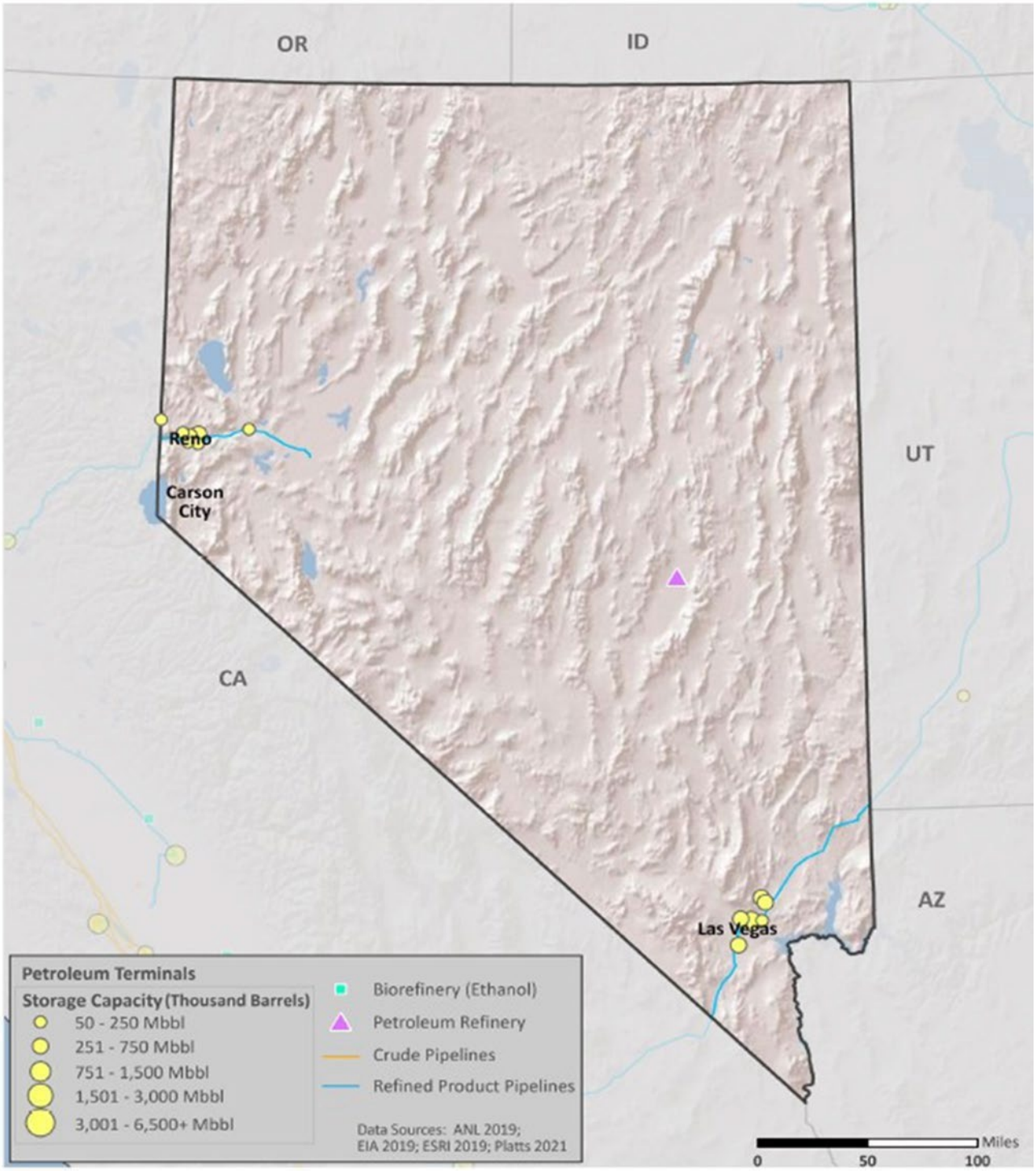
Electric Utility Outage Data, 2008–2017



Note: This chart uses a logarithmic scale to display a very wide range of values.
Data Source: Eaton

Produced by Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER)
March 2021

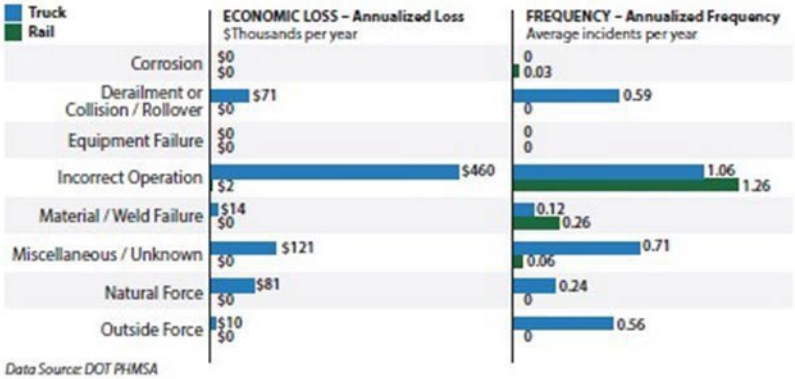
PETROLEUM RISK PROFILE



Produced by Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER)
March 2021

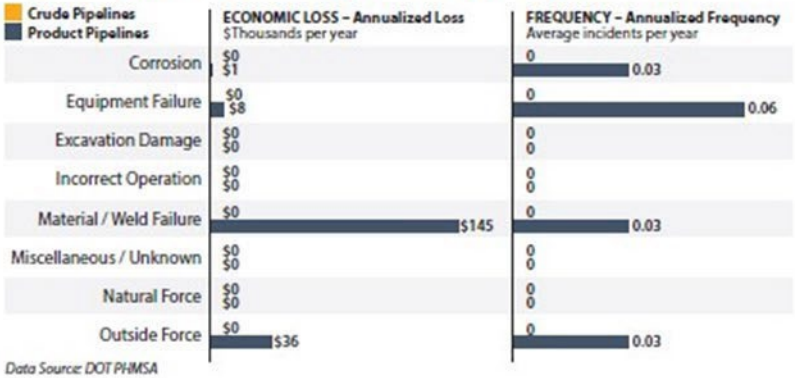
PETROLEUM TRANSPORT

Top Events Affecting Petroleum Transport by Truck and Rail, 1986 – 2019



Data Source: DOT PHMSA

Top Events Affecting Crude Oil and Refined Product Pipelines, 1986 – 2019



Data Source: DOT PHMSA

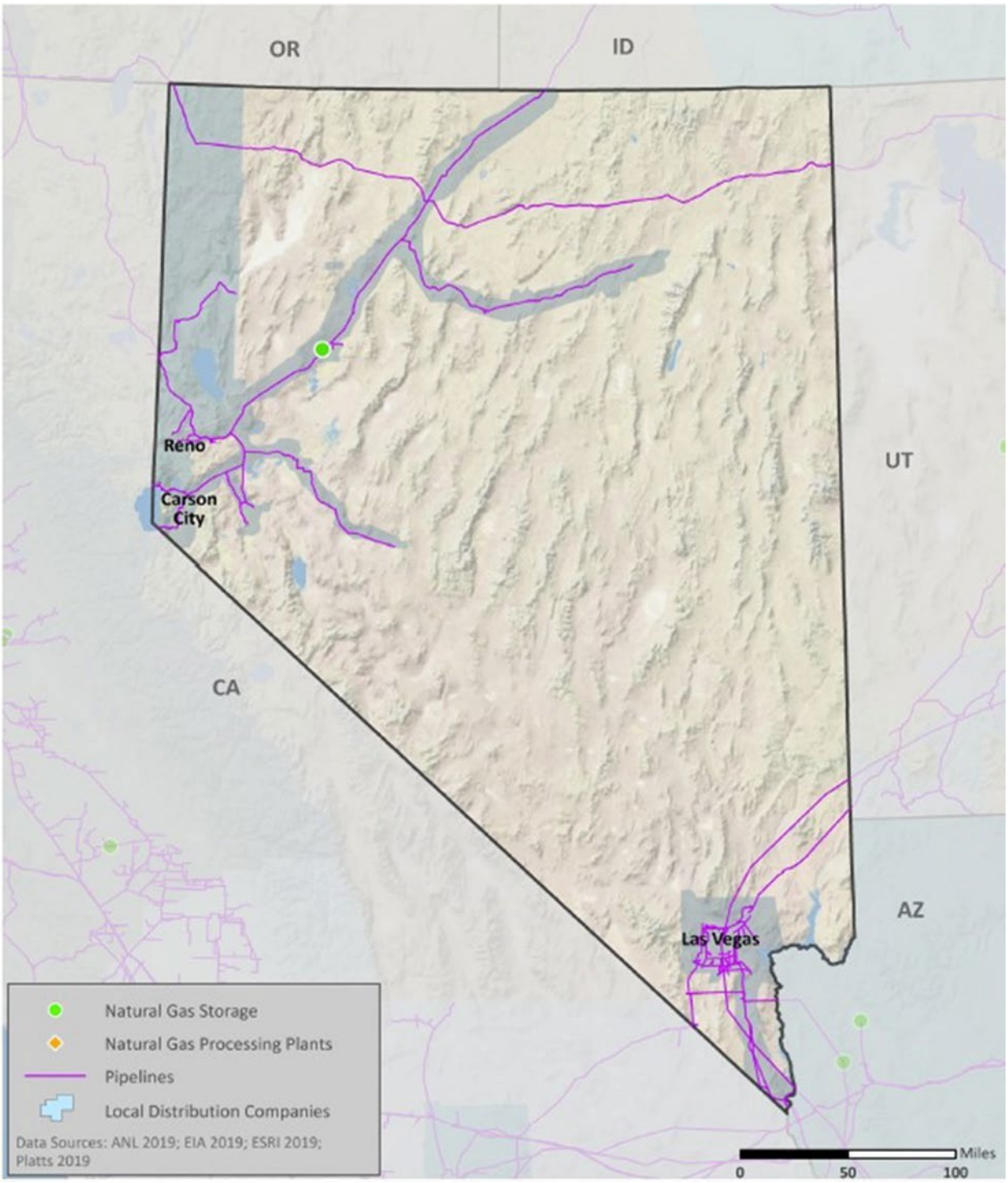
- As of 2018, Nevada had:
  - *0 miles of crude oil pipelines*
  - *276 miles of refined product pipelines*
  - *0 miles of biofuels pipelines*
- 42% of Nevada's petroleum pipeline systems were constructed prior to 1970 or in an unknown year.
- Between 1986 and 2019, Nevada's petroleum supply was most impacted by:
  - ***Incorrect Operations*** *when transported by truck (5th leading cause nationwide at $11.01M per year)*
  - ***Incorrect Operations*** *when transported by rail (4th leading cause nationwide at $2.02M per year)*
  - ***Material Failures*** *when transported by product pipelines (4th leading cause nationwide at $9.47M per year)*
- Disruptions in other states may impact supply.

Petroleum Refineries

- Nevada has 1 petroleum refinery with a total operable capacity of 2 Mb/d.
- Between 2009 and 2019, no petroleum refinery disruptions were recorded in Nevada.

Produced by Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER) March 2021

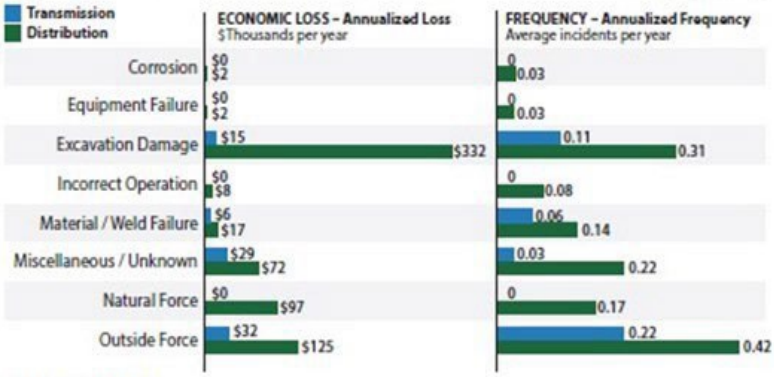
NATURAL GAS RISK PROFILE



Produced by Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER) March 2021

NATURAL GAS TRANSMISSION

Top Events Affecting Natural Gas Transmission and Distribution, 1984 – 2019



Data Source: DOT PHMSA

- As of 2018, Nevada had:
  - *2,035 miles of natural gas transmission pipelines*
  - *10,329 miles of natural gas distribution pipelines*
- 37% of Nevada's natural gas transmission system and 3% of the distribution system were constructed prior to 1970 or in an unknown year.
- Between 1984 and 2019, Nevada's natural gas supply was most impacted by:
  - ***Outside Forces** when transported by transmission pipelines (3rd leading cause nationwide at $20.65M per year)*
  - ***Excavation Damage** when transported by distribution pipelines (5th leading cause nationwide at $16.56M per year)*

Natural Gas Processing and Liquefied Natural Gas

Natural Gas Customers and Consumption by Sector, 2018

	CUSTOMERS	CONSUMPTION
Residential	95%	14%
Commercial	5%	11%
Industrial	<1%	7%
Transportation	<1%	<1%
Electric Power	<1%	68%
Other	<1%	<1%

Data Source: EIA

- Nevada has 0 natural gas processing facilities.
- Nevada has 1 liquefied natural gas (LNG) facility with a total storage capacity of 290,000 barrels.

Produced by Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER) March 2021

RISK ASSESSMENT APPROACH

The Nevada SESP employs a comprehensive, all-hazards risk assessment approach to identify, evaluate, and prioritize potential threats to the state's energy infrastructure. This methodology integrates qualitative and quantitative analyses to assess both natural and human-caused hazards, including extreme weather events, cyberattacks, physical security threats, and supply chain disruptions. The assessment process includes stakeholder engagement across public and private sectors, leveraging existing hazard mitigation plans, threat intelligence, and infrastructure vulnerability data. Risks are evaluated based on likelihood, potential consequences, and the criticality of affected assets, enabling the Nevada energy sector to identify high-risk scenarios and inform targeted resilience strategies. This approach ensured that mitigation, preparedness, and response efforts were all risk-informed, data-driven, and aligned with federal guidance and best practices.

RISK ASSESSMENT SCORING METHODOLOGY

Creating a risk score is a critical component of the risk assessment process, as it provides a structured and consistent method for evaluating and comparing diverse threats to Nevada's energy infrastructure. By assigning numerical values to key risk factors—such as threat likelihood, potential impact, and asset vulnerability—the risk score enables decision-makers to quantify and prioritize risks in a transparent and objective manner. This scoring system supports resource allocation by highlighting the most significant risks, guiding mitigation strategies, and helping to track changes over time. Incorporating a risk score also promotes alignment with federal and industry best practices, facilitates cross-sector collaboration, and ensures that resilience planning efforts are focused on the areas of highest concern for energy security. The risk scoring is as follows:

Total Risk Score = (Vulnerability × Threat × Consequence) / 3

Where:

- Threat: A score from 0 to 5 representing the likelihood or probability of the risk occurring.
- Vulnerability: A score from 0 to 5 representing how susceptible the asset or process is to the risk.
- Consequence: A score from 0 to 5 representing the severity of the impact if the risk occurs.
- Total Risk Score: The final calculated score, which will fall on a scale from 0 to 5.

Explanation:

- Multiply the scores for Threat, Vulnerability, and Consequence.
- Divide the product by three to get an average Risk Score.

Threat:

- Threat is defined as anything that can damage, destroy or disrupt energy systems, including natural, technological, human/physical, and cybersecurity threats.
- Probability of occurrence on an annual basis, typically on a scale of 0% to 100%.

Threat Score Scale

Category		*Annual Threat Probability, % per Year*
Score	**Tier**	
1	Low	0%-20%
2	Med-Low	20%-40%
3	Med	40%-60%
4	Med-High	60%-80%
5	High	80%-100%

Vulnerability:

- Susceptibility of an energy infrastructure system to damage, loss, or degradation caused by a threat due to weaknesses with the system or due to the system's dependence on critical supporting systems or material, technical, or workforce resources affected by the threat.
- May be interpreted as the expected outage duration from exposure to a given threat.
- Typically, specific to asset type or region.
- Should include interdependency considerations.

Vulnerability Score Scale

Category		*Expected Outage Duration, Days*
Score	**Tier**	
1	Low	0-1
2	Med-Low	1-2
3	Med	2-3
4	Med-High	3-4
5	High	5+

Consequence:

- Specific to asset or system, often based on total energy or number of customers affected.
- Should consider indirect or secondary consequences to the society, including impacts to critical energy users and/or vulnerable communities.

Consequence Score Scale

Category		*Probability of Effects, % of Customers*
Score	**Tier**	
1	Low	0%-20%
2	Med-Low	20%-40%
3	Med	40%-60%
4	Med-High	60%-80%
5	High	80%-100%

RISK ASSESSMENT-STAKEHOLDER ENGAGEMENT

Stakeholder engagement is essential to the effectiveness and accuracy of the risk assessment process for Nevada's State Energy Security Plan. Involving a diverse group of stakeholders—including state and local agencies, utilities, emergency management officials, private sector partners, and tribal representatives—ensures that the assessment reflects a broad range of expertise, perspectives, and on-the-ground realities. These stakeholders provide critical insights into system vulnerabilities, operational interdependencies, past incident responses, and emerging threats. Their collaboration enhances situational awareness, promotes information sharing, and builds trust among key partners. By integrating stakeholder input throughout the assessment process, Nevada developed a comprehensive and actionable understanding of risk, ultimately leading to more effective energy resilience strategies and coordinated emergency response efforts.

LIST OF STAKEHOLDERS CONSULTED

Nevada Governor's Office of Energy
Nevada Office of Emergency Management
Nevada Public Utilities Commission (Open-Source Data)
Nevada Energy (Open-Source Data)
Office of Information Services and
Cyberdefense California Energy
Commission FEMA Region 9

RISK ASSESSMENT-REPORTS, DATASETS, AND RESOURCES

Utilizing existing reports, datasets, and resources is vital to conducting a thorough and informed risk assessment for Nevada's State Energy Security Plan. These materials—such as hazard mitigation plans, infrastructure vulnerability assessments, energy supply data, cybersecurity reports, and climate projections—provide foundational information that enhances the accuracy and depth of the analysis. Leveraging established data sources ensures the risk assessment is evidence-based, aligns with federal and state priorities, and reflects current and emerging threats. Additionally, integrating these resources supports consistency across planning efforts, avoids duplication of work, and enables informed decision-making by grounding risk evaluations in credible, up-to-date information. This approach strengthens Nevada's ability to identify vulnerabilities, prioritize risks, and develop targeted strategies to enhance energy system resilience.

LIST OF REPORTS, DATASETS, AND RESOURCES UTILIZED (BY HAZARD)

Earthquake

1. Nevada Bureau of Mines and Geology & University of Nevada, Reno. (n.d.). Loss-Estimation Modeling of Earthquake Scenarios for Each County in Nevada Using HAZUS-MH. In *Open-File Report 06-1*. https://data.nbmg.unr.edu/Public/freedownloads/misc/Presentations/earthquakes/lossestimationmodeling23feb06.pdf
2. *Earthquake | National Risk Index*. (n.d.). https://hazards.fema.gov/nri/earthquake
3. Nevada Office of Emergency Management. (2023). The State of Nevada Enhanced Hazard Mitigation Plan. In *https://dem.nv.gov/DEM/State_Hazard_Mitigation/*. https://www.oem.nv.gov/emergency-management/hazard-mitigation/

4. *National Seismic Hazard Model*. (2024, January 2). USGS. https://www.usgs.gov/programs/earthquake-hazards/science/national-seismic-hazard-model

Wildfire

1. Davis, H., Harman, S., Jacobs, C., Feldman, A., Science Advisor, McCartney, S., Science Advisor, Hayes, L., Project Lead, & Lubitz, I., Lead. (2024). Nevada Wildland Fires: Mapping historical burned areas and identifying drivers of fuel load growth to inform desert tortoise habitat management in southern Nevada. In *NASA Technical Reports Server (NTRS)*. NASA DEVELOP National Program, Maryland-Goddard. https://ntrs.nasa.gov/api/citations/20240010982/downloads/2024Sum_GSFC_NevadaWildlandFires_TechPaper_FD.pdf
2. Dillon, G. K., Scott, J. H., Jaffe, M. R., Olszewski, J. H., Vogler, K. C., Finney, M. A., Short, K. C., Riley, K. L., Grenfell, I. C., Jolly, W. M., & Brittain, S. (2023). Spatial datasets of probabilistic wildfire risk components for the United States (270m) [Dataset]. In *Forest Service Research Data Archive*. https://doi.org/10.2737/rds-2016-0034-3
3. Dyer, C., & Wilson, K. (2022). Transmission Overview in Nevada. In *NV Energy*. https://energy.nv.gov/uploadedFiles/energynvgov/content/Programs/TaskForces/2017/6_WRA.pdf
4. *Emergency De-energization*. (n.d.). NV Energy. https://www.nvenergy.com/safety/wildfire/emergency-deenergization
5. *Facts + Statistics: Wildfires | III*. (n.d.). https://www.iii.org/fact-statistic/facts-statistics-wildfires
6. National Significant Wildland Fire Potential Outlook. (2024). In *National Significant Wildland Fire Potential Archive*. National Interagency Fire Center. https://www.nifc.gov/nicc/predictive-services/outlooks
7. Nevada Division of Forestry (NDF) & USDA Forest Service (USFS). (2025). *State and Private Forestry Fact Sheet Nevada 2025*. https://apps.fs.usda.gov/nicportal/temppdf/sfs/naweb/nv_std.pdf
8. Sheridan, K. (2025, May 6). NV Energy preps for heightened wildfire risk. *https://www.kolotv.com*. https://www.kolotv.com/2025/05/06/nv-energy-preps-heightened-wildfire-risk/
9. The Associated Press. (2024, November 12). Aided by rain, crews extinguish a wildfire in Nevada after 1 home burns. *WTOP News*. https://wtop.com/national/2024/11/wind-whipped-wildfire-near-reno-prompts-evacuations-but-rain-begins-falling-as-crews-arrive/
10. *Wildfire | National Risk Index*. (n.d.). https://hazards.fema.gov/nri/wildfire

Flood

1. FEMA Flood Map Service Center. (n.d.). *National Flood Hazard Layer (NFHL)*. https://hazards.fema.gov/arcgis/rest/services/public/NFHL/MapServer
2. NCEI.Monitoring.Info@noaa.gov. (n.d.). *Billion-Dollar Weather and Climate Disasters | National Centers for Environmental Information (NCEI)*. https://www.ncei.noaa.gov/access/billions/
3. Truckee River Flood Project. (2018). In *Nevada Division of Environmental Protection*. https://ndep.nv.gov/uploads/env-brownfields-nvprojects-docs/Truckee_River_Flood_Project.pdf

Drought

1. Department of Energy (DOE), Office of Cybersecurity, Energy Security, and Emergency Response (CESER). (2021). *State of Nevada ENERGY SECTOR RISK PROFILE* (pp. 1–5)https://www.energy.gov/sites/default/files/2021-09/Nevada%20Energy%20Sector%20Risk%20Profile.pdf
2. *Drought | National Risk Index*. (n.d.). https://hazards.fema.gov/nri/drought
3. *Drought and Energy Sector Impacts | Drought.gov*. (n.d.). Drought.gov. https://www.drought.gov/sectors/energy
4. *Nevada State Profile and Energy Estimates*. (2024a, May 16). U.S. Energy Information Administration. https://www.eia.gov/state/analysis.php?sid=NV
5. *Nevada State Profile and Energy Estimates*. (2024b, May 16). U.S. Energy Information Administration. https://www.eia.gov/state/analysis.php?sid=NV
6. *State Impacts | U.S. Drought Monitor*. (n.d.). https://droughtmonitor.unl.edu/DmData/StateImpacts.aspx
7. U.S. Bureau of Reclamation. (2012). *Reclamation: Managing Water in the West: Colorado River Basin Water Supply and Demand Study*. U.S. Department of the Interior. https://www.usbr.gov/watersmart/bsp/docs/finalreport/ColoradoRiver/CRBS_Executive_Summary_FINAL.pdf

Cybersecurity Event

1. *Data centers could "quadruple" region's electrical grid, NV Energy CEO says*. (2025, February 15). Carson City's Trusted News Source Since 1865. https://www.nevadaappeal.com/news/2025/feb/15/data-centers-could-quadruple-regions-electrical-grid-nv-energy-ceo-says/
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3. *Grid Security: Physical and Cybersecurity*. (2016). NV Energy. https://energy.nv.gov/uploadedFiles/energynvgov/content/Programs/3%20-%20Physical%20and%20Cyber%20Grid%20Security.pdf
4. *Reliability Standards*. (n.d.). https://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx
5. *Resecurity | Cyber Threats Against Energy Sector Surge as Global Tensions Mount*. (2025, April 15). https://www.resecurity.com/blog/article/cyber-threats-against-energy-sector-surge-global-tensions-mount
6. *Cybersecurity in the Energy Sector*. (2024, June 5). Astra Canyon. https://www.astracanyon.com/blog/cybersecurity-challenges-in-the-energy-sector
7. Ribeiro, A. (2025, May 7). *CISA, FBI, EPA, DOE issue joint alert on rising cyber threats to critical infrastructure OT systems*. Industrial Cyber. https://industrialcyber.co/cisa/cisa-fbi-epa-doe-issue-joint-alert-on-rising-cyber-threats-to-critical-infrastructure-ot-systems/
8. Banerjee, D. (2025, May 19). *One Click from Chaos: Cybersecurity Vulnerabilities in the Modern Grid*. Energy Central. https://www.energycentral.com/intelligent-utility/post/one-click-chaos-cybersecurity-vulnerabilities-modern-grid-7NobduJ7gDH8eNR
9. *Cybersecurity Alerts & Advisories | CISA*. (2025, June 12). Cybersecurity and Infrastructure Security Agency CISA. https://www.cisa.gov/news-events/cybersecurity-advisories

Pandemic

1. *2024 U.S. Energy & Employment Jobs Report (USEER)*. (n.d.). Energy.gov. https://www.energy.gov/policy/us-energy-employment-jobs-report-useer
2. *Current Assessment and Pandemic Preparedness*. (2024, March 27). Pandemic Flu. https://www.cdc.gov/pandemic-flu/php/monitoring/current-situation.html
3. National Infrastructure Advisory Council. (2018). Surviving a Catastrophic Power Outage: How to Strengthen the Capabilities of the Nation. In *cisa.gov* [Report]. https://www.cisa.gov/sites/default/files/publications/NIAC%2520Catastrophic%2520Power%2520Outage%2520Study_FINAL.pdf
4. Nevada Office of Emergency Management. (2023). The State of Nevada Enhanced Hazard Mitigation Plan. *https://www.oem.nv.gov/emergency-management/hazard-mitigation/*(2018a). The State of Nevada Enhanced Hazard Mitigation Plan.

Thunderstorms and Lightning

1. Comprehensive Analysis Of The Power Outage In Las Vegas. (2024, April 29). *sungoldsolar*. https://www.sungoldsolar.us/power-outage-in-las-vegas/
2. Earth Networks. (2020). NEVADA LIGHTNING REPORT 2020. In *Earth Networks 2020 U.S. Lightning Report* (p. 1) [Report]. https://get.earthnetworks.com/hubfs/2021%20State%20Lightning%20Reports/Lightning_Report_Nevada.pdf
3. Rothberg, D. (2023, January 6). Expected rain arrived as snow and damaged the grid. Now, more storms are on the way. *The Nevada Independent*. https://thenevadaindependent.com/article/expected-rain-arrived-as-snow-and-damaged-the-grid-now-more-storms-are-on-the-way
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INVENTORY OF RISK PROBLEM STATEMENTS

Risk Scenario: Major Earthquake	
THREAT 	Nevada ranks third in the nation for seismic activity. Western Nevada, particularly around the Reno-Carson City area and the Walker Lane fault system, is at elevated risk for large-magnitude earthquakes. According to a report from the Nevada Bureau of Mines and Geology, the USGS probabilistic seismic hazard analysis portrays the probability of an earthquake of magnitude 6.5 or greater has about a 50% probability of occurring in the next 50 years. Recent moderate seismic events and long-term fault modeling suggest the likelihood of a high-impact earthquake has increased due to accumulated tectonic strain and urban expansion into seismically active zones.
VULNERABILITY 	Natural gas transmission pipelines and distribution infrastructure in older urban cores such as Reno, Sparks, and Carson City include components installed prior to modern seismic codes. In areas with loose or liquefiable soils, underground pipes are especially vulnerable to rupture or displacement. Shaking could also damage critical compressor stations and gas control systems. Restoration of gas service, especially to residential customers, may require time-intensive manual relighting of appliances and inspections. Expected outage duration in a severe event could range from 5 to 14 days depending on extent of ground movement and damage.
CONSEQUENCE 	A major earthquake in western Nevada could disrupt service to over 100,000 natural gas customers, directly impacting essential functions such as home heating, cooking, industrial operations, and backup generation for hospitals and critical infrastructure. Given that western Nevada has about 183,000 natural gas customers, approximately 55% of customers would face a direct outage. This abrupt interruption in natural gas delivery is expected to critically impair power generation capabilities—with gas-fired plants forced to operate at reduced capacity or even shut down during peak demand—and strain interconnected transmission systems, potentially triggering cascading failures that extend supply interruptions well beyond the immediately affected area. Hospitals and public shelters relying on natural gas-powered systems could suffer from reduced operating capacity, while vulnerable populations, including the elderly and medically dependent, might encounter life-threatening conditions during winter or extreme weather events. Additionally, the interrupted gas supply may further compromise gas-fired electricity generation, exacerbating strain on the regional power grid during its most critical periods.
RISK 	A magnitude 6.5–7.5 earthquake centered in western Nevada could severely damage aged and vulnerable sections of the region's natural gas transmission and distribution system, disrupting service to over 100,000 customers. The consequences include impaired heating and emergency response capabilities and potential cascading impacts to electricity generation, posing a high risk to regional energy reliability and public safety.

Risk Scenario: Wildfire	
THREAT 	Wildfires have increased in frequency, size, and intensity across Nevada, particularly in forested and high-desert regions, due to prolonged drought, rising temperatures, and increased vegetation fuel loads. Over the past decade, major wildfires such as the Caldor and Tamarack fires have disrupted power and gas services. Forward-looking climate models project a continued rise in wildfire probability, with the fire season expected to lengthen and expand geographically. These fires often occur during high-demand summer months, compounding their impact on the energy sector.
VULNERABILITY 	Nevada's above-ground electric transmission lines, particularly those traversing remote or forested areas, are highly exposed to wildfire damage. Vegetation encroachment and aging infrastructure increase susceptibility. Although generally more fire-resilient, natural gas systems are vulnerable at above-ground compressor stations and right-of-way crossings. Restoration following wildfire damage can be delayed due to access constraints, air quality hazards, and coordination with emergency services. Outage durations from past wildfire events have ranged from 12 hours to over a week depending on severity and location.
CONSEQUENCE 	Wildfire damage to major transmission lines or substations can lead to cascading failures across the electric grid, affecting urban load centers like Reno and Las Vegas and critical rural infrastructure such as water pumping stations. Natural gas service interruptions—while less common—can impair heating, power generation, and industrial processes. Indirect consequences include evacuation of vulnerable populations, disruptions to emergency response services, and economic losses from interrupted commercial activity. Impacts are particularly acute in areas with limited redundancy or backup generation.
RISK 	If a wildfire intersects with high-voltage electric transmission corridors or above-ground gas infrastructure in Nevada, it could result in extended outages for tens of thousands of customers, impairing essential services and endangering public safety during high-temperature periods. Increasing wildfire frequency and infrastructure exposure amplify the urgency for vegetation management, grid hardening, and cross-sector emergency coordination.

Risk Scenario: Flood	
THREAT 	Northern Nevada, particularly regions near the Truckee and Carson Rivers, is experiencing increased frequency and severity of riverine flooding due to a combination of snowmelt, heavy precipitation, and atmospheric river events. Over the past 15 years, three major flooding events have caused disruptions to energy services and damage to infrastructure. With climate projections forecasting more intense and frequent precipitation events, the threat of future flood events is expected to increase. Current modeling by NOAA and FEMA's National Flood Hazard Layer indicates a moderate-to-high probability (20-30%) of annual flooding that could exceed historical flood stage levels in certain basins.
VULNERABILITY 	Numerous critical electric power substations and infrastructure assets in flood-prone areas of Northern Nevada are located at or near ground level and are not adequately flood-proofed to withstand high water levels exceeding one foot above base flood elevation. Current barriers and stormwater systems provide limited protection. Substation inundation could lead to cascading outages. Repair or replacement could take up to 10 days or longer due to potential regional access constraints and supply chain issues for specialized equipment.
CONSEQUENCE 	A major flooding event could impact between 5% and 15% of Nevada's electric grid capacity in the northern part of the state, disrupting power to 50,000–120,000 residents, affecting Reno-Sparks and surrounding communities. This includes loss of service to critical customers such as medical centers, water treatment facilities, and emergency response coordination centers. Backup generation capacity is limited and typically designed for short-term outages (48–72 hours). Extended outages may lead to public health concerns, hinder emergency response, and disrupt economic activity in the region.
RISK 	If riverine flooding exceeds one foot above the base flood elevation in Northern Nevada, electric substations in low-lying areas could be severely damaged, leading to prolonged power outages for critical infrastructure and tens of thousands of residents. With climate models forecasting increasing storm severity, the combined risk of likelihood, vulnerability, and consequence poses a significant energy security concern for the state.

Risk Scenario: Drought	
THREAT 	Nevada has experienced prolonged drought conditions over the past two decades, with the Colorado River Basin, crucial to Nevada's water supply, under persistent stress. The U.S. Drought Monitor has consistently rated large areas of Nevada in severe to exceptional drought categories. According to the National Risk Index and climate projections from the NOAA and the U.S. Drought Mitigation Center, future drought events are expected to increase in frequency and intensity due to rising temperatures and decreased snowpack in the Sierra Nevada and Rocky Mountains. These trends directly threaten water-intensive thermal power plants and hydroelectric power generation in the state.
VULNERABILITY 	Nevada's energy system includes hydropower resources (e.g., Hoover Dam) and multiple natural gas and coal-fired power plants that rely on water for cooling. Low reservoir levels have already caused reductions in electricity generation capacity at Hoover Dam, dropping by as much as 33% during low-water years. Thermal plants in the state, such as the North Valmy Generating Station, may also experience derating or forced shutdowns if water levels drop further. Water stress is exacerbated by regional interdependencies—e.g., Nevada's energy imports from hydropower in other Western states—and by increasing demand due to population growth and extreme heat events.
CONSEQUENCE 	Reduced hydropower output and cooling constraints for thermal power plants may decrease available generation capacity during peak demand periods, particularly in the summer when air conditioning load spikes. This could lead to electricity shortages, rolling blackouts, and significant price volatility. Indirect consequences include impacts on lifeline sectors (e.g., water treatment, hospitals), economic losses from industrial downtime, and disproportionate effects on vulnerable populations in urban areas like Las Vegas and Reno. Drought-related stress on the energy-water nexus could undermine public trust and require emergency energy imports at high cost.
RISK 	Increasing drought severity threatens to simultaneously impair Nevada's hydroelectric generation and reduce the efficiency or operability of water-cooled thermal generation. These vulnerabilities could lead to constrained electricity supply during critical periods, jeopardizing system reliability and resilience across the state.

Risk Scenario: Cybersecurity event	
THREAT	Cyber threats targeting U.S. critical infrastructure have grown in frequency and sophistication in recent years, particularly from nation-state actors and organized cybercriminal groups. Nevada's electric utilities—especially those managing power generation and grid operations—utilize industrial control systems (ICS) and Supervisory Control and Data Acquisition (SCADA) systems that are increasingly connected to broader enterprise networks and remote access protocols. According to national threat assessments and recent alerts from CISA, state-sponsored threat actors are targeting OT environments for reconnaissance and potential disruption. The Nevada Energy Sector, particularly in the Carson City/Reno region, faces a growing and sophisticated array of cybersecurity threats. These threats include ransomware attacks, nation-state sponsored activities, hacktivist campaigns, and supply chain compromises. Threat actors, such as RansomHub/DragonForce, HellCat, Lazarus Group, Cyb3rAv3ngers, S16, and Noname057(16), are increasingly targeting critical infrastructure. Ransomware attacks, exemplified by the Colonial Pipeline incident, aim to disrupt operations by locking essential control systems, while others exploit supply chain vulnerabilities to gain unauthorized access. The energy sector represented 20% of all vulnerabilities reported in CISA Industrial Control Systems (ICS) advisories in 2023, highlighting the intense focus of attackers on operational technology (OT) and industrial control systems. There has been a significant increase in cyberattacks targeting the energy sector, with one report indicating an 80% increase in ransomware attacks against utilities in 2024 compared to the previous year. Specifically, "Nevada Energy" was identified as a utility company affected by a MOVEit supply-chain data leak, demonstrating a direct impact on the state's energy providers. Volt Typhoon is a Chinese state-sponsored hacker group. The United States government and its primary global intelligence partners, known as the Five Eyes, issues a warning on March 19, 2024, about the group's activity targeting critical infrastructure. Volt Typhoon has compromised thousands of devices around the world sicne it was publicly identiified by security analysts in May 2023.
VULNERABILITY	Many Nevada utilities operate legacy OT systems with limited native cybersecurity protections, such as encryption or multifactor authentication. Small and rural cooperatives may lack sufficient staff and cybersecurity resources to monitor and mitigate persistent threats. Vulnerabilities include exposed remote desktop protocol (RDP), outdated software, lack of segmentation between IT and OT networks, and insufficient incident response plans. Restoration following a successful intrusion into OT systems could take days to weeks, depending on the extent of system compromise and availability of backups. The Nevada energy grid, particularly in the Carson City/Reno region, exhibits vulnerabilities due to its evolution into a smart grid with increased interconnectivity, creating more potential cyberattack entry points. A significant challenge lies in legacy systems, as many grid devices operate on decades-old software not designed with internet connectivity in mind, often lacking modern encryption and authentication. The proliferation of Internet of Things (IoT) devices in modern energy systems, numbering in the thousands or millions, introduces numerous endpoints that may lack basic security features and are difficult to update or monitor effectively. Supply chain vulnerabilities pose a substantial risk, as attackers can exploit weaker security measures in third-party vendors to access energy sector networks. The growing convergence of Information Technology (IT) and Operational Technology (OT) networks also creates pathways for adversaries to move laterally from compromised IT environments into critical OT systems. Additionally, poor cyber hygiene, such as publicly exposed OT devices and default or easily guessable passwords, escalates these threats. The anticipated "quadrupling" of Northern Nevada's electrical grid due to the expansion of the data storage industry will further increase the complexity and attack surface, necessitating substantial investment in robust cybersecurity measures.

CONSEQUENCE 	A successful cyber intrusion that disrupts OT systems could result in loss of visibility and control over electric grid operations, triggering rolling blackouts across service territories. Impacts may include: •Service outages to thousands of customers, including hospitals, data centers, and critical water infrastructure. •Economic loss due to business disruption in major urban centers such as Las Vegas and Reno. •Public safety concerns arise if an outage overlaps with extreme heat events, straining emergency response. •Loss of public confidence and reputational harm to utilities and government agencies. The consequences of a successful cyberattack on the energy infrastructure in the Carson City/Reno region would be severe and far-reaching. Direct consequences include significant energy supply and services loss, leading to widespread power outages from operational disruptions. Such attacks can physically paralyze energy production and distribution, requiring costly and time-consuming recovery efforts. Beyond operational impact, cyberattacks can lead to substantial financial losses, as demonstrated by a $35 million loss for Halliburton from a ransomware breach. Indirect and societal consequences are extensive, impacting critical interdependencies such as water utilities, where attacks could lead to contaminated water and public health crises. Economic disruptions would manifest as soaring energy prices and supply chain instability, severely affecting businesses and daily life. Critically, power outages can have life-threatening consequences for healthcare facilities, which rely on continuous electricity for life-saving equipment, and vulnerable populations during extreme weather events. The compromise of personally identifiable information (PII) of energy utility customers and employees is also a significant risk, as seen in recent data leaks impacting "Nevada Energy."
RISK 	The convergence of aging infrastructure, increased cyber threat activity, and limited cybersecurity investment in some utility segments results in a high-risk scenario. The potential for disruption to grid operations, cascading impacts to other critical infrastructure, and the high consequence of failure elevate the urgency for targeted cybersecurity improvements and coordinated risk mitigation efforts across Nevada's energy sector. The cybersecurity risk to the Nevada Energy Sector, particularly within the Carson City/Reno region, is substantial due to the increasing frequency and sophistication of cyberattacks targeting critical infrastructure. The inherent vulnerabilities of an evolving smart grid, including legacy systems, widespread IoT devices, complex supply chains, and the convergence of IT and OT networks, create numerous entry points for malicious actors. A successful cyberattack could lead to widespread and prolonged power outages, significant economic losses, and severe public health and safety impacts, compounded by potential data breaches. Given the projected growth of the energy grid in Northern Nevada to support the data center industry, the complexity and potential attack surface will further increase, necessitating robust and continuously evolving cybersecurity defenses.

Risk Scenario: Pandemic	
THREAT 	Pandemic events such as widespread outbreaks of highly infectious diseases (e.g., COVID-19, influenza variants, or novel pathogens) can result in mass illness, workforce absenteeism, and disruptions to global and domestic supply chains. Nevada's energy infrastructure is particularly susceptible due to the centralized nature of key assets (e.g., large power generation stations, pipeline terminals) and its dependence on out-of-state fuel and parts suppliers. Given the recurrence of pandemic waves and the potential for new zoonotic outbreaks, this threat has a medium-to-high annual probability (20%–40%), especially when including seasonal illness surges.
VULNERABILITY 	Nevada's energy sector—including electric utilities, petroleum distribution, and natural gas providers—relies on a limited pool of highly specialized labor (e.g., control room operators, technicians, hazardous material drivers). In a pandemic scenario, absenteeism from illness or quarantine requirements may reduce operational capacity for extended periods (several days to over a week), especially during peak demand seasons. In addition, global supply chain dependencies for spare parts, fuel additives, and personal protective equipment can cause restoration delays. Local fuel distribution is vulnerable to labor shortages among tanker truck drivers, while electricity system operators may struggle with reduced staffing at control centers.
CONSEQUENCE 	Disruptions in energy workforce availability or supply chains could lead to delayed maintenance, slower outage restoration, or even forced generation capacity reduction. Impacts may include: •Localized or regional electric grid instability. •Shortages or delivery delays for liquid fuels, especially in rural or tribal communities. •Reduced heating fuel availability in winter (e.g., propane in northern counties). •Secondary consequences, such as loss of backup power at healthcare facilities, water treatment plants, and data centers, may occur if fuel deliveries are delayed. For example, during COVID-19, southern Nevada experienced delayed substation maintenance due to the unavailability of out-of-state contractors. Extended disruptions could cascade impacts on public health, economic activity, and critical infrastructure, especially in areas without redundancy.
RISK 	A pandemic outbreak affecting workforce availability and supply chains poses a medium-to-high risk to Nevada's energy sector. While energy infrastructure may remain physically intact, operational disruptions could lead to outages or service degradation, particularly during periods of high energy demand or in geographically isolated areas. The indirect impacts on critical facilities and vulnerable populations elevate this scenario's overall risk.

Risk Scenario: Thunderstorms/Lightning	
THREAT 	Thunderstorms are a prevalent natural hazard in Nevada, occurring on average once every 7.3 days from March to October, with Nevada ranking 39th in total lightning pulses in 2020. These events present a multi-faceted danger to energy infrastructure. Direct lightning strikes to overhead transmission lines, distribution poles, and substations can cause immediate damage, leading to flashovers, equipment failure, and insulation breakdown, resulting in power surges and outages. Strong winds associated with thunderstorms exert immense pressure on power lines, poles, and towers, causing structural fatigue and physical damage like downed lines and broken poles. Intense precipitation can lead to localized flash flooding, threatening underground electrical infrastructure, substations, and ground-level equipment, potentially causing short circuits and operational failures. The cumulative effects of these elements can exacerbate damage and prolong recovery efforts.
VULNERABILITY 	Nevada's energy infrastructure is susceptible to damage from thunderstorms and lightning because of its extensive network of exposed overhead transmission and distribution lines, which are directly vulnerable to the elements during these events. Aging infrastructure, particularly in urban areas, may have reduced resilience to the stresses imposed by severe weather. Additionally, longer overhead power line circuits inherently have greater exposure to damage from environmental factors. Past observations in Nevada have indicated that infrastructure age contributes to power outages.
CONSEQUENCE 	The direct consequences include significant loss of energy supply and services, leading to power outages across affected regions, with damage to equipment requiring costly repairs and potentially resulting in prolonged restoration times. Thunderstorms and lightning caused the greatest overall property loss among natural hazards in Nevada between 2009 and 2019, estimated at $13 million annually. For example, a single severe storm event in Western Nevada, associated with heavy, wet snow and high winds, caused approximately 71,000 customers to lose power at its peak, resulting in around 1,000 different outage points across the grid, significantly exceeding typical expectations for a major storm. Indirect consequences impact various aspects of society, including economic losses for businesses due to operational disruptions. Critical energy users, such as healthcare facilities and emergency services, face severe challenges without reliable power. Vulnerable communities reliant on continuous power for essential needs (e.g., heating, cooling, medical equipment) can experience heightened risks. Disruption to critical infrastructure interdependencies, such as water supply and sewage treatment, can also occur.
RISK 	The risk posed by thunderstorms and lightning to the Nevada Energy Sector is significant, driven by the frequent occurrence of these natural hazards and their diverse mechanisms of impact on exposed and aging infrastructure. The substantial direct property losses and the potential for widespread, long-duration power outages underscore the high consequences for energy reliability, economic activity, and public safety across the state. Mitigation and preparedness efforts are crucial to reduce the overall risk and enhance the resilience of Nevada's energy systems.

RISK ASSESSMENT RESULTS

Risk calculations were conducted for a range of identified risk scenarios to quantify and compare their potential impact on Nevada's energy systems. Each scenario was evaluated using a structured methodology that considered the probability of occurrence (threat), the vulnerability of affected assets, and the potential consequences of disruption. These elements were combined to generate a numerical risk score for each scenario, allowing for an objective comparison across different types of hazards. This process helped to identify which scenarios pose the greatest threat to energy reliability and security, guiding the prioritization of mitigation strategies and resource allocation. By applying consistent risk calculation methods, the assessment ensures a data-driven foundation for enhancing Nevada's energy resilience. The results of the risk score calculations are found in Table 10 below.

Risk Scenario	Infrastructure	Threat	Vulnerability	Consequence	Total Risk Score
		0-5	*0-5*	*0-5*	$\frac{TxVxC}{3}=TRS$
Major Earthquake	Natural Gas Transmission and Distribution Systems in Western Nevada	5	5	5	**5.00**
Wildfire	Nevada Energy Infrastructure (Electric Transmission and Natural Gas Systems)	4	3	4	**3.67**
Flood	Electric Substations in Northern Nevada	3	3	4	**3.33**
Drought	Nevada Energy Infrastructure	4	3	2	**3.00**
Cybersecurity event	Nevada Electric Utility Operational Technology (OT) Systems	3	2	2	**2.33**
Pandemic	Nevada Energy Sector Workforce and Supply Chain Disruptions	4	2	2	**2.67**
Thunderstorms/Lightning	Nevada Energy Infrastructure (Electric Transmission Lines and Substations)	3	2	2	**2.33**

Table 9. Risk Score Calculations for Various Risk Scenarios

The Risk Matrix in Table 10 below provides a graphical representation of hazards to visually analyze and compare risk scenarios based on two key variables: threat probability and impact, which includes both vulnerability and consequence. This graphical presentation of results enables users to identify trends and patterns across various risk scenarios, supporting more informed conclusions and prioritization. By using charting and mapping tools, it enhances the clarity and effectiveness of the analysis, making complex risk relationships easier to understand and communicate to stakeholders.

		Medium Risk	High Risk	Very High Risk		Extreme Risk
Threat	5 High					Major Earthquake
	4 Med-High	Pandemic	Drought	Wildfire		
	3 Medium	Cybersecurity T-Storms/ Lightning		Flood		
	2 Med-Low					
	1 Low					
		1-5 Low	6-10 Med-Low	11-15 Medium	16-20 Med-High	21-25 High
		Impact (Vulnerability x Consequence)				

Table 10. Risk Matrix with Risk Scenarios Plotted

NEVADA RISK MITIGATION MEASURES BY HAZARD

As mentioned in the Threats and Hazards section, the following hazards are in order of likelihood/impact based on a High, Medium, Low potential or probability scale.

EARTHQUAKE

Probability of Future Energy-Related Earthquake Events: High
Potential of Impacts to Energy Sector: High

Mitigating the potential impact of earthquakes within the energy sector in Nevada requires a comprehensive approach that focuses on both prevention and preparedness. Before the construction of future facilities, entities should conduct thorough geotechnical assessments and site investigations before constructing energy infrastructure, such as power plants, substations, and transmission lines. Entities should also consider the seismic hazard maps and geological data of the region. Government agencies should implement stringent building codes and standards that account for seismic activity, including appropriate structural design, reinforcement, and foundation engineering techniques. For existing facilities, agencies should identify older energy infrastructure that may be vulnerable to seismic activity and prioritize retrofitting or strengthening measures to enhance their resilience. Energy partners should retrofit transmission towers, power plants, and other critical facilities with seismic dampers, base isolators, and other structural enhancements to absorb and dissipate earthquake energy.

WILDFIRE

Probability of Future Energy-Related Wildfire Events: High
Potential of Impacts to Energy Sector: Medium

To respond to changes in the climate and environment that are contributing to an increased risk of wildfires and other natural disasters, energy providers continue to implement a number of measures to help protect customers, equipment and environment from wildfires and extreme weather. This includes:

- Implementing a pilot program to install a fire mesh product on poles in most at-risk fire areas in Genoa. In the event of a wildfire, the mesh will expand to form a protective barrier for the wooden pole.
- Partnering with the Nevada Division of Forestry to reduce the risk of wildfire through goat grazing.
- Installing wildfire cameras and weather stations in natural disaster risk zones across service territories.
- Partnering with fire protection services to clear targeted areas of hazardous vegetation.
- Inspecting more than 85,000 wooden poles in high-risk areas and making any critical repairs and corrections.
- Increasing the frequency of vegetation management cycles in high fire risk areas. Since 2020, more than 70,000 unhealthy or hazardous trees in these areas have been trimmed or removed for safety. Providers also conduct weekly fuel sampling of live and dead fuels in these areas as part of monitoring efforts.

FLOOD

Probability of Future Energy-Related Flood Events: High
Potential of Impacts to Energy Sector: Medium

Mitigating the impact of flooding on the energy sector in Nevada requires a combination of preventive measures and preparedness strategies. Mitigation measures that can help minimize the effects of flooding on the energy sector include:

- Risk assessment and planning: Conduct comprehensive risk assessments to identify areas prone to flooding and their potential impact on energy infrastructure. Develop floodplain maps and models to understand flood patterns and potential vulnerabilities.
- Infrastructure protection: Implement measures to protect critical energy infrastructure, such as power plants, substations, and transmission lines, from flood damage. This may include elevating equipment above flood levels, installing flood barriers, reinforcing structures, or relocating infrastructure away from flood-prone areas.
- Flood forecasting and early warning systems: Develop or improve flood forecasting systems to provide early warning of potential flooding events. This allows energy companies to prepare and take preventive measures in advance, such as shutting down equipment, securing vulnerable areas, or activating emergency response plans.

DROUGHT

Probability of Future Energy-Related Drought Events: High
Potential of Impacts to Energy Sector: Low

Periods of drought will continue to impact Nevada and the hydropower production within Nevada and at plants outside the State that transmit electricity into Nevada. During drought periods, alternate fuels compensate for the power shortfall. One such example, in March 2023, utility regulators in Nevada gave the State's largest power provider clearance to start work on a $333 million project to build a natural gas plant in the State for the first time in nearly 15 years, as a consequence of the extreme drought conditions in the southwestern U.S. The two gas-fired turbines to be erected north of Las Vegas by NV Energy are expected to come online by July 2024 amid hotter summers and longer wildfire seasons in a state that aims to have a carbon-free power grid by 2050. Nevada's Public Utilities Commission approved the plans and stated the turbines are needed to address peak electricity demand in the summer months, as ever-drying conditions in the West continue to stress the region's power grids and slash hydroelectric output.

CYBERSECURITY-RELATED EVENT

Probability of Future Energy-Related Cybersecurity Events: Medium
Potential of Impacts to Energy Sector: Medium

Strengthening cybersecurity measures and increasing vigilance against potential cyber threats is crucial during pandemics. Energy companies should regularly update and patch their systems, conduct cybersecurity audits, and educate employees about potential risks to mitigate cyber-attacks.

PANDEMIC

Probability of Future Energy-Related Pandemic Events: Medium
Potential of Impacts to Energy Sector: Medium

To address the threats posed by pandemics to the energy sector, many mitigation measures should be considered. Energy companies should develop robust business continuity plans that account for potential workforce disruptions, supply chain challenges, and changing energy demand patterns. These plans should include remote work arrangements, redundancy measures, and contingencies to ensure an uninterrupted energy supply. Encouraging a diversified energy mix can help mitigate the impact of shifts in energy demand patterns during pandemics. Promoting

renewable energy sources and energy efficiency measures can create a more resilient and sustainable energy sector. Governments, energy companies, and public health agencies should establish collaborative partnerships to coordinate responses during pandemics. This can involve sharing information, resources, and expertise to address challenges and maintain energy supply.

THUNDERSTORMS AND LIGHTNING

Probability of Future Energy-Related Thunderstorm and Lightning Events: Medium
Potential of Impacts to Energy Sector: Low

Mitigation measures for the energy sector related to thunderstorms and lightning in Nevada are essential for ensuring the reliability and safety of electrical infrastructure. Mitigation measures to consider:

- Lightning Protection Systems (LPS): Install lightning protection systems on critical energy infrastructure, such as power plants, substations, and transmission towers. These systems include lightning rods, conductors, and grounding systems designed to safely dissipate lightning strikes, reducing the risk of damage or fires.
- Surge Protection: Implement surge protection devices (SPDs) at key points in the electrical grid, including substations and sensitive equipment. SPDs can divert excess voltage caused by lightning strikes away from critical components, preventing damage.
- Grounding: Ensure that all equipment and structures are properly grounded to minimize the risk of electric shock and fires in case of lightning strikes. Regularly inspect and maintain grounding systems to ensure their effectiveness.

It's essential to tailor these mitigation measures to the specific needs and risks of the energy sector in Nevada, taking into account the unique geographic and climatic conditions of the region. Regularly reviewing and updating mitigation plans based on changing risks and emerging technologies is also crucial for long-term resilience against lightning-related incidents.

GENERAL RISK MITIGATION MEASURES

This section presents an inventory of potential risk mitigation measures for energy infrastructure. This inventory is not comprehensive; it is intended to be a starting place for conversations and for developing a risk mitigation approach to enhance energy sector reliability and end-use resilience, including maintaining electric, liquid fuels, and natural gas system reliability, and securing energy infrastructure. Cyber resilience measures, while important, are outside of the intended scope of this section.

Cyber Resilience is the ability to anticipate, withstand, recover from, and adapt to adverse conditions, stresses, attacks, or compromises on systems that use or are enabled by cyber resources.
For additional information see:

- IEA: Cyber Resilience, Report Extract
- NIST: "Developing Cyber-Resilient Systems; A Systems Security Engineering Approach"

Energy infrastructure is typically constructed to safety, security, and reliability standards set by the North American Electric Reliability Corporation, Pipeline Hazardous Materials and Safety Administration, and other federal, state, and industry regulating bodies. To mitigate impacts from evolving threats including climate change, states and energy infrastructure operators may consider risk mitigation technologies and operational measures that enhance system resilience *beyond* the standards set by regulators. As defined in Presidential Policy Directive (PPD)-21:

> *"Resilience is the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents."*

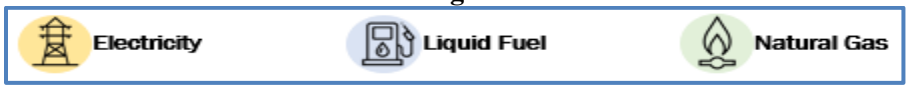
When evaluating whether to invest in new risk mitigation measures, infrastructure operators evaluate the cost of the measures against the level of risk and the potential benefits of greater system reliability and faster recovery after emergency events. For regulated electric and natural gas utilities, these investments may require approval from state public utility commissions.

The measures summarized on the subsequent pages are categorized into two main groups: "All Hazards" measures can apply to a range of threats; and "Hazard-Specific" measures are designed to mitigate a specific threat or risk, such as cold weather or wildfires. All Hazard measures are divided into categories that align with three of the "infrastructural qualities" outlined in the Department of Homeland Security's Resilience Framework:

1) Robustness – measures that strengthen a system to withstand external hazards without degradation or loss of functionality.
2) Redundancy – measures that allow for alternate options, choices, and substitutions when a system is under stress; and
3) Rapid Detection/Recovery – measures that accelerate the time it takes to overcome a disruption and restore energy services.

The last two sections provide general resources on ways to increase the resilience of energy systems and resources related to specific risk mitigation measures.

Legend



All-Hazards Risk Mitigation Measures

Robustness

Measure	Description	Sector
Demand response programs	Demand response programs relieve pressure on electric or natural gas delivery systems by reducing or time-shifting customer energy usage. Demand reduction during peak periods reduces the chance of system overload and service failure. In addition to enhancing reliability, demand response can also help reduce generator or supplier market power and lessen price volatility.	⚡ 🔥
System segmentation	Energy systems (power grids, gas pipeline networks, and liquid fuels pipeline networks) can be sub-divided to more efficiently isolate damaged areas, allowing undamaged segments to continue serving customers. By segmenting networks, service isolations can be more targeted and affect fewer customers.	⚡ ⛽ 🔥
Undergrounding power lines	Placing transmission lines underground protects them against external threats, including high winds and falling branches, wildfires, extreme heat or cold, icing, dirt/dust/salt accumulation, and animals. Buried lines may be more vulnerable to flooding if located in low-lying areas and may be more difficult and expensive to maintain and repair.	⚡

Redundancy

Measure	Description	Sector
Backup generators	Fixed or portable backup generators can provide backup power to critical facilities when grid-supplied power is interrupted. Backup generators may be designed to power emergency functions, such as emergency lighting, fire suppression, or stormwater removal, or may be designed to power some or all of a facility's operational functions. Mobile generators can power utility or emergency responder base camps (sites where response personnel and equipment are staged). Backup generators require adequate fuel supply to operate.	⚡ ⛽ 🔥
Battery storage	Battery energy storage can be used to provide backup power during electric grid outages. Batteries can be deployed at utility-scale as front-of-the-meter systems, providing services like utility load peak shaving or behind-the-meter by customers. Batteries are often paired with solar photovoltaic systems and included in microgrid designs.	⚡
Microgrids	A microgrid is a group of interconnected loads and distributed energy resources that acts as a single controllable entity with respect to the grid. It can connect and disconnect from the grid to operate in grid-connected or island mode. Microgrids can improve customer reliability and resilience to grid disturbances.	⚡
Ties between gas pipelines	Natural gas system operators can add ties between gas distribution lines or "mains" to diversify the transmission system and allow additional pathways to route natural gas in the event some sections of transmission mains are damaged.	🔥

Rapid Detection/Recovery

Measure	Description	Sector		
Advanced distribution management systems	Advanced distribution management systems integrate numerous utility systems and provide automated outage restoration and optimization of distribution grid performance. These functions improve the resilience of the distribution system and decrease the length of customer outages.			
Artificial intelligence analysis	Artificial intelligence analysis can augment the abilities of subject matter experts to prioritize transmission line operations, identify defects, and update asset management systems.			
Distribution automation	Distribution automation uses digital sensors and switches with advanced control and communication technologies to automate feeder switching; voltage and equipment health monitoring; and outage, voltage, and reactive power management.			
Drones for asset inspection	The use of drones to inspect pipelines, transmission lines, or other assets allows for safer and more frequent inspections, enhanced asset information, reduced operational costs and failure rates, and extended asset lifetimes.			
LiDAR for vegetation management	Vegetation is the primary cause of overhead power line outages. "Light Detection and Ranging" (LiDAR), is remote-sensing technology that can measure how close vegetation is to power lines. LiDAR units can be deployed on the ground, drones or aircraft, to enable more effective vegetation management reducing the impact of storms on electric infrastructure.			
Remote-operated valves	Remote-operated valves more efficiently isolate systems during disruptions or peak event load management (e.g., temporarily disconnecting gas customers).			
Advanced Metering Infrastructure	Advanced metering infrastructure (AMI) is an integrated system of smart meters, communications networks, and data management systems that enables bi-directional communication between utilities and customers. Smart meters can provide near-real-time visibility into customer outages and help utilities allocate resources and restoration activities more efficiently.			
Supply chain resilience planning	Assessing current supply chains and working with relevant stakeholders to strategically plan for the continuity and rapid restoration of those supply chains after major disruptions improves supply chain resilience.			

Hazard-Specific Risk Mitigation Measures

Cold Weather Protection Measures

Measure	Description	Sector
Pipeline insulation & trace heating	Fiberglass insulation used to enclose piping can protect against freezing. Additionally, an electrical heating element installed along the length of a pipe and covered by thermal insulation can be used to maintain or raise the temperature of the pipe during cold weather.	
Water line management	Draining water lines prevents rupturing that would otherwise be caused by the freezing water caught inside. Water lines that cannot be drained can be set to drip. The small amount of flow caused by the steady drip can help prevent the water inside the lines from freezing and rupturing the lines.	
Heating & pitch adjustment for wind turbines	Wind turbine blades and lubricant housings can be fitted with heating elements that prevent ice accumulation that would otherwise impair operations. Wind turbines can also be configured to operate in winter ice operation mode, which changes the pitch of the blades to allow continued operation as they accumulate ice.	
Thermal enclosures	Instrumentation can be enclosed and heated to ensure functionality and operational continuity during extreme cold conditions.	

Extreme Heat & Drought Resistance Measures

Measure	Description	Sector
Advanced water-cooling technologies	Power plants require significant volumes of water for thermoelectric cooling. Asset owners can employ approaches to reduce their water use to make them more resilient to drought conditions. Alternative approaches include recirculating cooling, dry cooling (highlighted below), and wet-dry hybrid cooling technologies. Cooling equipment capable of using alternative water sources (e.g., brackish water, wastewater) can reduce the impact of droughts.	
Dry cooling	Nearly all thermal generation, including nuclear and coal-fired power plants, requires large quantities of water for cooling. Extreme heat can lead to water shortages or make the water used for cooling too warm, forcing power plant operators to curtail electricity output. Dry cooling technologies use air-cooled heat exchangers and other technologies to significantly reduce water use.	
Hydropower reservoir capacity	Increasing reservoir storage capacity at hydroelectric power plants can offset the effects of precipitation variability.	
Turbine efficiency	Higher-efficiency hydroelectric turbines require less water per unit of electricity generated and are more resilient to drought.	

Flood Protection Measures

Measure	Description	Sector		
Elevate equipment	Elevating equipment located in low-lying areas can protect it from flooding that would otherwise damage or destroy it.			
Environmental management	Preserving certain kinds of natural habitats (e.g., coastal wetlands) provides a natural barrier to lessen the impact of storm surge.			
Flood walls/gates	Installing flood walls, gates, and/or barriers can protect essential equipment in flood prone areas from water intrusion and avoid restoration delays after major storms and floods.			
Relocate assets	Relocating energy assets away from flood-prone areas can reduce or eliminate their exposure to flooding and inundation threats.			
Stormwater pumps	Stormwater pumps can remove flood water and help prevent equipment from being submerged.			
Submersible equipment	Equipment located in flood-prone areas, such as underground power distribution systems in low-lying areas, can be modified or replaced with equipment that is designed to continue functioning when subjected to flooding from water containing typical levels of contaminants such as salt, fertilizer, motor oil, and cleaning solvents.			
Vent line protectors	A vent line protector (VLP) protects gas regulator vent lines from encroaching water. The VLP is usually open, but if water enters the vent line via the VLP, a float will seal the vent line shut. The float will drop when the water recedes, re-opening the vent to its normal position.			
Vented manhole covers	In flooding scenarios, manhole covers can dislodge, and the exposed manhole creates a hazard for pedestrians and vehicles. Proper vent design can allow for the flow of excess water without dislodging the cover.			

Seismic Protection Measures

Measure	Description	Sector		
Base isolation transformer platform	Substation transformers can be placed on platforms designed to absorb the shaking from earthquakes that would otherwise damage the equipment.			
Culverts	Placing fuel pipelines within buried concrete trenches, called culverts, significantly reduces the fracturing, buckling, and other damage caused to buried pipelines during an earthquake.			
Flexible joints	Flexible joints between steel pipe segments absorb the deformations caused during an earthquake and lessen the damage caused to pipeline infrastructure.			

Wildfire Protection Measures

Measure	Description	Sector
Covered conductors	To mitigate wildfire risk, utilities can replace bare wire overhead conductors on high-voltage transmission lines with conductors that have a plastic covering (also called tree wire). Covered conductors greatly reduce the number of faults, and the risk of ignition. Similar products include spacer cables and aerial cables.	
Fire-resistant poles	Wood poles can be replaced with ones made from fireproof materials, or wrapped in fireproof sheaths (e.g., wool-ceramic fiber).	
Line-break-protection systems	Automated monitoring equipment, called phasor measurement units, installed on transmission lines can detect a voltage change associated with the breakage of a power line. The system can respond in near real-time by de-energizing that segment of the transmission line so that the broken power line does not spark a fire as it falls to the ground.	
Pre-treat assets in path of fire	Pre-treating infrastructure (e.g., by applying flame retardant coatings or wrapping assets such as utility poles in flame retardant sheaths) decreases wildfire damage and expedites restoration of service.	
Reconductoring	Reconductoring is the process of installing new conductor wires on existing towers to increase transmission capacity, thus reducing propensity for high loads and line sag, which can cause ignition. Reconductoring typically involves replacing traditional steel-reinforced lines with composite core lines.	

ENERGY RELIABILITY AND RESILIENCE

Nevada, like many states, recognizes the importance of energy reliability and resilience in ensuring a stable and uninterrupted energy supply for its residents and businesses. The state has been working on various strategies to address these concerns. Key elements of Nevada's approach include the following:

- Diversification of Energy Sources: Nevada aims to diversify its energy portfolio by reducing reliance on a single source of energy. The state has been actively promoting the development of renewable energy sources, such as solar, wind, and geothermal, to decrease dependence on fossil fuels and increase the resilience of its energy infrastructure.
- Energy Storage Initiatives: Nevada recognizes the significance of energy storage technologies in enhancing energy reliability. By implementing energy storage solutions, such as batteries and pumped hydro storage, the state can store excess energy during periods of low demand and release it during high-demand periods or energy disruptions. These initiatives help stabilize the grid and reduce the impact of power outages.
- Grid Modernization and Resilience: Nevada has been investing in grid modernization efforts to enhance its energy infrastructure's resilience. This includes upgrading and retrofitting existing power systems with advanced technologies, such as smart grids, microgrids, and digital monitoring systems. These enhancements enable better monitoring, management, and response to disruptions, making the grid more resilient and reliable.
- Emergency Preparedness and Response: Nevada focuses on improving its emergency preparedness and response capabilities to mitigate the consequences of energy disruptions. This involves establishing robust contingency plans, coordinating with energy providers, emergency services, and relevant stakeholders to ensure swift and effective response in case of power outages or other energy-related emergencies.
- Energy Efficiency and Demand Response Programs: Nevada recognizes that reducing overall energy consumption and managing peak demand can contribute to energy reliability and resilience. The state promotes energy efficiency initiatives and encourages consumers to participate in demand response programs. These programs incentivize energy conservation and empower consumers to adjust their electricity usage during high-demand periods or emergencies.
- Collaboration and Partnerships: Nevada engages in collaborations and partnerships with various stakeholders, including utilities, government agencies, research institutions, and private entities, to foster innovation, share best practices, and develop joint strategies for improving energy reliability and resilience. These partnerships enable the state to leverage expertise, resources, and funding to implement effective solutions.

GENERAL RESILIENCE RESOURCES

Mitigating impacts from hazards to the energy system is a topic that is constantly being reevaluated, and the guidance for best practices is ever-changing. The following reports focus on ways to increase the resilience of energy systems. Note: this is not a comprehensive list of resources.

Institute of Electrical and Electronics Engineers (IEEE). 2020. *Resilience Framework, Methods, and Metrics for the Electricity Sector*.

This report provides an overview of resilience definitions (including its relationship with reliability), the existing frameworks for holistically defining resilience planning and implementation processes, and the metrics to evaluate and benchmark resilience. It also evaluates technologies, tools, and methods to improve electrical system resilience.

National Renewable Energy Laboratory. 2019. *Energy Resilience Assessment Methodology*.

This report presents a replicable energy resilience assessment methodology for sites, military bases, and campuses to assess energy risks and develop prioritized solutions to increase site resilience.

National Renewable Energy Laboratory. 2019. *Power Sector Resilience Planning Guidebook: A Self-Guided Reference for Practitioners*.

This guidebook introduces policymakers, power sector investors, planners, system operators, and other energy-sector stakeholders to the key concepts and steps involved in power sector resilience planning.

U.S. Climate Resilience Toolkit. 2019. *Building Resilience in the Energy Sector*

Examines climate change challenges for the energy sector, possible actions to mitigate risk and links to resources.

U.S. Department of Homeland Security. 2019. *National Mitigation Investment Strategy.*

The National Mitigation Investment Strategy ("NMIS"), developed by the Mitigation Framework Leadership Group is a single national strategy for advancing mitigation investment to reduce risks posed by natural hazards and increasing the nation's resilience to natural hazards. This report outlines the investment strategy and how federal and non-federal partners can coordinate community mitigation investments.

National Academies of Sciences, Engineering, and Medicine. 2017. *Enhancing the Resilience of the Nation's Electricity System*.

This report focuses on identifying, developing, and implementing strategies to increase the electric system's resilience in the face of events that can cause large-area, long-duration outages: blackouts that extend over multiple service areas and last several days or longer.

U.S. Dept. of Energy. 2016. *Climate Change and the Electricity Sector: Guide for Climate Change Resilience Planning*.

This report provides basic assistance to electric utilities and other stakeholders in assessing vulnerabilities to climate change and extreme weather, and in identifying an appropriate portfolio of resilience solutions.

Electric Power Research Institute (EPRI). 2016. *Electric Power System Resiliency*.
This report describes innovative technologies, strategies, tools, and systems that the electricity sector is developing and applying to address resiliency. The report explores three elements of resiliency: damage prevention, system recovery, and survivability.

Argonne National Laboratory. 2016. *Front-Line Resilience Perspectives: The Electric Grid*.
This report summarizes how states and local utilities approach all-hazards resilience in planning, construction, operations, and maintenance of the electric system, as well as challenges faced when addressing all-hazards resilience.

U.S. Dept. of Energy. 2014. *United States Fuels Resiliency Volume III: U.S. Fuels Supply Infrastructure Vulnerabilities and Resilience*.
This study evaluates the ability of the nation's oil and natural gas transportation, storage, and distribution infrastructure to respond to and recover from natural disasters and intentional acts, system chokepoints and interdependencies, and other supply interruptions.

U.S. Dept. of Energy. 2010. *Hardening and Resiliency: U.S. Energy Industry Response to Recent Hurricane Seasons*.
This report examines the storm hardening and resilience measures that refiners, petroleum product pipeline operators, and electric utilities in the Gulf Coast area took in response to the 2005 and 2008 hurricane seasons. It focuses on the segments of the energy industry that contribute most to the delivery of gasoline and diesel to the Southeast U.S.

SPECIFIC MEASURE RESOURCES

Advanced Distribution Management Systems

- NREL: Advanced Distribution Management Systems
- U.S. DOE: Insights into Advanced Distribution Management Systems

Battery Storage

- NREL: Valuing the Resilience Provided by Solar and Battery Energy Storage Systems
- NREL: Battery Storage for Resilience
- NREL: Renewable Energy Integration and Optimization Tool (ReOpt)
- SolarResilient: Sizing tool for solar PV and battery storage systems
- DOE: Solar-Plus-Storage 101

Demand Response Programs

- EIA: Demand-Side Management Programs Save Energy and Reduce Peak Demand
- FERC: Demand Response

Dry Cooling

- U.S. Energy Information Administration - EIA - Independent Statistics and Analysis
- DOE ARPA-E: Advanced Research in Dry (ARID) cooling program

Environmental Management

- EPA: What is Green Infrastructure?
- EPA: Green Infrastructure - Manage Flood Risk
- NOAA: Green Infrastructure Options to Reduce Flooding

Microgrids

- LBNL: Distributed Energy Resources Customer Adoption Model (DER-CAM)
- NREL: Voices of Experience Microgrids for Resiliency
- DOE: Microgrid Portfolio of Activities
- Sandia National Laboratories: Microgrid Design Toolkit

Advanced Metering Infrastructure

- DOE: Smart Grid Investments Improve Grid reliability, Resilience and Storm Responses
- DOE: Advanced Metering Infrastructure and Customer Systems Report
- NREL: Government Program Briefing: Smart Metering

Supply Chain Resilience Planning

- DOE: America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition
- DHS: Supply Chain Resilience Guide

Undergrounding Power Lines

- DOE: Resilient Power Grids: Strategically Undergrounding Powerlines
- FEMA: Reduce Wildfire Risk Case Study

Use of Drones for Asset Inspections

- Oak Ridge National Laboratory: An Early Survey of Best Practices for the Use of Small Unmanned Aerial Systems by the Electric Utility Industry

Vegetation Management

- U.S. EPA: Benefits of Integrated Vegetation Management (IVM) on Rights-of-Way
- FERC: Tree Trimming and Vegetation Management

ENGAGEMENT TO ENSURE ENERGY RELIABILITY AND FUEL SUPPLY

In Nevada, ensuring electric reliability and fuel supply involves engaging various entities and implementing robust strategies. Nevada can approach this task with a multi-faceted approach including the following:

- Government Collaboration: The Nevada government plays a crucial role in coordinating efforts to ensure electric reliability and fuel supply. They work closely with regulatory agencies, such as the Nevada Public Utilities Commission, to set guidelines and standards for energy providers and monitor their compliance.
- Nevada engages with energy providers, including electric utilities and independent power producers, to ensure the reliable supply of electricity. These entities are responsible for maintaining and operating power plants, transmission lines, and distribution networks. Regular communication and collaboration with these stakeholders help identify potential issues and develop strategies to address them.
- Nevada has been actively promoting the development of renewable energy sources, such as solar and wind power. By encouraging the growth of clean energy infrastructure, the state reduces its reliance on traditional fuel sources and diversifies its energy mix. Collaboration with renewable energy developers and incentivizing investment in clean technologies are vital to achieving this goal.
- Nevada engages with fuel suppliers, including petroleum and natural gas companies, to ensure a steady and reliable fuel supply. Collaboration with these entities involves monitoring fuel reserves, transportation infrastructure, and potential disruptions to supply chains. The state also works with regional and national entities to coordinate emergency fuel reserves during times of crisis.
- Nevada engages with emergency management agencies, such as the Nevada Office of Emergency Management, to develop comprehensive plans for responding to energy emergencies and natural disasters. These plans include protocols for fuel supply continuity, prioritizing critical infrastructure, and coordinating efforts between various entities during crises.
- Engaging various stakeholders, including businesses, consumers, and environmental groups, is crucial for ensuring electric reliability and fuel supply. Public input and feedback help shape energy policies, identify potential challenges, and develop innovative solutions. Stakeholder engagement can be facilitated through public forums, working groups, and advisory committees (such as the stakeholder group for the revision of this plan).
- Nevada can collaborate with academic institutions, research organizations, and industry experts to promote research and development initiatives. These efforts aim to improve energy storage technologies, grid management systems, and fuel efficiency. Encouraging innovation through funding programs and partnerships can lead to advancements that enhance electric reliability and fuel supply.
- Nevada actively participates in regional collaborations and energy organizations to address cross-border challenges and ensure a reliable and resilient energy system. Collaborative initiatives involve sharing best practices, coordinating grid operations, and jointly addressing regional fuel supply concerns.

FUTURE PLANNING EFFORTS TO PROMOTE RESILIENCY

Promoting the resiliency of the power generation sector within Nevada is a priority for the Governor's Office of Energy. Promoting resiliency in the future requires a comprehensive approach that encompasses various aspects of society, including infrastructure, economy, environment, and social systems. The following are potential planning efforts that can be undertaken to promote resiliency:

1. Energy Expansion: Nevada should continue to invest in and expand its energy portfolio using available energy resources in the sate. This includes increasing the generation capacity of solar, and geothermal. Setting ambitious targets for energy generation can help increase the resilience of the power sector against fuel price volatility and supply disruptions.
2. Energy Storage Infrastructure: Develop and enhance energy storage infrastructure within the state. Energy storage systems, such as batteries, pumped hydro, and thermal storage, can store excess energy during times of low demand and supply it during peak periods or when renewable generation is low. By incorporating energy storage, Nevada can improve the stability and reliability of its power grid, enabling the integration of more intermittent renewable energy sources.
3. Microgrids and Distributed Generation: Encourage the development of microgrids and distributed generation systems. Microgrids are small-scale, localized power grids that can operate independently or in conjunction with the main grid. By integrating distributed generation sources like rooftop solar panels, small wind turbines, and combined heat and power systems, communities can become more self-sufficient during emergencies or grid disruptions.
4. Grid Modernization and Resilience: Invest in grid modernization efforts to enhance the resilience of the power system. This includes upgrading aging infrastructure, improving transmission and distribution systems, and implementing advanced monitoring and control technologies. Upgrading the grid infrastructure with smart sensors, automation, and self-healing capabilities can detect and isolate faults more efficiently, reducing downtime and improving the system's overall resilience.
5. Emergency Preparedness and Response: Develop comprehensive emergency preparedness and response plans specifically tailored to the power generation sector. This involves conducting risk assessments, establishing communication protocols, and coordinating with relevant stakeholders, such as utilities, government agencies, and emergency services. Regular drills and simulations can help identify vulnerabilities and ensure a coordinated response during natural disasters, cyber threats, or other emergencies.
6. Workforce Development and Training: Foster a skilled workforce for the power generation sector. Encourage training programs, apprenticeships, and educational initiatives that focus on renewable energy technologies, grid management, cybersecurity, and emerging power sector trends. A well-trained workforce will be crucial in implementing and maintaining resilient power infrastructure in Nevada.
7. Public Awareness and Education: Promote public awareness and education campaigns to highlight the importance of resilient power generation and the role of renewable energy. Engage with communities, businesses, and educational institutions to increase

understanding and support for sustainable energy practices. Encouraging energy conservation, promoting energy efficiency measures, and informing the public about available incentives and rebates can contribute to a more resilient power sector.

8. Collaborative Partnerships: Foster collaboration and partnerships between utilities, regulators, researchers, and private industry stakeholders. By working together, these entities can share knowledge, resources, and best practices, accelerating the development and implementation of resilient power generation solutions. Public-private partnerships can also facilitate investment in innovative technologies and infrastructure projects.
9. Extreme Weather Adaptation: Extreme weather poses significant challenges. Planning efforts should focus on d implementing adaptation measures to address the impacts of extreme weather events. This may involve initiatives such as improving water management and hardening grid infrastructure.
10. Technology and Data Integration: Leveraging technological advancements and data-driven approaches can significantly enhance resilience. Investing in technologies like smart grids, predictive analytics, and early warning systems can provide valuable information for effective decision-making and response during crises. Integrating data from various sources, such as sensors, satellites, and social media, can enable real-time monitoring and assessment of risks.
11. Policy and Governance: Strong policies and governance frameworks play a critical role in promoting resilience. Governments should develop and enforce regulations that incentivize resilience investments and ensure that planning efforts consider long-term risks. Collaboration and coordination among different government agencies, sectors, and levels of governance are necessary to implement comprehensive resilience strategies effectively.

Implementing these goals and future plans will continue to ensure Nevada builds a robust and resilient power generation sector, capable of withstanding disruptions, reducing carbon emissions, and ensuring a reliable and sustainable energy supply for its residents and businesses. These planning efforts should be dynamic and adaptable, considering the evolving nature of risks and challenges. Continuous monitoring, evaluation, and revision of resilience plans will ensure their effectiveness and help societies thrive in the face of future uncertainties.

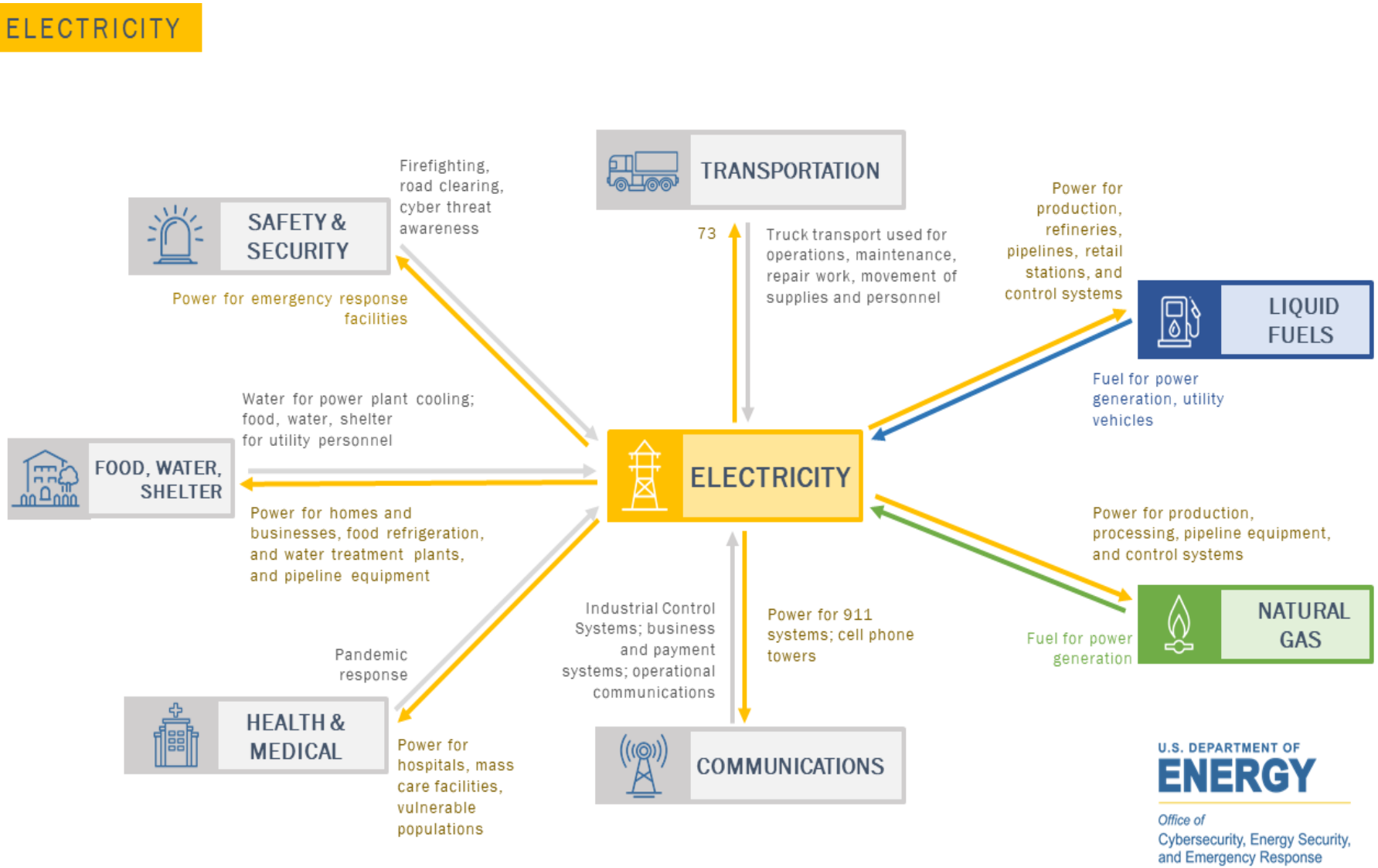
CROSS-SECTOR INTERDEPENDENCIES

Interdependencies and connections exist between critical infrastructure elements and sectors. Identifying and understanding interdependencies (two-way) or dependencies (one-way) between infrastructure assets and sectors is important for assessing risks and vulnerabilities and energy security and resilience planning.

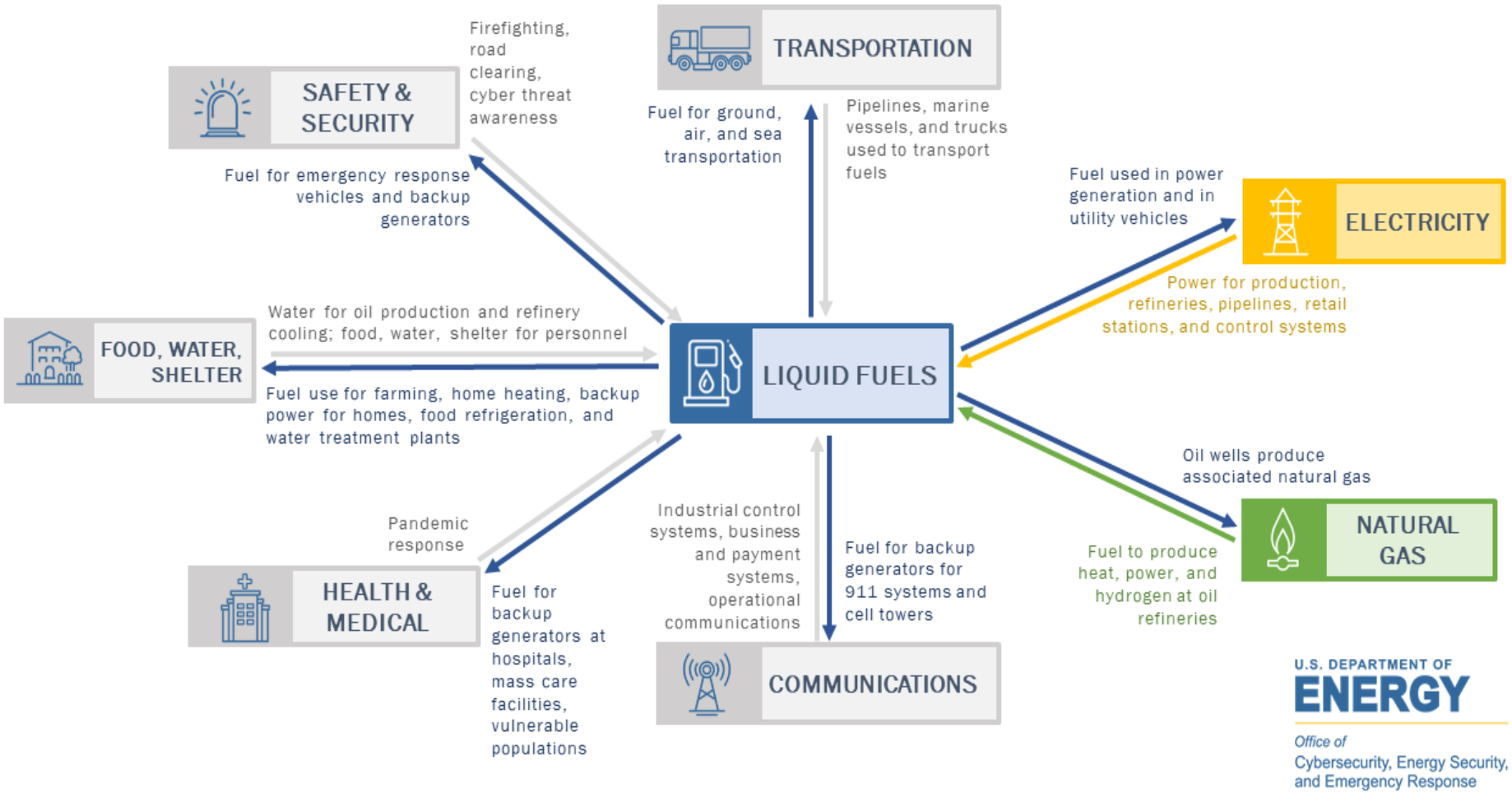
The Department of Homeland Security (DHS) has defined 16 critical infrastructure sectors, including energy. All of the other critical infrastructure sectors depend on power and/or fuel to operate. A disruption or loss of the services provided by the energy sector can directly affect the security and resilience within and across numerous sectors. The energy sector also depends on other sectors to help provide its services. There are also interdependencies within the energy sector itself. A comprehensive understanding of such interdependencies enables the sector to mitigate potential vulnerabilities and helps ensure that the nation's economy continues to deliver goods and services during extraordinary events.

This document contains diagrams showing key dependencies and interdependencies between the energy sector and other critical infrastructure sectors. Diagrams include the following:

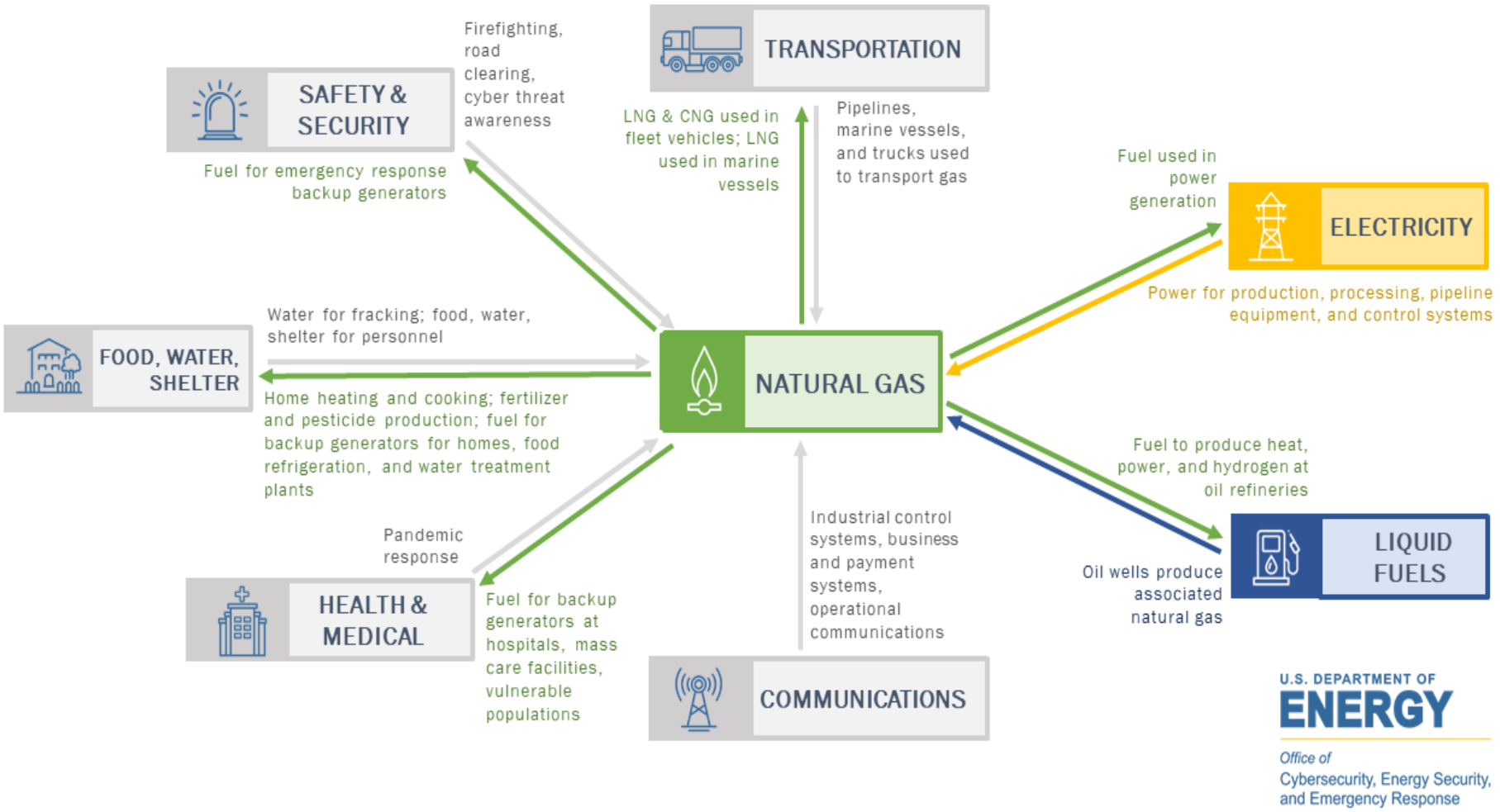
- Electricity Interdependencies
- Liquid Fuels Interdependencies
- Natural Gas Interdependencies


ELECTRICITY
TRANSPORTATION
73
Truck transport used for operations, maintenance, repair work, movement of supplies and personnel
SAFETY & SECURITY
Firefighting, road clearing, cyber threat awareness
Power for emergency response facilities
LIQUID FUELS
Power for production, refineries, pipelines, retail stations, and control systems
Fuel for power generation, utility vehicles
FOOD, WATER, SHELTER
Water for power plant cooling; food, water, shelter for utility personnel
Power for homes and businesses, food refrigeration, and water treatment plants, and pipeline equipment
ELECTRICITY
NATURAL GAS
Power for production, processing, pipeline equipment, and control systems
Fuel for power generation
HEALTH & MEDICAL
Pandemic response
Power for hospitals, mass care facilities, vulnerable populations
Industrial Control Systems; business and payment systems; operational communications
Power for 911 systems; cell phone towers
COMMUNICATIONS
U.S. DEPARTMENT OF ENERGY
Office of Cybersecurity, Energy Security, and Emergency Response

LIQUID FUELS



NATURAL GAS

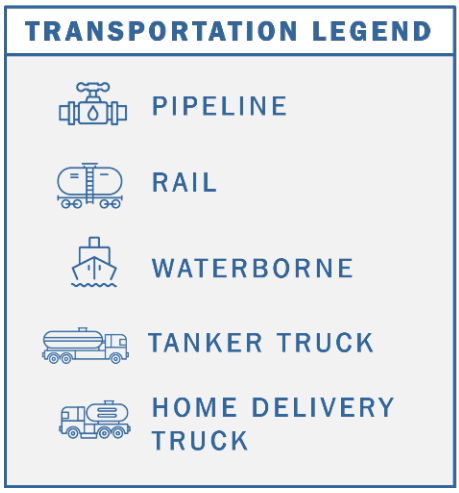

TRANSPORTATION
SAFETY & SECURITY
Firefighting, road clearing, cyber threat awareness
Fuel for emergency response backup generators
LNG & CNG used in fleet vehicles; LNG used in marine vessels
Pipelines, marine vessels, and trucks used to transport gas
Fuel used in power generation
ELECTRICITY
Power for production, processing, pipeline equipment, and control systems
FOOD, WATER, SHELTER
Water for fracking; food, water, shelter for personnel
Home heating and cooking; fertilizer and pesticide production; fuel for backup generators for homes, food refrigeration, and water treatment plants
NATURAL GAS
Fuel to produce heat, power, and hydrogen at oil refineries
LIQUID FUELS
Oil wells produce associated natural gas
Pandemic response
HEALTH & MEDICAL
Fuel for backup generators at hospitals, mass care facilities, vulnerable populations
Industrial control systems, business and payment systems, operational communications
COMMUNICATIONS
U.S. DEPARTMENT OF ENERGY
Office of Cybersecurity, Energy Security, and Emergency Response

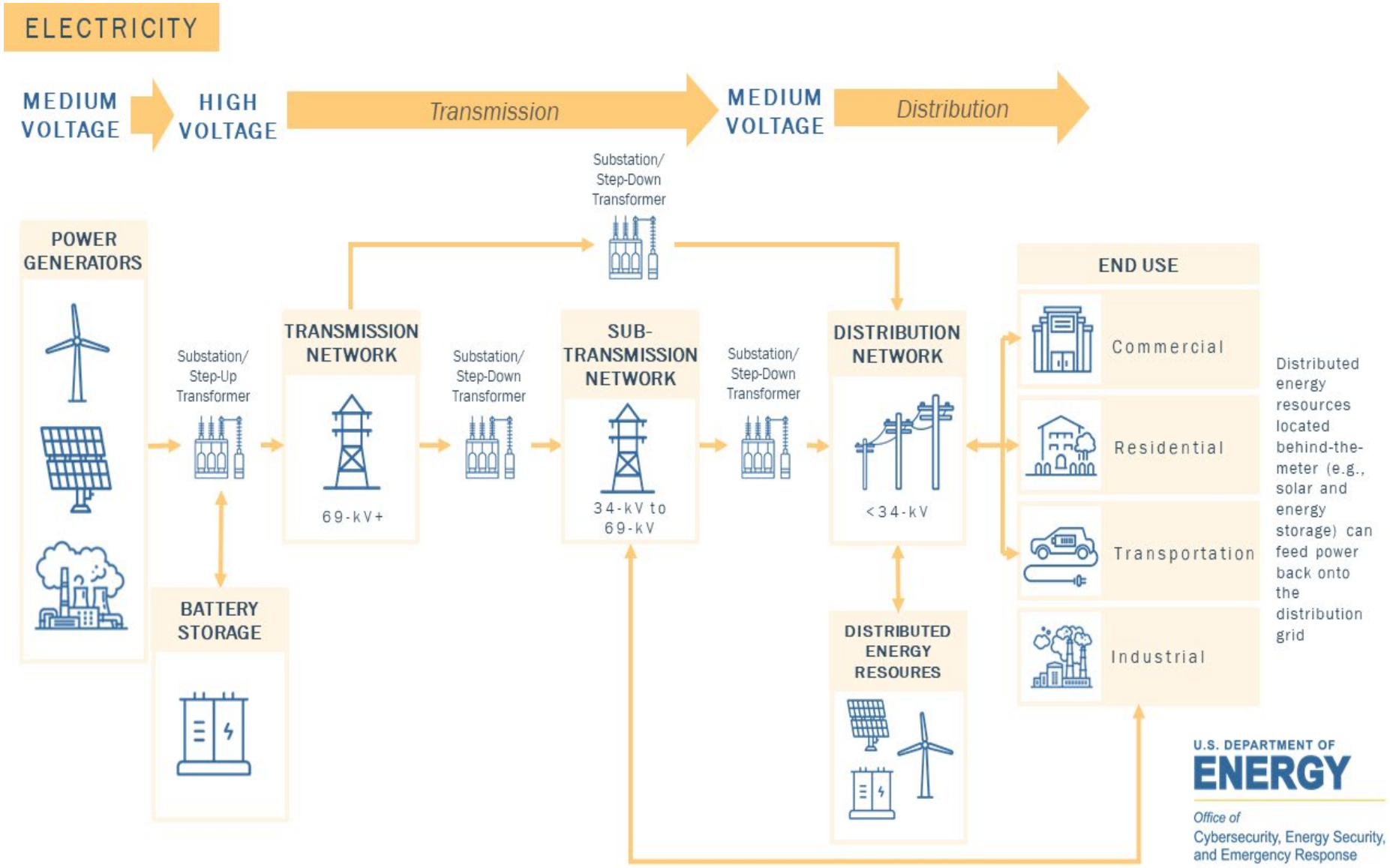
SUPPLY CHAIN DIAGRAMS

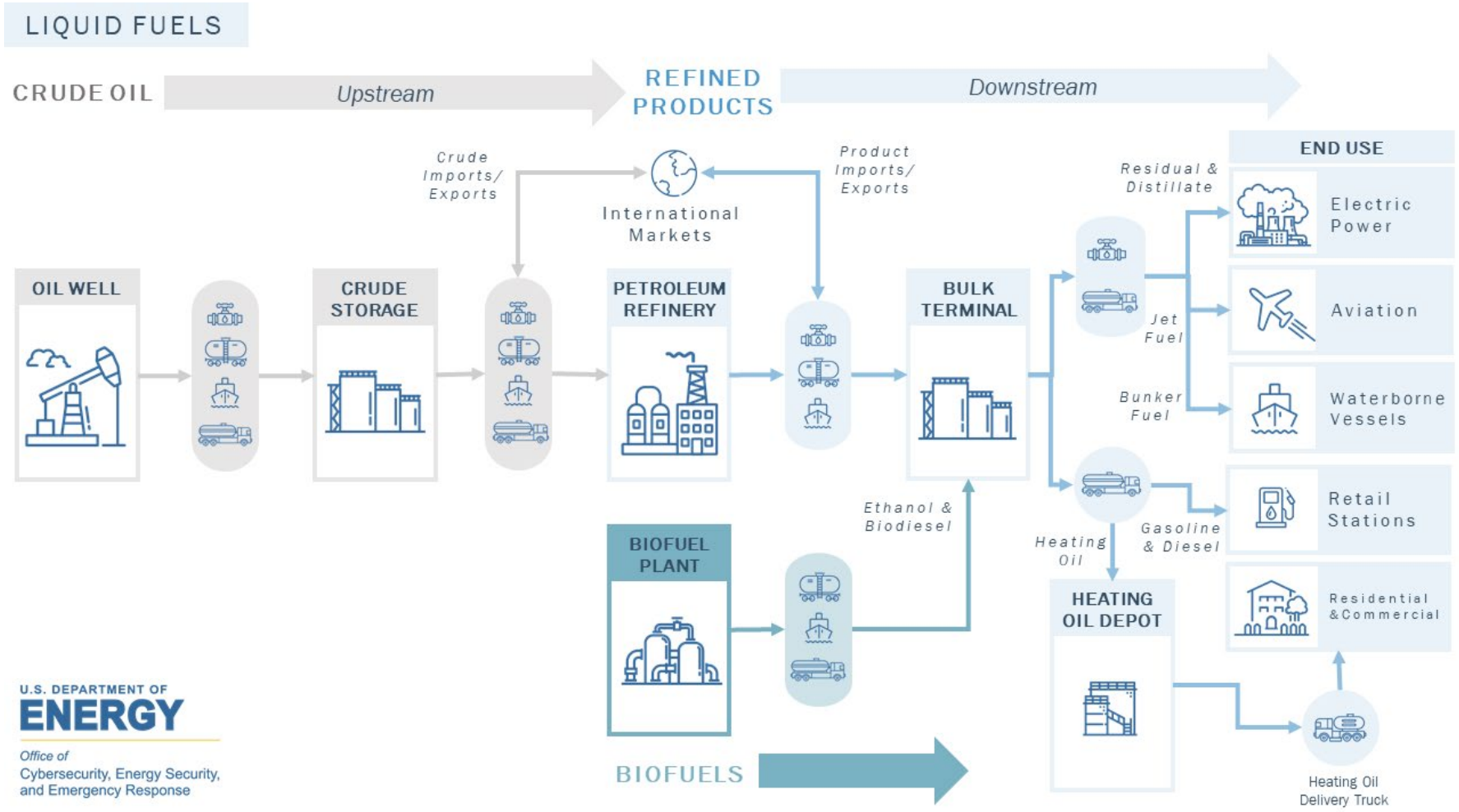
This section contains energy supply chain diagrams. Diagrams include the following:

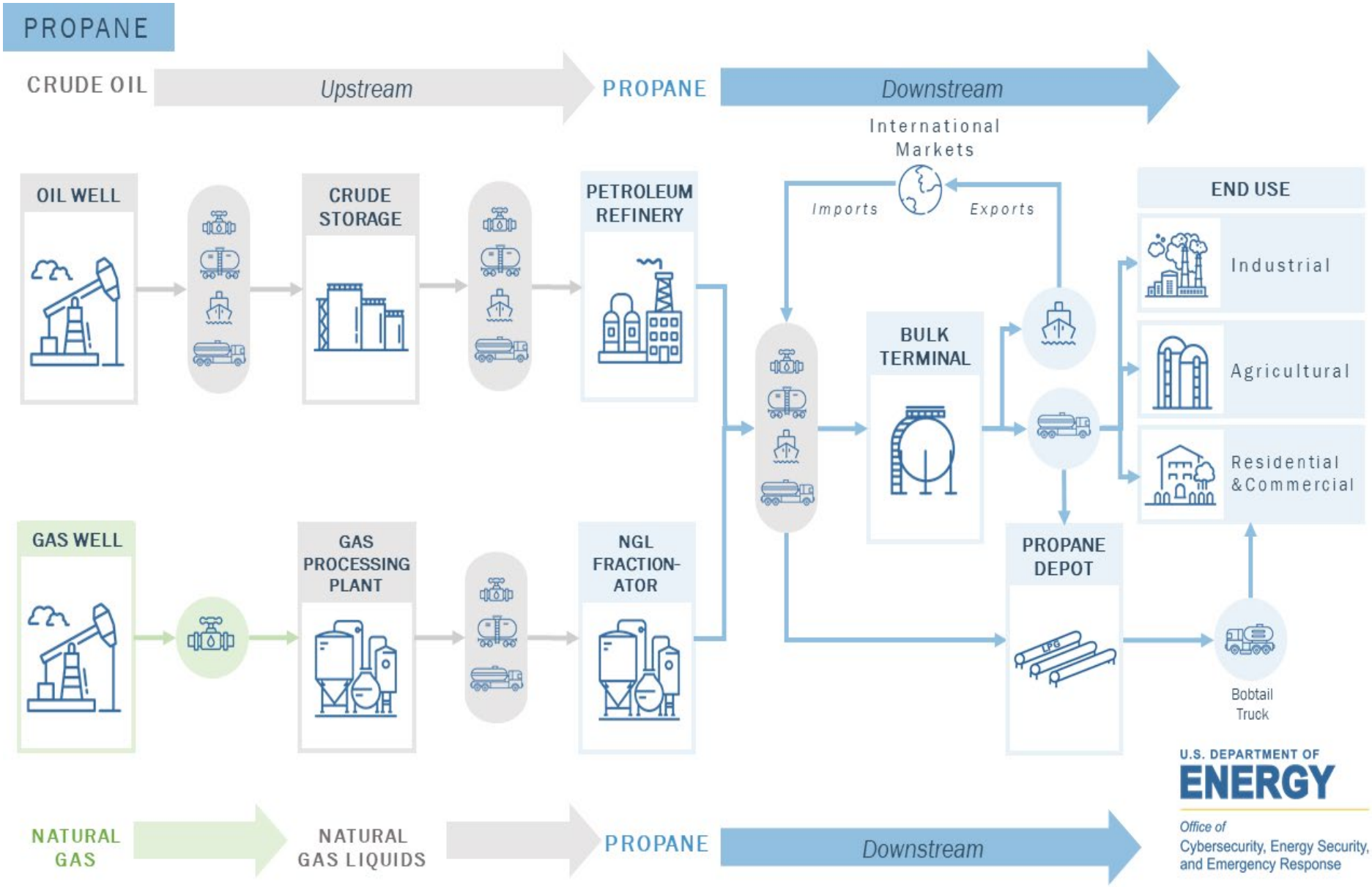
- Electricity Supply Chain
- Liquid Fuels Supply Chain
- Propane Supply Chain
- Natural Gas Supply Chain

The following legend applies to transportation modes for liquid fuels, propane, and natural gas in the diagrams on the following pages.




ELECTRICITY
MEDIUM VOLTAGE
HIGH VOLTAGE
Transmission
MEDIUM VOLTAGE
Distribution
Substation/ Step-Down Transformer
POWER GENERATORS
Substation/ Step-Up Transformer
TRANSMISSION NETWORK
69-kV+
Substation/ Step-Down Transformer
SUB-TRANSMISSION NETWORK
34-kV to 69-kV
Substation/ Step-Down Transformer
DISTRIBUTION NETWORK
<34-kV
END USE
Commercial
Residential
Transportation
Industrial
Distributed energy resources located behind-the-meter (e.g., solar and energy storage) can feed power back onto the distribution grid
BATTERY STORAGE
DISTRIBUTED ENERGY RESOURES
U.S. DEPARTMENT OF ENERGY
Office of Cybersecurity, Energy Security, and Emergency Response


LIQUID FUELS
CRUDE OIL
Upstream
REFINED PRODUCTS
Downstream
Crude Imports/ Exports
International Markets
Product Imports/ Exports
END USE
Residual & Distillate
Electric Power
OIL WELL
CRUDE STORAGE
PETROLEUM REFINERY
BULK TERMINAL
Jet Fuel
Aviation
Bunker Fuel
Waterborne Vessels
Ethanol & Biodiesel
BIOFUEL PLANT
Heating Oil
Gasoline & Diesel
Retail Stations
HEATING OIL DEPOT
Residential &Commercial
BIOFUELS
Heating Oil Delivery Truck
U.S. DEPARTMENT OF ENERGY
Office of Cybersecurity, Energy Security, and Emergency Response


PROPANE
CRUDE OIL
Upstream
PROPANE
Downstream
International Markets
Imports
Exports
OIL WELL
CRUDE STORAGE
PETROLEUM REFINERY
END USE
Industrial
Agricultural
Residential &Commercial
BULK TERMINAL
GAS WELL
GAS PROCESSING PLANT
NGL FRACTION-ATOR
PROPANE DEPOT
LPG
Bobtail Truck
NATURAL GAS
NATURAL GAS LIQUIDS
PROPANE
Downstream
U.S. DEPARTMENT OF ENERGY
Office of Cybersecurity, Energy Security, and Emergency Response

GLOSSARY OF ACRONYMS

Advanced Metering Infrastructure	(AMI)
Advanced Security Acceleration Project for the Smart Grid	(ASAP-SG)
Air Quality Management District-Washoe County	(AQMD)
Bonneville Power Administration	(BPA)
California Energy Commission	(CEC)
California Independent System Operator	(CAISO)
Central Processing Unit	(CPU)
Certification for Information System Security Professionals	(CISSP)
Community Services Block Grant	(CSBG)
Continuity of Operations Plan	(COOP)
Cybersecurity Working Group	(CSWG)
Department of Homeland Security	(DHS)
Division of Air Management and Quality-Clark County	(DAMQ)
Division of Welfare and Supportive Services	(DWSS)
Electric Membership Cooperatives	(EMC)
Electric Power Research Institute	(EPRI)
Emergency Support Function	(ESF)
Energy Crisis Intervention Program	(ECIP)
Energy Emergency Assurance Coordinators	(EEAC)
Energy Independence and Security Act 2007	(EISA 2007)
Federal Emergency Management Administration	(FEMA)
Federal Energy Regulatory Commission	(FERC)
Home Energy Assistance Program	(HEAP)
Homeland Security Presidential Directive	(HSPD)
Initiative for Resiliency in Energy through Vehicles	(iREV)
Information Technology	(IT)
Investor-Owned Utility	(IOU)
Legislative Counsel Bureau	(LCB)
Liquid Petroleum Gas	(LPG)
Local Distribution Companies	(LDC)
Low-Income Home Energy Assistance Program	(LIHEAP)
National Association of Regulatory Utility Commissioners	(NARUC)
National Association of State Energy Officials	(NASEO)
National Electric Sector Cybersecurity Organization	(NESCO)
National Electric Sector Cybersecurity Organization Resources	(NESCOR)
National Incident Management System	(NIMS)
National Institute of Standards and Technology	(NIST)
Nevada Administrative Code	(NAC)
Nevada Department of Agriculture	(NDA)
Nevada Office of Emergency Management	(NVOEM)
Nevada Division of Environmental Protection	(NDEP)
Nevada Division of Welfare and Supportive Services	(DWSS)
Nevada Energy Security and Emergency Operations Plan	(The Plan) Nevada
Petroleum Marketers & Convenience Store Association	(NPM&CSA) Nevada
Revised Statutes	(NRS)

North American Electric Reliability Corporation	(NERC)
Petroleum Administration Defense Districts	(PADD)
Presidential Policy Directive	(PPD)
Public Information Officer	(PIO)
Public Utilities Commission of Nevada	(PUCN)
Smart Grid Investment Grant	(SGIG)
State Comprehensive Emergency Management Plan	(SCEMP)
State Energy Program	(SEP)
Supervisory Control and Data Acquisition	(SCADA)
U.S. Computer Readiness Team	(USCERT)
UCA International Users Group	(UCAIUG)
United States Code	(USC)
United States Department of Energy	(U.S. DOE)
U.S. DOE Office of Cybersecurity, Energy Security, and Emergency Response	(CESER)
U.S. DOE Office of Energy Weatherization Assistance Program	(DOE-WAP)
Western Area Power Administration	(WAPA)
Western Electricity Coordinating Council	(WECC)
Western States Petroleum Association	(WSPA)

APPENDICES

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APPENDIX A: INDUSTRY AND GOVERNMENT CONTACTS LIST

Confidential – Limited Access

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APPENDIX B: GUIDANCE FOR PETROLEUM SHORTAGE RESPONSE

The Guidance for Petroleum Shortage Response Programs and Measures provides a summary outline of state and federal measures designed to respond to specific circumstances and consequences that can occur in fuel shortages. The following factors should be considered and noted when determining whether a measure should be implemented:

- Legal basis
- Impact on individuals, families, and businesses
- Impact on energy market adjustment
- Impact on energy suppliers
- Impact on neighboring states
- Impact if the measure or action is not taken
- Impact on public health and safety
- Media and public perception
- Enforceability and impact on law enforcement
- Resources required to implement measure (personnel, equipment, supplies, MOUs)
- Estimated cost of implementing measure/action

Waiver – for Federal Motor Carrier Safety Administration (FMCSA) Safety Regs.	Waives the FMCSA safety rules which limits the number of hours a driver can operate and allows drivers to make more fuel deliveries and be transported over longer distances. Emergency action under the Federal Motor Carrier Safety Regulations is automatically triggered under a declared state emergency.
Waiver – for Environmental Fuel Specifications	The U.S. Environmental Protection Agency (EPA) and most states have requirements on gasoline and diesel fuel specifications that are designed to limit emissions. Waving certain fuel specifications can increase overall supply. NAC 590.066 provides a process by which a variance from compliance with certain state motor vehicle fuel standards may be submitted to and approved by the Director of the Nevada Department of Agriculture Note: Subsection (6) indicates that the NDA may not issue a variance if the motor vehicle fuel is to be sold in a geographic area for which fuel specifications are prescribed in the State Implementation Plan. Waivers for truck weight limits, pipeline product codes, emission limits, hazmat transportation, alternate fuel distribution locations
Waiver - for Petroleum Tanker Trucks Weight Limit	Governors under emergency declaration may have authority to waive weight limits for petroleum tanker trucks. Such measures would apply on a state-by-state basis and would be subject to weight limits in each of the affected states.
Retail Gas Station Priorities for Essential Services	Prioritizing gas station supplies for essential services may help ensure that essential public service needs supplied by retail gas stations can be met during a serious fuel shortage.

Minimum Purchase and Odd-Even Purchase Programs	A minimum purchase plan is designed to help reduce long lines at retail gas stations, as a voluntary or mandatory measure. Can also be done as an alternative or in addition to an odd-even plan allowing purchases every other day based on license plate numbers.
Use of Alternative Fuel Vehicles Programs	States and local governments that have a significant number of alternative fuel vehicles (AFVs) in their fleets could consider prioritizing AFV usage and alternative fuel procurement during petroleum shortages.
Emergency Generators and Transfer Switches for Retail Gas Stations	Programs to ensure adequate gasoline supply along evacuation routes and for response and recovery from power outages. Options include pre-wiring gas stations to be able to accept generators if there is a power outage, or programs that would install on-site generators for select retail locations.
Contractual Provisions for Emergency Fuel Supplies	Encourage critical user organizations to Implement contracts with provisions for emergency fuel supplies. Spot fuel purchases are often less reliable during shortages.
Petroleum Priorities for Essential Services Programs	This would require petroleum suppliers to provide sufficient liquid fuels to meet the needs of critical end-users such as first responders: law enforcement, fire, and emergency medical services. (Used for longer-term shortages.)
State Petroleum Set-Aside Programs for Bulk Purchases	Requires major oil companies supplying the state to reserve (set-aside) a fixed percentage of petroleum products that are projected to be delivered to the state for final consumption each month. This set-aside would then be allocated for emergency needs to suppliers in amounts designated by the state agency administering the program. (Used for longer-term shortages.)
Expanded State Fuel Storage	States may wish to consider creating or expanding bulk storage locations for petroleum-based fuels to have additional fuel available in case of a shortage. (Long-term solution).

Voluntary Programs

such as ridesharing, carpooling, telecommuting, and increased use of mass transit can be encouraged. Home energy saving recommendations can mitigate heating fuel shortages. Emergency planners should choose and adapt the policies and programs within the context of a state's petroleum infrastructure, threats, and constraints.

Additional Federal measures that may be considered:

- Internal Revenue Service Dyed Diesel Fuel Waivers: Dyed diesel fuel is only for use in off-road or non-highway use vehicles, such as farm tractors. The IRS imposes a highway excise tax on diesel fuel sold for on-road use. To free up this additional supply of diesel fuel the IRS may temporarily waive the tax penalty for highway dyed diesel fuel.

- Jones Act Waivers: The Merchant Marine Act (Jones Act) prohibits foreign vessels from transporting goods between U.S. ports. When waived, foreign vessels, and U.S.-flag vessels not coastwise qualified, are authorized to transport goods between U.S. ports.
- Federal Energy Regulatory Commission Orders Directing Priority Propane Pipeline Shipments: The Federal Energy Regulatory Commission (FERC) can prioritize shipments of propane and other liquid fuels through pipelines for emergencies and supply shortages.
- Pipeline and Hazardous Materials Safety Administration (PHMSA) Special Permits to Modify Regulatory Compliance: The PHMA can issue an emergency special permit without notice and comment or hearing if the Associate Administrator of Pipeline Safety determines that such action is in the public interest, is consistent with pipeline safety, and is necessary to address an actual or impending emergency.
- Federal Petroleum Product Reserves: The U.S. Department of Energy (U.S.DOE) administers the Northeast Gasoline Supply Reserve and Northeast Homes Heating Oil Reserve, which may be tapped in the event of an emergency or shortage of fuel in that area. The fuel is then bid out to interested buyers and used to supplement existing fuel supplies.
- Emergency Fuel from the Defense Logistics Agency: The Defense Logistics Agency (DLA) uses existing bulk fuel contracts to deliver and store energy products—primarily jet fuel, but also gasoline and diesel—at National Guard locations and can reposition fuel stored at other

  U.S. Department of Defense (DoD) installations in support of any U.S. Northern Command disaster response.

(1) Source: GUIDANCE FOR STATES ON PETROLEUM SHORTAGE RESPONSE PLANNING - February 2018 (www.naseo.org/Data/Sites/1/petroleum-guidance/final-naseo-petroleum-guidance-feb- 2018.pdf)

Additional Resources:
(2) Draft Waivers and Executive Orders: (www.naseo.org/petroleum-shortage-response-planning)
(3) Transportation Fuels Markets: (www.eia.gov/analysis/transportationfuels/padd5/pdf/transportation_fuels.pdf)
(4) State Relief from Federal Motor Carrier Safety Regulations in an Energy Emergency: (www.naseo.org/Data/Sites/1/fmcsa-regulations-relief-guidance-11-03-2014.pdf)

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Fuel Allocation Office Operations Manual

INTRODUCTION

This manual is the guidebook for the Fuel Allocations Office during a fuel emergency. While there is currently no specified Fuel Allocations Office in Nevada, the Governor's Office of Energy and designated staff serves in this role in a fuel emergency. It is authorized by NRS 701.210, and responsibility is within the Governor's Office of Energy. Various petroleum mitigation and conservation measures are discussed. This manual provides options to be considered during a fuel crisis. Some would be considered in every situation, but others would only be used as a last-resort option. Fuel shortages may be caused by normal events such as refinery shutdowns, electricity shortages that affect pumping capabilities, pipeline problems, or events such as natural disasters, oil embargos or terrorist activity.

The Fuel Allocations Officer must be familiar with the fuel delivery systems within the State and the storage capacities at Las Vegas and Sparks as well as other smaller facilities in rural areas. Notification of a fuel emergency may come from the fuel suppliers, the pipeline company, the federal government, other states, news sources or others. This activity will only be activated during a proclaimed emergency.

It is of utmost importance that the fuel contact list be kept up to date, so the appropriate persons/groups are notified. These persons include the Energy Director who will notify the Governor and the Nevada Office of Emergency Management (NVOEM), other states, local entities, the U.S. DOE, and others listed in the Plan.

This manual is divided into two functions, the disaster support function, and the petroleum fuel set-aside function. These functions may be operated individually or together.

DISASTER SUPPORT FUNCTION

Fuels Allocation Officer Checklist: The Fuels Allocation Officer will be assigned by the Director and may be the same Energy Program Manager identified throughout this plan. At the instruction of the Energy Director, the Fuels Allocation function is activated.

- Access staff, equipment, and communication needs.
- Survey situation and quantify resources.
- Prepare regular updates and attend briefings with the Energy Director.
- Monitor impact of shortage in local jurisdictions.
- Work closely with the Energy Director.
- Draft emergency response recommendations and implement mandatory demand reductions.
- Make fuel security/protection recommendations to the Energy Director.
- Process Emergency Fuel Applications.
- Provide Fuels Allocation Review Officer support data as required.
- Prepare After-Action Memo after the shortage is resolved.
- Close function and return borrowed resources when event is resolved.

Voluntary Energy Conservation:
For normal shortage support, the Fuel Allocations Office will be acting under the Governor's Office of Energy in maintaining contact and monitoring fuel delivery and status of bulk storage of fuel. Appeals for voluntary energy conservation may include the following:

- Increase use of rideshare programs.
- Increase use of public transportation.
- Increase use of bicycles.
- Observe speed limits.
- Combine trips whenever possible.
- Reduce idling time.
- Do not race engines.
- Properly inflate tires.
- Avoid excessive braking.
- Reduce use of automotive air conditioning.
- Avoid jack rabbit starts.
- Keep vehicles tuned up (air filters & PCV valves).
- Close drive-thru options at businesses.
- Fill up the gas tank after sunset.
- Try not to spill gasoline when filling up, and don't top off your gas tank.
- Drive an electric hybrid vehicle, or low-emission scooter or motorcycle.
- Consider low-maintenance landscaping that uses less water and doesn't require the use of gas-powered lawn tools to maintain.
- Turn off lights and electronics when not in use.

If the above actions do not mitigate the fuel shortage, the following items could be considered. At this point, it is likely that the Governor might issue a declaration of emergency as the fuel situation has existed for an extended period and is not being resolved in a satisfactory manner.

- Adopt a state priority end-user program.
- Develop contractual provisions and language in fuel purchasing contracts for fuel supplies in an emergency.
- Expand fuel storage capacity on existing storage locations or incorporate larger storage in new facilities that may be constructed in the future.
- Maximize the use of alternative fuels through increased use of vehicles with flexible or alternative fueling capabilities. This includes the use of hybrid electric and electric vehicles.

These options are worthy of consideration as the implementation of the State Petroleum Set-Aside Program can take up to a month to get functioning and, in an emergency, these alternatives will allow a faster method of addressing fuel issues.

State Priority End-User Program: A Priority End-User Program requires petroleum suppliers to provide sufficient fuel to critical end users as listed below:

- Agriculture
- Aviation
- Emergency Services
- Energy Production

- Government
- Health Care Services
- Passenger Services
- Trucking
- Utility Services

This program brings together energy assurance officials and fuel marketers to examine options and legislation necessary for expediting the sale of critical fuels in times of drastic shortages. An accepted measure for supply would be based on an average of previous supply volume during normal conditions. The supply may need to be supplemented by the nature and scope of the event such as a power shortage coupled with a fuel shortage. If the event will be for an extended period, this would be the starting point for enacting the fuel set-aside program.

Contractual Options: Many groups and agencies purchase fuel at spot-market pricing and do not have fuel contracts. Fuel contracts may have higher prices than spot-market pricing, but generally fuel contracts provide a higher priority for delivery of fuel. Sources of spot-market fuel generally disappear during a fuel shortage. Risk management activity can determine advantages of fuel contracts versus spot-market purchasing for fuel.

Storage Options: NDOT fuel sites are limited in the amount of storage that is available. The storage capacities are typically based upon normal fuel consumption for the area. With anticipated use of NDOT fuel sites for emergency operations, supplementing the amount of storage with additional tankage as a hedge against a fuel shortage must be evaluated. The evaluation would be based on the following.

- Site location
- Additional fuel source (distance from supply)
- Space available for additional tankage
- Cost of increased storage
- Risk

Fleet Management Options: The State Motor Pool has been purchasing alternative fueled vehicles including hybrid, electric and flex fueled (E-85) vehicles. NV Energy has been purchasing hybrid and electric vehicles in small numbers to supplement their operations during fuel shortages.

Mandatory Conservation

- **Carpooling/Rideshare:** State agencies and business should establish carpools and ride share programs. These programs would likely be easier to implement and be more effective in the larger metropolitan areas. The regional transportation agencies have greater capability to coordinate and implement these activities. However, some rural businesses such as mining operations, power plants, and manufacturing facilities that are labor intensive may consider these efforts to get their employees to work. Personnel departments that have access to employee addresses may assist coordination of pickup points and drivers. Decisions would be necessary to determine whether personal or company vehicles could be used for this activity. Insurance, cost of fuel and work schedules would have to be considered. Incentives and support programs may be necessary to stimulate increased

use of ride sharing. Carpools may be organized by the commuters, by employers, or private companies. This type of activity could also include vanpools.

- **Use of Public Transportation:** Expanding the use of public transportation may require incentives by government or the employer to be effective with a short notification time. Public transportation routes and schedules should be made available to employees, and utilization encouraged.
- **Reduction of commuter trips and business trips:** Fuel can also be conserved by reducing commuter and business trips by using Web-cast methods for meetings or establishing temporary alternative work sites. If alternative work sites are not available, telecommuting would be an option if equipment was available to the employees to do this. Staggered work hours and four-day work weeks would also save fuel.

If the above-mentioned methods still do not mitigate the fuel situation, the following may be considered:

- **Reinstate a 55-mph speed limit:** This measure to conserve fuel usage would require cooperation of local and state law enforcement agencies and revised roadway signage.
- **Restricted vehicle use:** In addition to the revised speed limits, non-essential use of vehicles could be restricted, as well as fuel availability. This would reduce traffic and highway congestion and fuel consumption.
- **Restrict vehicle use on designated days to only commercial, mass transit and essential vehicles:** On odd or even days of the week, privately owned cars, only trucks and vans with even (or odd) numbered license numbers would be allowed on the roads.
- **Measured structuring of fuel sales:** Require a minimum amount of fuel to be purchased at a fueling stop to prevent "topping off" and to minimize panic buying of fuel.
- **Limit fuel sales on designated days:** For all days of the week, privately owned cars, trucks and vans with even (or odd) numbered license numbers would be restricted from refueling. This activity would foster more efficient and conservative transportation practices. The first number on the license plate would be the number used to determine odd or even. If only letters are on the plate, the first letter would be used converting the letter to where it fits in the alphabet numbering one to twenty-six.
- **Surcharge on fuel:** If fuel prices were not high enough to curtail fuel consumption, a surcharge (tax) on fuel could be used to conserve fuel usage.

PETROLEUM FUEL SET-ASIDE FUNCTION

Request for Federal Assistance: Severe petroleum product emergencies usually result from national or international events that are beyond the ability of state agencies to influence. At this point, the state can request assistance from the federal government.

Two actions, which can be taken by the federal government or initiated by the state request include: Fuel Waivers and Driver Hours of Service Waivers.

Fuel Waivers: A fuel waiver can be granted in the event of a gasoline or diesel fuel supply emergency by the Environmental Protection Agency with the agreement of the Department of Energy. Fuel or fuel additive requirements may be temporarily waived if doing so will alleviate the fuel supply emergency. In addition, actions may be taken to suspend state rules and regulations

that mirror federal requirements. In such cases, the Governor may also need to act under state authority. NAC 590.066 provides a process by which a variance from compliance with certain state motor vehicle fuel standards may be submitted to and approved by the Director of the Nevada Department of Agriculture.

When fuel waivers are under consideration at a state level, it is important to ensure coordination between the various state agencies. A fuel waiver can be issued only when the criteria specified in the Clean Air Act Section 211(c)(4)(C) have been met. In general, these criteria allow a fuel waiver only to address a temporary emergency fuel supply shortage that exists throughout a state or region that was caused by an unusual situation such as an act of God, that could not have been avoided by prudent planning. A fuel supply disruption that meets the criteria for a waiver must be one that results in a generalized supply emergency. Localized events generally are not fuel supply disruptions for which a waiver may be issued.

The Environmental Protection Agency (EPA) has promulgated various requirements for motor vehicle fuel under the Clean Air Act, which applies to both gasoline and diesel fuel. If the fuel waiver criteria have been met, EPA may waive time and type fuel restrictions for a designated area and period. This provides petroleum suppliers with added supply flexibility during a shortage.

A fuel waiver may allow use of higher volatility gasoline from rural areas to address a fuel supply shortage in an urban area. Similarly, a waiver of the summer volatility requirements could allow winter grade gasoline to be used during the summer high ozone season. Fuel waivers that allow use of gasoline with high volatility may result in increased Volatile Organic Compounds (VOC) emissions. For this reason, the Clean Air Act provides strict criteria for when fuel waivers may be granted and requires that waivers be limited as much as possible in terms of their geographic scope and duration.

It should be noted that in certain circumstances or at various times throughout the year, regulations adopted by the State Board of Agriculture regarding motor vehicle fuel standards may exceed those of EPA requirements. A fuel waiver issued by the EPA does not necessarily grant waiver or variances from state motor vehicle fuel standards.

Process for Requesting a Federal Fuel Waiver: EPA works closely with state officials especially during emergencies. Except in unusual or emergency circumstances, a formal request for a fuel waiver is made by, or on behalf of, the Governor after consultation with EPA. During normal business hours (Monday through Friday, 8 am to 5 pm Eastern Time) the first point of contact for obtaining information about a fuel waiver request is the EPA Air Enforcement Division, at 202-564-2260, or the Transportation and Regional Programs Division, at 734-214-4956. Outside of normal business hours, the point of contact is the EPA Emergency Operations Center, at 202-564-3850, which can communicate with EPA officials who provide assistance on fuel waiver requests.

Process for Requesting a State Fuel Variance: NAC 590.066 provides a process by which a variance from compliance with certain state motor vehicle fuel standards may be submitted to and approved by the Director of the Nevada Department of Agriculture (NDA). The first point of contact for obtaining information about a fuel waiver request is the NDA Division of Consumer Equitability. Contact information for the NDA Division of Measurements Standards. Measurement Standards are included in Appendix A, Industry and Government Contacts List.

Waivers for Driver Hours of Service Restrictions: Limits on the number of hours a truck driver can operate a vehicle fall under requirements of the Federal Motor Carrier Safety Administration (FMCSA). These limits can be waived under two conditions. First, if an emergency has been declared by the President of the United States, the governor of the state, or by their authorized representatives having authority to declare emergencies; and second, if the FMCSA Field Administrator has declared that a regional emergency exists which justifies and exemption. This exemption cannot exceed the duration of the motor carrier's or driver's direct assistance in providing emergency relief to the affected area, or 30 days from the date of the initial declaration of the emergency or the exemption from the regulations by the FMCSA Field Administrator, whichever is less.

This means if the Governor has declared an emergency in all or any part of the State, driver hours-of-service are automatically waived for drivers making deliveries to provide emergency relief to the affected area. Drivers passing through multiple states do not require that waivers be in effect in those states if they are providing supplies to an area where an emergency has been declared.

390.23 Relief from regulations which includes Parts 390 to 399 can be found at: (www.fmcsa.dot.gov/regulations/title49/section/390.23)

Limits on Hours of Service of Drive can be found at: (www.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations)

If the above measures do not produce satisfactory results, the Nevada Petroleum Fuel Set-Aside program (NRS 701.210) may be considered as a subsequent or concurrent measure. This would require an emergency declaration by the Governor. The application process for the Fuel Set-Aside program follows.

APPLICATION PROCESS FOR EMERGENCY FUELS ALLOCATION

GOE is the agency responsible for administering the Petroleum Fuels Set-Aside Program (Fuels Set-Aside Program). During a proclaimed state of emergency, intrastate petroleum and petroleum product stocks that are for the essential activities pertaining to the citizens of Nevada may be allocated through the Fuels Set-Aside Program. The total amount of all fuel types available for the Fuels Set-Aside Program is based on in-state availability and storage at the time of the state of emergency. An agency or organization may be eligible for the program if it is an emergency service provider or it uses petroleum fuel for operating equipment, producing crops, moving goods and people, or maintaining other types of essential services and can prove justifiable hardship.

This is the second function of the Fuels Allocation Office after the disaster support function. This is the final activity to make sure that essential activities pertaining to the citizens of Nevada may be performed. These are:

- Protection of life
- Protection of property
- Provision of essential services
- Restoration of infrastructure
- Continuity of economic viability

The following information on the Petroleum Fuel Set-Aside is from the Petroleum Fuel Set-Aside Applicant Handbook published by the California Energy Commission, October 2007. This has been modified to fit Nevada requirements and is prepared in compliance with NRS 701.210.

Purpose of the Program: The Nevada Fuels Set-Aside Program is intended to help ease regional shortages and hardships for end-users who are unable to acquire essential volumes of fuel at any price. The Fuels Set-Aside Program is implemented only after the Governor proclaims a state of emergency and when market forces, voluntary conservation, or other mandatory programs are unable to maintain an adequate and equitable distribution of fuel.

The program is designed to cause only minimal interference with the market, using a percentage of in-state availability of fuel that are sufficient only to satisfy hardship and emergency cases. The program makes no attempt to reduce or inhibit the market price of fuels. All fuel delivered through the program will be purchased at the market price and, whenever possible, through the usual supplier. The petroleum set-asides are as follows:

- Motor gasoline: 3%
- Diesel and heating oil: 4%
- Boiler fuel, #4 heavy industrial fuel oil: 3%
- Propane: 3%
- Aviation Gasoline: 5%
- Kerosene: 2%

Source: (https://www.eia.gov/beta/states/states/nv/data/dashboard/crude-oil-petroleum)

Purpose of this Document: This document provides a description of the application process for requesting fuel supplies in the event of a fuel shortage. It explains the purpose of the Fuels Set-Aside Program, the eligibility requirements for each program category, and how the application process works. A copy of the application form and detailed instructions on how to complete the form are included. In addition, audit procedures used to discourage or detect fraud are included as well as procedures for appeal if an application is denied.

Structure of the Program: The specific management of the Fuels Set-Aside Program is in the Governor's Office of Energy and is the responsibility of the Fuels Allocation Officer. The Fuels Set-Aside Program is divided into three categories:

- Emergency Services
- Community Hardship
- Basic Set-Aside

To achieve maximum flexibility in the Fuels Set-Aside Program, the individual categories within the program are implemented only as directed by the Director of the Governor's Office of Energy. Thus, all categories will not automatically become effective when the Fuels Set-Aside Program is implemented. The Fuels Set-Aside Program ends when the Governor rescinds the emergency proclamation or chooses to terminate the program.

Audit Process: Provisions exist for auditing or investigating applications to discourage and prosecute those who would abuse the Fuels Set-Aside Program. The audit is intended to prevent the deliberate misrepresentation of facts, use of the fuel for a purpose other than as stated, or resale of the fuel.

Three criteria are used to select the applications to audit:

- **Suspicion of Abuse:** The tracking systems used to process applications will screen for discrepancies and possible abuse.
- **Public Complaint:** If the Bureau of Consumer Protection of the Attorney General's Office receives a public complaint, particularly if accompanied by a written report, the application will be reviewed for possible investigation.
- **Random Selection:** At the discretion of the Fuels Allocation Officer, applications may be randomly selected for audit. Any person who knowingly violates the rules and regulations of the Fuels Set-Aside Program is guilty of a misdemeanor and will be punished to the full extent of the law. The Attorney General or prosecuting attorney of a county will prosecute alleged violators.

Application Procedures: Read this section carefully if you think you may be eligible for fuel supplies from the Fuels Set-Aside Program. It contains step-by-step instructions you will need to follow to complete the application form, located at the end of this section. If you need technical assistance in filing the application, you should call the Governor's Office of Energy at (775) 687-7189.

IMPORTANT
Fuel will be allocated monthly. Therefore, you must file an application at the beginning of each month that you require an emergency allocation. You must also complete a separate application for each type of fuel you require (gasoline, diesel, etc.)

There are four steps to the application process:

Step 1. Determine Your Eligibility: The first step in the application process is to determine your eligibility for the program. The Fuels Set-Aside Program is divided into three categories:

- **Emergency Services:** This category allows end users who provide emergency, health, safety, or essential services to receive fuel during a crisis. You are eligible to apply within this category if you are a provider of emergency services (police, fire, emergency medical, etc.) and are unable to obtain fuel supplies at any price.
- **Community Hardship:** This category allows for distribution of fuels to qualified areas. You may be eligible to apply within this category if you are an individual, association, retailer, or governmental agency providing fuel services to a community experiencing an emergency or hardship. A community is defined as one of the following:
    - City
    - County
    - Geographical area consisting of at least 50 square miles
    - Geographical area of 5 square miles but containing no more than 10 service stations
    - Military base exchange

    - Community Hardship is the only category of the program where retail service stations may be eligible for a fuels set-aside allocation. When filling out an application for an emergency fuel allocation, you must include a description of the community boundaries and how the inability to obtain fuel is affecting the community.
- **Basic Set-Aside**: This category allows distribution to end users who are providing essential services and can demonstrate they are having difficulty obtaining fuel supplies at any price. If you are experiencing a fuel hardship or emergency, but do not qualify for either of the other two categories, you may be eligible to file within this category.

Step 2. Complete the Form: Listed below are instructions for filling out the Emergency Fuel Application form located on the last page of this document. When the Fuels Set-Aside Program has been activated, this form can also be found online at (www.energy.nv.gov). The online form can be accessed only during an emergency.

1. **Applicant Name:** Enter the name of the individual, company, or organization requesting a fuel allocation.
2. **Tax ID or SSN:** Enter the tax identification number used for filings with the Internal Revenue Service for the requesting organization. If requesting fuel as an individual, enter your social security number.
3. **Contact Person:** If the applicant is a company or organization, enter the name of the contact person.
4. **Mailing Address:** Enter the contact person's mailing address.
5. **Phone:** Enter the contact person's area code and telephone number.
6. **Cell Phone:** Enter the contact person's area code and cell phone number.
7. **Fax:** Enter the contact person's fax number.
8. **City/State/Zip:** Enter the second line of address information for the contact person.
9. **Email:** Enter the contact person's email address.
10. **Delivery Address:** Enter the address where the requested fuel will be delivered (if different from mailing address).
11. **Delivery City/State/Zip:** Enter the second line of delivery address information.
12. **Delivery County:** Enter the county where the fuel will be delivered (delivery must be in Nevada).
13. **Amount of Fuel Requested (Gallons):** Enter the amount of fuel being requested for emergency allocation from the fuels set-aside program (in gallons).
14. **Average Historical Monthly Usage (Gallons):** Enter the average amount of fuel applicant uses monthly under normal circumstances.
15. **Date Fuel Needed:** Enter the date for which applicant is requesting emergency fuel allocation. Note that an application must be filed at the beginning of each month that applicant requires an emergency allocation.
16. **Fuel Type Requested:** Select the type of fuel being requested. A separate application must be filled for each type of fuel. If the "other" category is chosen, please specify the type of fuel.
17. **Program Category:** Select one of the listed categories. If the applicant doesn't qualify under Emergency Services or Community Hardship, choose Basic Set-Aside. Select the closest application for which applicant intends to use the fuel.
18. **Fuel Use Category:** Select one category that best describes the activity for which the fuel

is to be used. Table 1 contains examples of possible activities and their related categories. However, the categories are not limited to just those activities. If an applicable fuel use is not listed, choose "other" and describe it in one or two words.

Table 1
FUEL USE CATEGORIES

Agriculture	Agricultural Production (Including Agricultural Trucking & Agricultural Aviation)
Aviation	Commercial Aviation for Passengers and Cargo, Aviation ground Support Vehicles and Equipment
Emergency Services	Police, Fire, Ambulance, Dispatch Services, Emergency Shelters
Energy Production	Diesel Fuel for Electric Generating Systems and Emergency Back- up Generators
Government	Critical Maintenance Activities such as Snow Removal, Landslide Clean-up, Dam Repair
Health Care Services	Hospitals, Clinics, Nursing Homes
Marine Transportation	Non-Military Cargo, Passenger, and Fishing Vessels
Passenger Services	School Buses, Regional Transit Systems, Taxis, Commercial Bus Lines
Trucking	Cargo, Freight, and Mail Hauling by Truck (including Diesel Truck Stations)
Utility Services	Electricity, Natural Gas, Water, Telephone, Telegraph, Sanitation

19. **Distributor:** Enter the name of the local (Nevada only) distributor, jobber, or consignee's firm that normally supplies applicant with fuel. If applicant does not normally receive fuel in this manner but instead receives fuel directly from an oil company, enter the oil company's name and other related information.
20. **Distributor's Contact Person:** Enter the name of the contact person at the company that normally provides applicant with fuel.
21. **Distributor's Address:** Enter the address for applicant's normal distributor.
22. **Phone:** Enter the phone number for applicant's normal distributor.
23. **Cell Phone:** Enter the cell phone number for applicant's normal distributor.
24. **Fax:** Enter the fax number for applicant's normal distributor.
25. **City/State/Zip:** Enter the second line of address information for applicant's normal distributor.
26. **Email:** Enter the email for applicant's normal distributor.
27. **Distributor's normal fuel source (Company Name):** Enter the name of the distributor's source of fuel supply; that is, the oil company that supplies the applicant's distributor with fuel under normal circumstances.
28. **Description and Comments:** Describe in detail the circumstances and situation relating

to the hardship or emergency. Fully explain how the inability to obtain the needed fuel is impacting or will impact essential or emergency services in Nevada (or the community if you are applying under community hardship). Also, describe any efforts to reduce the hardship or emergency and all attempts (successful or unsuccessful) that have been made by the applicant to obtain fuel from other sources.

Step 3: File the Application: Make sure all sections of the application are completed or marked "not applicable". Use one of the following methods to submit the application.

- Hard (paper) copies of the application can be mailed to the Governor's Office of Energy at: Governor's Office of Energy 600 E. William Street, Suite 200 Carson City, Nevada 89701
- Electronic (scanned) copies of the application can be emailed to the Governor's Office of Energy at (info@energy.nv.gov). Alternatively, you can complete the online form located on the Governor's Office of Energy website at (www.energy.nv.gov). This online form can only be accessed during an emergency.

Step 4: Purchase the fuel: GOE will notify you whether your application has been approved for the full amount requested, approved for a smaller amount than requested, or denied. You must make your own arrangements with the supplier for delivery and payment. The State of Nevada makes no guarantee for payment nor acts as surety for payment.

Appeal Process: If your application was denied, or only partially approved, you may appeal the decision. The appeal must be filed within 15 days after the date of notification of the decision. In an appeal, you must fully explain your objection to the decision and why your situation constitutes a hardship or emergency. File the written appeal with:

Fuels Allocation Review Officer Governor's Office of Energy 600 E. William Street, Suite 200 Carson City, Nevada 89701

The Fuels Allocation Review Officer, who is independent of the Fuels Allocation Officer, will review your appeal. The Fuels Allocation Review Office has 15 days after the appeal has been received by the Governor's Office of Energy to stipulate one of three possible actions:

- Reverse the prior decision and grant the requested fuel
- Modify the prior decision and grant an increase in the amount of fuel originally allocated
- Affirm the prior decision and deny the appeal

The Fuels Allocation Review Officer will notify the applicant by mail of the decision within 15 days after the appeal is filed. The Governor's Office of Energy Deputy Director is available to provide procedural advice. For further information call (775) 687- 7189 or visit our website at: (www.energy.nv.gov).

Governor's Office of
Energy Petroleum Fuels
Set-Aside Program

Emergency Fuel Application

Scan and email
application to:
info@energy.nv.gov

Office Use Only
Case Number
Date Received
Entered By

Applicant Information

1. Applicant Name	2.Tax ID or SSN	3. Contact Person	
4. Mailing Address	5. Phone	6. Cell Phone	7. Fax
8. City/State/Zip		9. Email	
10. Delivery Address	11. Delivery City/State/Zip	12. Delivery County	

Fuel Use Information

13. Amount of Fuel Requested (Gallons)	14. Avg. Historical Usage (Gal)	15. Date Fuel Needed
16.Fuel Type Requested (*Check one*) Gasoline ☐ Jet Fuel ☐ CARB Diesel (on road) ☐ Kerosene ☐ High Sulfur Diesel (off road) ☐ Propane ☐ Heating Oil ☐ Other (specify):	17. Program Category (*check one)* Emergency Services ☐ Community Hardship ☐ Basic Set-Aside ☐	

18. Fuel Use Category (*check one*)

Agriculture ☐ Energy Production ☐ Marine Transportation ☐ Utility Services ☐

Aviation ☐ Government ☐ Passenger Services ☐ Emergency Services ☐

Health Care Services ☐ Trucking ☐ Other (Specify) ☐

Fuel Source and Distributor Information			
19. Distributor		20. Distributor ‘s Contact Person	
21. Distributor’s Address	22. Phone	23. Cell Phone	24. Fax
25. City/State/Zip		26. Email	
27. Distributor’s Normal Fuel Source (Company Name)			

Description and Comments

28. Describe the hardship or emergency and your efforts to obtain the necessary fuel from other sources. (Attach additional sheets if necessary)

Important Note: By submitting this application, you certify that all information is true and correct to the best of your knowledge. You also certify that you have made a good faith attempt and have been unable to obtain essential fuel at any price. If any or all the fuel requested is granted, you agree that it will be delivered in Nevada and used to alleviate the hardship and will not be diverted to other purposes or resold.

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APPENDIX C: FEDERAL ENERGY EMERGENCY POLICY AND ACTIONS

This appendix identifies Federal Agencies and their response during an emergency as well as policies relating to energy commodities.

U.S. DEPARTMENT OF ENERGY

U.S. DOE's energy emergency support responsibilities and capabilities are distributed among several offices within the Department. U.S. DOE sets forth the missions of the key offices

as follows:

Office of Policy: This Office is the principal advisor to the Secretary, Deputy Secretary, and Under Secretary on energy and technology policy issues, including the environmental consequences of energy use. This Office has primary responsibility for the formulation and development of national energy policy and for the conduct of policy analyses. It analyzes, develops, and coordinates departmental science and technology policy, environmental policy including global change policy, and economic policy. It is also responsible for advising the Department's senior management on issues related to the Department's environmental security and energy emergency policies.

Office of Cybersecurity, Energy Security, and Emergency Response: This Office operates the

U.S. DOE's Emergency Management System, Headquarters Emergency Operations Center (Forrestal Building), the Technical Support Center (Germantown, Maryland) and ensures integration and compatibility of all Departmental emergency operations facilities. Governor's Office of Energy ensures integration and compatibility of all Departmental emergency operations facilities. To meet its national security requirements and responsibilities contained in the Federal Response Plan, the U.S. DOE has established mandatory reporting requirements for electric power system incidents or possible incidents. Such incidents are to be reported to the Department through its EOC on a timely basis.

The Governor's Office of Energy is also responsible for Critical Infrastructure Protection. It manages Departmental activities that support U.S. DOE's role as lead agency for Government interaction with the nation's energy sectors regarding critical infrastructure protection. In this role, Governor's Office of Energy develops and manages the critical infrastructure protection R&D program and leads and coordinates Departmental efforts to work with industry, state and local governments and national and international entities in accordance with Presidential Decision Directive 63 (Policy on Critical Infrastructure Protection). This Directive calls for a series of actions that are designed to defend our critical infrastructures from various threats. The Directive also identifies lead federal agencies for each critical infrastructure in the U.S.

Energy Information Administration (EIA): EIA was created by Congress in 1977. It is a statistical agency of the U.S. Department of Energy that provides policy-independent data, forecasts, and analyses to promote sound policy making, efficient markets, and public understanding regarding energy and its interaction with the economy and the environment. EIA distributes four types of information products: energy data, analyses, forecasts, and descriptive 0063 information about its products. Many of the products, such as the Petroleum Supply Monthly, deal with specific industries. Of value to a broad range of customers are products that contain data on all fuel types presented in an integrated manner.

Some key releases of integrated information are the Monthly Energy Review, the Annual Energy Review, the Short-Term Energy Outlook, and the Annual Energy Outlook.

Most of the energy data are collected by EIA staff who design and send our statistical surveys to energy producers, users, transporters, and certain other businesses. Companies and households report directly to us. EIA also obtains energy data from other sources, such as trade associations and other government agencies.

EIA's analysis products are technical reports and articles that analyze issues about energy including economics, technology, energy production, prices, distribution, storage, consumption, and environmental effects. The Administration's forecasts cover all energy types, and include forecasts of supply, consumption, prices, and other important factors. There is a short- term forecast that goes out 6 to 8 quarters in the future, and a midterm forecast that goes out 20 years. Some of EIA's forecasting models are available on their Web site at (www.eia.doe.gov).

Other EIA products are descriptions of information products that include directories of survey forms, lists of publications, electronic products and models, a guide to energy education resources, and complete lists of energy data contacts to call who have answers to energy questions.

Additional Activities: The following actions are taken in an emergency that requires activation of the Federal Response Plan and ESF-12.

- U.S. DOE Headquarters will establish the Headquarters Emergency Management Team (EMT) and assign personnel to temporary duty at the Federal Emergency Management (FEMA) Headquarters, Regional Operations Center, and Disaster Field Office as needed.
- The ESF-12 priority will be to save lives, protect property, and assist other ESFs by aiding in the restoration of damaged energy systems; and
- Within 24 hours of implementation of the Federal Response Plan or upon instruction from FEMA, U.S. DOE Headquarters will start submitting situation reports to FEMA Headquarters.

FEMA AND THE FEDERAL RESPONSE PLAN

FEMA Role and Responsibility: Under the Stafford Act and Executive Orders 12148, Federal Emergency Management, and 12656, Assignment of Emergency Preparedness Responsibilities, the Federal Emergency Management Agency has been delegated primary responsibility for coordinating Federal emergency preparedness, planning, management, and disaster assistance functions. FEMA also has been delegated responsibility for establishing federal disaster assistance policy.

Federal Response Plan: FEMA has the lead in developing and maintaining the Federal Response Plan which describes the structure for organizing, coordinating, and mobilizing federal resources to augment state and local efforts under the Stafford Act and its implementing regulations that appear in 44 CFR 206. The National Response Plan (NRP) also may be used in conjunction with federal agency emergency operations plans developed under other statutory authorities as well as memorandums of understanding (MOU) among various federal agencies. The NRP is implemented through regional supplements developed by FEMA, and the regional offices of other federal agencies, that describe specific actions, operating locations, and relationships to address the unique needs of the region and states. From time to time, operations supplements to the NRP may be issued to address special events that merit advanced planning, such as the Olympics or

Presidential inaugurations.

Organization of the NRP: The NRP consists of six sections, two of which are the Basic Plan and Emergency Support Function Annexes. The Basic Plan presents the policies and concept of operations that guide how the federal government will assist disaster- stricken state and local governments. It also summarizes federal planning assumptions, response and recovery actions, and responsibilities. Separate Emergency Support Function Annexes describe the mission, policies, concept of operations, and responsibilities of the primary and support agencies involved in the implementation of key response functions that supplement state and local activities. Energy is ESF-12.

State Assistance: Under the Stafford Act, a Governor may request the President to declare a major disaster or an emergency if an event is beyond the combined response capabilities of a state and affected local governments. Based upon the findings of a joint Federal-State-local Preliminary Damage Assessment (PDA) indicating the damages are sufficient to warrant assistance under the Act, the President may grant a major disaster or emergency declaration. No direct Federal assistance is authorized prior to a Presidential declaration. However, FEMA can use limited pre-declaration authorities to move Initial Response Resources (critical goods typically needed in the immediate aftermath of a disaster, e.g., food, water, emergency generators) and emergency teams closer to potentially affected areas. FEMA also can activate essential command and control structures to lessen or avert the effects of a disaster and to improve the timeliness of disaster operations.

Additional Assistance: Additionally, when an incident poses a threat to life and property that cannot be effectively dealt with by state or local governments, FEMA may request the Department of Defense (DOD) to utilize its resources prior to a declaration to perform any emergency work "essential for the preservation of life and property" under the Stafford Act. Following a declaration, the President may direct any federal agency to use its authorities and resources in support of state and local assistance efforts to the extent that provision of the support does not conflict with other agency emergency missions. A state must commit to pay a share of the cost to receive certain types of federal assistance under the Stafford Act. In extraordinary cases, the President may choose to adjust the cost share or waive it for a specified time period. The Presidential declaration notes any cost-share waiver, and a FEMA-State Agreement is signed further stipulating the division of costs among federal, state, and local governments and other conditions for receiving assistance.

Energy Consequences: A natural disaster, such as an earthquake, may produce energy consequences such as pipeline ruptures disrupting petroleum transmission and natural gas, or transmission tower collapses interrupting gas flow and electric transmission. Conversely, failure of a primary transmission line may result in an energy emergency in its own right.

ELECTRICITY

Federal Power Act (16 U.S.C. §791a et seq.): Section 202(c) permits the U.S.DOE to order temporary interconnections of facilities and the generation and transmission of electric energy in an emergency. (16 U.S.C. §824a(c)). Sections 210 and 211 authorize the Federal Energy Regulatory Commission to order interconnections and wheeling transmission services, if such actions are in the public interest and would promote efficient use of the facilities and would promote efficient use of the facilities in question, conserve energy, or improve system reliability. (16 U.S.C. §§824i and 824j)

The Federal Government has the following resources available in the event of an electrical emergency:

Emergency Electric Power Interconnections: The Secretary of Energy has authority in an emergency to order temporary interconnections of facilities and the generation and delivery of electric power through the Federal Power Act, Section 202(c). This authority may be utilized upon a petition from a party requesting the emergency action or may be initiated by the Government on its own initiative. Adverse economic conditions are not considered to be an emergency justifying the use of the statute.

Historical Use: The Federal Power Commission (FPC) used Section 202(c) of the Federal Power Act extensively during the Korean War to direct the delivery of electric power to various aluminum smelters in the Pacific Northwest to ensure that adequate aluminum was available for the war effort. In the early 1970s the FPC also used this authority to order the connection of the municipal electric system in Cleveland to the investor-owned Cleveland Electric Illuminating Company system. The U.S. DOE has received several petitions from parties seeking issuance of Section 202(c) orders but has denied them following determinations that an emergency did not exist.

Economic Charges: Implementing regulations (10 CFR 205.370 et seq.) specify that the involved parties must attempt to resolve the economic charges associated with the interconnection and/or delivery of electric power. If no resolution can be reached, the matter would be referred by the

U.S. DOE to the Federal Energy Regulatory Commission for hearings and resolution. This authority probably has limited usefulness considering the ongoing restructuring of the electric power supply industry. An increasing number of independent generating supply entities, and energy supply brokers, are available to meet increased demand for electric power that cannot be met by utilities. Similarly, when a utility petitions the U.S. DOE to order a transmission entity to deliver electric power over the bulk electric transmission system, the lead-time for permits and construction of new transmission lines limits the applicability of this authority to existing connections, which would already be operating at close to design capacity in an emergency. It is likely that physical limits to transmission, rather than refusal to cooperate, will limit power movements in emergency situations. This authority needs to be re-examined when the electric power industry restructuring is completed.

Electric Power Reliability: The Secretary of Energy has limited authority regarding the reliability of the interstate electric power transmission system. Under the Federal Power Act, Section 202(a) and the Public Utilities Regulatory Policies Act, Section 209(b), the U.S. DOE can define reliability regions and encourage interconnection and coordination within and between regions to gather information regarding reliability issues and to make recommendations regarding industry standards for reliability. These authorities are utilized whenever the Secretary requests a special study on electric power reliability issues.

Power System Emergency Reporting Procedures: The Department of Energy has authority to obtain current information regarding emergency situations on the electric supply systems in the United States. The Department of Energy Organization Act, Federal Power Act, 10 CFR Sections 205.350 - 205.353 give the U.S. DOE the authority to established mandatory reporting requirements for electric power system incidents or possible incidents. This reporting is required to meet national security requirements and other responsibilities contained in the NRP for emergencies. The U.S. DOE-417R Form was developed to standardize reporting procedures. Such incidents are to be reported via telephone, fax, or e-mail to the U.S. DOE Emergency Operations Center (staffed 24 hours a day, 365 days a year) on a timely basis.

There are four types of incidents that should be reported to the U.S. DOE:

- **Loss of Firm Load:** Based on their size, utilities must report activities that include load shedding actions resulting in the reduction of 100 megawatts or more of firm load or equipment failures/system operational actions that result in a continuous interruption for 3 hours or longer to over 50,000 customers.
- **System Voltage Reductions or Public Appeals:** Utilities must report anticipated or actual system voltage reductions of 3 percent or greater for purposes of maintaining the continuity of the bulk electric power supply or any general public appeal to reduce the use of electricity for purposes of maintaining the continuity of the bulk electric power system.
- **Bulk Power System Operational Actions:** Utilities report any incidents that degrade the reliability of the bulk power service such as actual or suspected intentional acts of physical sabotage (not vandalism) or terrorism to provider systems. They must also report an abnormal bulk electric power system operating condition that forces curtailment of scheduled electric power flows or limits emergency response capabilities.
- **Fuel Supply Emergencies:** Utilities report existing or anticipated fuel supply (or water supply for hydro units) emergency situations at electric power generating stations that could threaten continuity of the bulk electric power supply system.

Allocating Coal Shipments: Coal is used primarily to generate electric power. The President has authority to allocate coal (and require the transportation of coal) for the use of any power plant or major fuel-burning installation during an energy emergency under the Power plant and Industrial Fuel Use Act, Section 404(a). This allocation would take place upon declaration of a "severe energy supply interruption" as defined in the Energy Policy and Conservation Act, or a published finding that a national or regional fuel supply shortage exists. Section 404(e) precludes the President from delegating the authority to issue these coal allocation information orders, but the

U.S. DOE may be requested to provide about the energy emergency or to take other necessary action in the implementation of such a Presidential Order. To date, these authorities have never been used.

NATURAL GAS

Natural Gas Act (15 U.S.C. §717 et seq.): Section 3 grants the U.S. DOE the authority, upon application, to authorize imports and exports of natural gas. (15 U.S.C. §717b) Section 3 requires the U.S. DOE to approve, without modification or delay, applications to import liquefied natural gas and applications to import natural gas from countries with which there is in effect a free trade agreement requiring national treatment for trade in natural gas. Section 7(c)(1)(B) authorizes the Federal Energy Regulatory Commission, in times of emergency, and without notice or hearing, to

issue a temporary certificate of public convenience and necessity for the transportation or sale of natural gas to assure maintenance of adequate service or to serve customers. (15 U.S.C.§717f(c)(1)(B)).

Natural Gas Policy Act of 1978 (15 U.S.C. §3301 et seq.): The U.S. DOE has delegated authority (E.O. 12235) under sections 302 and 303, respectively, to ‘‘authorize purchases of natural gas’’ and to ‘‘allocate supplies of natural gas’’ in interstate commerce upon a finding by the President under section 301 of an existing or imminent ‘‘severe natural gas shortage, endangering the supply of natural gas for high-priority uses.’’ (15U.S.C. §§3361-3363)

The potential federal responses to natural gas emergencies are as follows:

Natural Gas Imports and Exports: Under the Natural Gas Act, Section 3, the U.S. DOE can authorize imports and exports of natural gas to and from United States-Mexico-Canada Agreement (USMCA) partners.

Natural Gas Emergency Allocation Authority: The U.S. DOE can order any interstate pipeline or local distribution company served by an interstate pipeline to allocate natural gas in order to assist in meeting the needs of high priority consumers during a natural gas emergency under the Natural Gas Policy Act, Title III, Sections 301 to 303 (E.O. 12235).

- **Emergency Purchase and Allocation:** The U.S. DOE has been delegated the emergency purchase and allocation authority of the President (E.O. 12235) under Title III, Sections 301 to 303 of the Natural Gas Policy Act. To use this authority, the President must first declare a natural gas supply emergency for high-priority users under Section 301. Under the provisions of Section 302, the Secretary may authorize emergency purchases of natural gas by any interstate pipeline or local distribution company served by an interstate pipeline. The Secretary may also order pipelines to transport gas or construct emergency facilities. Section 303 allows the Secretary to allocate supplies of natural gas.
- **Implications of Industry Restructuring:** The restructuring of the natural gas industry following Federal Energy Regulatory Commission Order 636 in 1992 has fundamentally changed the transmission and distribution networks. Interstate natural gas pipelines are common carriers and must provide customers equal access to pipeline space. Consequently, some of these emergency provisions may no longer be necessary. The emergency authorities may need to be rewritten to reflect current realities in a natural gas industry that has been significantly restructured since the Natural Gas Policy Act was written in 1978.

Prohibit Burning of Oil and Natural Gas: The President has authority to prohibit any power plant or major fuel-burning installation from using natural gas or petroleum as a primary fuel during an emergency. The Public Utilities Regulatory Policies Act of 1978, Section 607 and Power plant and Industrial Fuel Use Act, Section 404(b) provides this authority. To date, these authorities have never been used.

Pipeline Operations: Under the authority of the Natural Gas Pipeline Safety Act and Hazardous Liquids Pipeline Safety Act, the Office of Pipeline Safety governs the operation of liquefied natural gas plants and gas and hazardous liquids pipelines in interstate and intrastate operations to establish general parameters for the safety. OPS may issue waivers of its regulations for good cause (to

permit pipelines to increase operating pressure or to address a safety issue, for instance). OPS looks to U.S. DOE staff to provide relevant energy supply, distribution, and infrastructure interdependency impact assessments for use by OPS in determining whether to issue such waivers.

History: In the period following a break in the Colonial Pipeline Company's pipeline system, U.S. DOE (Office of Emergency Management and EIA Office of Oil and Gas) staff worked closely with the OPS to provide petroleum product supply and distribution assessments to determine the appropriate operational requirements for restoration of safe service.

PETROLEUM

Energy Policy and Conservation Act (EPCA) (42 U.S.C. §6201 et seq.)

- Section 103 provides broad authority, which has been delegated to the Department of Commerce (E.O. 11912), to limit exports of crude oil and refined petroleum products (as well as coal, natural gas, petrochemical feed stocks and energy-related materials and equipment). The Commerce Department has implemented this authority with respect to certain domestic crude oils and petroleum products refined from Naval Petroleum Reserve crude oil in its Export Administration Regulations at 15 CFR Part 75. (42 U.S.C. §6212)
- Sections 151-181 authorize U.S. DOE to establish and operate the Strategic Petroleum Reserve (SPR). Section 161(d)(1) authorizes the President to order draw down of the SPR upon a finding that draw down is required either by a ''severe energy supply interruption'' or obligations of the U.S. under the Agreement on an International Energy Program (IEP). Section 3(8) of the EPCA defines ''severe energy supply interruption'' as a national energy supply shortage which the President determines - is, or is likely to be, of significant scope and duration, and of an emergency nature; (B) may cause major adverse impact on national safety or the national economy; and results, or is likely to result, from (i) an interruption in the supply of imported petroleum products, (ii) an interruption in the supply of domestic petroleum products, or (iii) sabotage or an act of God. The Act also provides that in addition to the circumstances set forth in section 3(8), a ''severe energy supply interruption shall be deemed to exist if the President determines that an emergency situation exists and there is a significant reduction in supply which is of significant scope and duration; a severe increase in the price of petroleum products has resulted from such emergency situation; and such price increase is likely to cause a major adverse impact on the national economy.''
- (42 U.S.C. 6241 (d)(1)) Section 161(h) empowers the President to draw down the SPR despite the absence of a ''severe energy supply disruption'' or a need to meet U.S. obligations under the IEP, if the President finds that other circumstances exist that constitute, or are likely to become, ''a domestic or international energy supply shortage of significant scope or duration'' and the President determines that draw down would assist directly or significantly in preventing or reducing the adverse impact of such a shortage. However, there are several limitations on the use of this authority: the Reserve may not be drawn down for more than 30 million barrels or for longer than sixty days with respect to a single event, or if the Reserve would be reduced below the level of 500 million barrels. The Act gives the President authority to authorize the export of crude oil withdrawn from the SPR during a drawdown for refining or exchange outside the U.S., in connection with an arrangement for the delivery of refined petroleum products to the U.S. (42 U.S.C.

§6241(i)) The Commerce Department has implemented this authority in its Export Administration Regulations at 15 CFR 754.

- Section 251 empowers the President to require U.S. oil companies to divert oil supplies to other International Energy Agency (IEA) member countries in satisfaction of United States' allocation obligations when the IEA's emergency oil sharing system has been triggered. (42 U.S.C. §6271)

Petroleum supply disruptions can result in the following federal actions:

U.S. Lead for International Oil Emergency Response Activities: U.S. DOE is responsible for coordinating U.S. involvement in an International Energy Agency (IEA) response to an international oil supply emergency. The IEA, consisting of 23 member countries, was created following the 1973 oil crisis with the goal of developing and maintaining cooperative oil emergency response policies and programs. This authority comes from:

- Executive Order 11912
- Department of Energy Organization Act,
- Energy Policy and Conservation Act (Sections 251 to 254), and
- Agreement on an International Energy Program

International Energy Program: As a signatory to the 1974 Agreement on an International Energy Program (IEP), the U.S. is obligated to cooperate with its allies in the International Energy Agency (IEA) to respond to international oil supply emergencies. The IEA has two primary oil emergency response mechanisms that it can employ. The IEP contains an emergency oil allocation program known as the Emergency Sharing System, under which each member country is responsible for helping share the burden of an oil supply shortfall. A second measure developed by the IEA in 1984 is known as the Coordinated Emergency Response Measure (CERM), which utilizes a more market-oriented approach involving stock draw and complementary measures, such as demand restraint. U.S. DOE leads U.S. participation in an IEA oil emergency response action. The Department develops plans for U.S. emergency response actions, develops the U.S. position on an appropriate international response, and makes recommendations for action to the President. Close coordination is maintained with the Department of State and other interested Federal agencies.

Strategic Petroleum Reserve: The U.S. DOE is authorized to create and maintain a Strategic Petroleum Reserve and the President is authorized to order a drawdown of the Reserve in emergency circumstances as defined in the Energy Policy and Conservation Act, Sections 151 to 181.

- **Drawdown:** U.S. DOE is authorized to create and maintain the SPR and implementing the draw down and distribution of the reserve upon a Presidential finding of a ''severe energy supply interruption'' or the need to fulfill International Energy Agency obligations. The President can also order a drawdown if he finds that other circumstances exist that constitute a "domestic or international energy supply shortage of significant scope or duration." Under this authority, the SPR can be drawn down by up to 30 million barrels a day for up to 60 days, but not fall below 500 million barrels. Purchasers would be delivered oils within approximately 16 days from the day of the decision. However, it could take several weeks for purchasers to transport oil from the SPR, have it refined and then distributed to consumers. In November 2001, the President

ordered that the SPR be filled to its 700-million-barrel capacity.

- **History:** The emergency drawdown authority was used in January 1991 during the Gulf War when 17 million barrels of SPR oil were sold pursuant to the IEA's Gulf War Contingency Plan of January 11, 1991. In addition, U.S. DOE has had three Congressionally mandated sales of SPR oil for deficit reduction purposes and operational expenses and has conducted two test sales with industry to ensure SPR readiness. In September of 2000, the President directed those 30 million barrels of SPR be swapped to bolster oil supplies and enhance low inventories of winter heating oil. Companies that obtained the oil were required to return the oil plus an additional bonus amount to the SPR by the fall of 2001. There was also an emergency drawdown in 2005 after Hurricane Katrina, and a coordinated release in 2011 due to supply disruptions in Libya
- **Jones Act and the SPR:** In the event of a drawdown of the SPR, the volume of crude oil to be moved would be significantly greater than the capacity of the available U.S. flag crude oil tanker fleet that the Jones Act requires for transport. While procedures exist to expedite the waiver process on a case-by-case basis, a general waiver of the Jones Act, such as directed by the President in his finding for the 1991 SPR drawdown, is essential to assure the rapid and orderly sale and distribution of SPR oil.

LIMITING EXPORTS OF ENERGY PRODUCTS

The Department of Commerce has broad authority to limit exports of energy supplies, including coal, crude oil, petroleum products, natural gas, or petrochemical feed stocks under the Energy Policy and Conservation Act, Section 103. However, such actions could have implications for U.S. international trade obligations under the General Agreement on Tariffs and Trade (GATT) and United States-Mexico-Canada Agreement (USMCA) and are seldom used. DOC may seek advice on energy supply situations from U.S. DOE when considering this option.

- **Export Administration Regulations:** DOC has implemented this authority in its Export Administration Regulations in the past. Exports of refined products do not require a license (except for product refined from Naval Petroleum Reserves crude oil). Exports of certain domestic crude oils (Naval Petroleum Reserves crude oil, crude oil subject to a Mineral Leasing Act right of way, and Outer Continental Shelf Lands Act oil) remain subject to restrictions in different statutes, including Energy Policy and Conservation Act, Section 103, and require an export license. Section 103 has never been used to re-impose export controls on crude oil or refined petroleum products.
- **Priority for Domestic Energy Supplies:** The U.S. DOE has delegated authority from the Department of Commerce (DOC) under the Defense Production Act of 1950, Section 101(c) to assign priority ratings to contracts for materials, equipment, or services for projects deemed necessary to "maximize domestic energy supplies" or enter the marketplace to allocate the same. Most often these contracts are essential to exploration, production, refining, transportation, or conservation of energy supplies, or construction and maintenance of energy facilities. Impositions of priority ratings on contracts legally require the contractor to perform the contract on a priority basis. Such contractors receive DPA "breach of contract protection" from their existing customers.
- **Defense Production Act (DPA) Contract Eligibility:** U.S. DOE must determine

whether a contract(s) is eligible, and supplies of materials or equipment are critical and essential to the project. DOC must determine whether the supplies for which priority assistance has been requested are scarce and whether the project reasonably can be accomplished without them. Section 101(c) is also one of the permanent provisions of the DPA that never expires should the Congress allow the DPA to lapse.

a. **History:** This authority was used in the 1970s, and again in the 1980's. In the early 1990s, it was also used to facilitate the development of the Alaskan North Slope oil fields and was considered for use during the Persian Gulf War to enhance foreign oil production. In limited circumstances, Section 101(c) could be used to obtain equipment needed to repair damaged production facilities or to expedite supply of fuel oil to electric utilities.

b. **Supply from Foreign Projects:** Increasing energy supplies from foreign projects can increase domestic energy supplies. During emergencies, U.S. DOE may want to increase foreign oil production. It can do so through a draft interim final rule. This draft rule would become effective immediately upon issuance through a waiver in the U.S. DOE Organization Act.

Directed Energy Supplies Under the Defense Production Act: The Secretary of Energy, under the Defense Production Act of 1950, Section 101(a), can require suppliers to accept contracts or orders at their normal market prices, on a priority basis, for energy supplies that are deemed "necessary or appropriate to promote the national defense." The Secretary can also impose priority ratings on existing contracts, requiring suppliers to meet priority defense requirements relative to other customers or simply issue allocation orders to suppliers.

- **Application to DOD Contractors:** The Secretary's broad energy emergency authority applies to the Defense Department, Defense Department contractors (such as commercial airlines), and other federal agencies with national security or defense-related responsibilities. The Defense Production Act provides complying suppliers with breach of contract protection. This authority could be used to require acceptance of and priority performance under contracts relating to the production, delivery, or refining of petroleum products to meet national defense energy needs.
- **Transportation of Supply:** DPA authority could also be used to facilitate transportation of energy supplies during an emergency by requiring pipelines, marine terminals, and other facilities to perform transportation contracts to promote national defense. However, the authority to control the general distribution of petroleum supplies in the "civilian market" cannot be used until the findings are made that supplies are "scarce and critical," and defense needs cannot be met without causing dislocations that will create appreciable hardship (Section 101(b)).

OTHER FEDERAL AUTHORITIES

Government Emergency Telecommunications: U.S. DOE sponsors energy industry requests for priority access through the interstate and intrastate telecommunication switching networks. Refer to the Federal Communications Act of 1934, Presidential Executive Order 12472, and 47 CFR Part 201.

- **National Communications System:** The National Communications System (NCS) has established a National Security and Emergency Preparedness (NSEP) program called

the Government Emergency Telecommunications Service (GETS) to facilitate emergency communications. GETS provides priority access through the computer systems controlling the Local Exchange Carrier (LEC) and the public switching networks that route intrastate and interstate calls. GETS provides the legal ability for telecommunications providers to give preference in the routing of telecommunications to NSEP users.

- **Delegated Authority:** NCS has delegated to U.S. DOE the authority to issue GETS personal identification numbers (PINs) to the energy industry so that their NSEP telecommunications can obtain priority access to telecommunications routing.

State Energy Emergency Assurance Coordination: U.S. DOE and NASEO have agreed that U.S. DOE will develop, maintain, and distribute a contact list of state and federal individuals responsible for energy market assessment and energy emergency responses. The states will participate in the effort by providing timely assessments of energy markets to U.S. DOE and other states in the event of an energy supply disruption. Refer to the Department of Energy Organization Act, Section 205 and Federal Energy Administration Act of 1974, Sections 51 to 59.

- **Electronic Communications Network:** This critical electronic communications network of U.S. DOE officials, state emergency officials, state energy offices, and local emergency management officials provides a mechanism for the rapid dissemination and sharing of information on energy supplies, distributor, and market assessments. U.S. DOE provides states an aggregated regional assessment of the effects of a market disruption when two or more states are affected. The assessment will draw upon information gathered by states, as well as other information, data, or analysis available to U.S. DOE. In support of this effort, each state identified one or more Energy Emergency Assurance Coordinators from different agencies throughout the state.

Low Income Home Energy Assistance Program (LIHEAP): The Department of Health and Human Services (HHS) can make the Low-Income Home Energy Assistance Program (LIHEAP) emergency contingency funds available to assist eligible low-income households meet their home heating and/or cooling needs arising from a natural disaster or other emergency such as extremely high energy prices. U.S. DOE may advise HHS on the fuel supply situation for such emergency funding. This authority is granted by the Community Opportunities, Accountability and Training and Educational Services Act of 1998, Title III, Sec 301-309, and the Low-Income Home Energy Assistance Act of 1981.

- **Distribution of Funds:** High heating oil and propane prices have justified distributing emergency discretionary funds in the past to states based on their use of these fuels or other variables that reflect state needs.
- **Block Grants:** In addition to the availability of discretionary emergency funds, HHS also annually awards energy assistance block grants to the 50 states, District of Columbia, eligible Indian tribes/tribal organizations, and insular territory areas, who then make payments directly to eligible households, or on behalf of such households, to help meet the cost of home energy. Although funded by the Federal Government, the HHS LIHEAP program is operated by each grantee.

Federal Energy Management Program (FEMP): In a severe emergency, the President may order increased conservation in federal facilities and operations, including the federal vehicle fleet.

FEMP helps federal agencies reach their energy savings goals by aggressively raising awareness of energy efficiency activities and making it easier for agencies and utilities to save energy and money. The General Services Administration (GSA) coordinates the notification and distribution of the President's request. Refer to the Energy Policy Act of 1992 (EPA Act) and the Energy Emergency Conservation Act of 1979, Section 211(c).

- **Conservation by Federal Agencies:** Federal agencies spend approximately $4.3 billion annually on utilities and were required by Executive Order 13123 to reduce their energy consumption by 20 percent from 1985 levels by 2010. FEMP energy savings performance contracts, utility incentives programs, and other creative financing mechanisms helped federal agencies and utilities reach their energy and budget goals. FEMP has a Federal Utility Partnership Working Group to develop communications between federal agencies and utilities. Utilities are moving from rebates to customized financing programs and value-added services such as energy audits, design assistance, load management, maintenance, and power quality to federal agencies.
- **Caveat Concerning Federal Closures:** At times it may be counterproductive to order the closure of federal office buildings to save energy. Federal staff could increase total energy demand in peak periods by increased residential consumption. Timing and magnitude of all emergency building closures needs to be weighed carefully.

Fuel Switching Public Utilities Regulatory Policies Act of 1978 (Codified in 16 U.S.C. §2601 et seq. and 15 U.S.C. §717z)

- U.S. DOE has delegated authority (E.O. 12235) under Section 607, following the President's finding of a ''severe natural gas shortage endangering the supply of natural gas for high-priority uses,'' to prohibit the burning of natural gas by any electric power plant or major fuel-burning installation. Required emergency finding identical to that in the Natural Gas Policy Act. (15 U.S.C.717z) Power plant and Industrial Fuel Use Act (42 U.S.C. §8301 et seq.)
- Section 404(a) grants the President authority to allocate coal (and to require the transportation thereof) for the use of any power plant or major fuel- burning) installation. (42 U.S.C. §8374(a)) Exercise of this authority requires a Presidential finding of a severe energy supply interruption, as defined in Section 3(8) of Energy Policy and Conservation Act (EPCA), set out above. Section 404(e) stipulates that the President may not delegate his authority to issue allocation orders under this authority.
- Section 404(b) grants the President authority to prohibit any power plant or major fuel-burning installation from using natural gas or petroleum, or both as a primary energy source. (42 U.S.C. §8374 (b)) Exercise of this authority requires a Presidential finding of a severe energy supply interruption, as defined in Section 3(8) of EPCA, set out above. Section 404(e) stipulates that the President may not delegate his authority under this provision.

Facilitating the Transportation of Energy Products

Interstate Commerce Commission (ICC) Termination Act of 1995 (Pub. L. No. 104-88, 109 Stat. 803)

- Authorizes the Surface Transportation Board, Department of Transportation, to issue priority orders during an emergency for rail movement of commodities including

petroleum. (49 U.S.C. §11123)

- Implementing regulations (10 CFR 205.370 et seq.) specify that the involved parties must attempt to resolve the economic charges associated with the interconnection and/or delivery of electric power. If no resolution can be reached, the matter would be referred by U.S. DOE to the Federal Energy Regulatory Commission for hearings and resolution. Regulations of the Department of Transportation, Federal Highway Administration, provide in 49 C.F.R. 390.23 for waiver of Federal motor carrier safety regulations in Parts 390 to 399 for motor carriers or drivers operating commercial motor vehicles to provide emergency relief during a regional or local emergency declared by the President, Governor of a State, or the Regional Director of Motor Carriers. An emergency is defined to include natural disasters, explosions, blackouts, or other occurrences, natural or man-made, which interrupt the delivery of essential services such as, electricity, medical care, sewer, water, telecommunications and telecommunications transmission or essential supplies such as food and fuel, or otherwise immediately threaten human life or public welfare. For example, the waivers may exempt motor carriers and drivers from limits on on-duty hours when providing direct assistance in such emergencies and provides exemptions from inspections, record keeping, hazardous materials, and other requirements. Magnuson Act (50 U.S.C. §191 et seq.
- Authorizes the Secretary of Transportation to issue regulations governing the movement of any vessel within the U.S. territorial waters, upon a Presidential declaration of a national emergency by reasons of actual or threatened war, insurrection or invasion, or disturbance or threatened disturbance of the international relations of the United States. (50 U.S.C.§191)
- Ports and Waterways Safety Act (33 U.S.C. §1221 et seq.) Authorizes the Secretary of Transportation to establish vessel traffic systems for ports, harbors, and other navigable waters and to control vessel traffic in areas determined to be hazardous (e.g., due to conditions of reduced visibility, adverse weather, vessel congestion, etc.). (33 U.S.C.§1223).
- Public Law No. 81-891, 64 Stat. 1120 (‘‘Jones Act’’ waiver) Directs the Secretary of the Treasury to waive the provisions of section 27 of the Merchant Marine Act of 1920 (‘‘Jones Act’’), which require the use of vessels documented under 46 U.S.C. §12106 (i.e. U.S.- flag, U.S.-built, and U.S.-crewed vessels) in coastwise trade, ‘‘upon the request of the Secretary of Defense to the extent deemed necessary in the interest of the national defense by the Secretary of Defense.’’ In addition, Public Law No. 81-891 authorizes the Secretary of the Treasury to waive compliance with the Jones Act either upon his own initiative or upon the written recommendation of the head of another agency whenever the Secretary ‘‘deems that such action is necessary in the interest of the national defense.’’

ENVIRONMENTAL WAIVERS

Clean Air Act (42 U.S.C. §7401 et seq: Section 110(f) of the Clean Air permits a State Governor to issue an emergency temporary suspension of any part of a State Implementation Plan (‘‘SIP’’) (as well as a temporary waiver of penalties for ‘‘excess’’ Sulfur Oxide or Nitrogen Oxide emissions) in accordance with the following: (1) the owner/operator of a fuel burning source petitions the State for relief; (2) the Governor gives notice and opportunity for public hearing on

the petition; (3) the Governor finds that an emergency exists in the vicinity of the source involving high levels of unemployment or loss of necessary energy supplies for residential dwellings and that the unemployment or loss can be totally or partially alleviated by an emergency suspension of SIP requirements applicable to the petitioning source; (4) the President, in response to the Governor's request, declares a national or regional emergency exists of such severity that a temporary SIP suspension may be necessary and other means of responding to the energy emergency may be inadequate; and (5) the Governor issues an emergency suspension to the source.

Environmental Protection Agency regulations (40 C.F.R. 80.73) permit EPA to grant an exemption from the Clean Air Act Section 2ll (k)(1) requirement mandating the sale of reformulated motor

gasoline in nine large U.S. cities (to reduce emissions of ozone-forming substances and toxic substances) in ''appropriate extreme and unusual circumstances (e.g., natural disaster or act of God)'' if a refiner, importer, or blender satisfies the following five criteria:

1. Nonconforming gasoline is necessary to meet projected supply shortfalls.
2. Refiner/importer/blender could not have avoided noncompliance and is minimizing extent of noncompliance.
3. Refiner/importer/blender can demonstrate how compliance will be expeditiously achieved.
4. Refiner/importer/blender agrees to make up air quality detriment where practicable.
5. Refiner/importer/blender pays to U.S. Treasury an amount equal to the economic benefit of nonconformity less the amount expended in making up the air quality detriment.

NATIONAL DEFENSE AND NATIONAL SECURITY

Defense Production Act of 1950 (50 U.S.C. App. §2061 et seq.): The Secretary has delegated authority (E.O. 11790 and E.O. 12919) under section 101(a) to require performance on a priority basis of contracts for energy supplies that the Secretary deems ''necessary or appropriate to promote the national defense,'' and to allocate energy supplies ''in such manner, upon such conditions and to such extent as [the Secretary] shall deem necessary or appropriate to promote the national defense.'' This authority could be used, for example, to require acceptance of and priority performance under contracts relating to the production, delivery, or refining of petroleum products, to meet national defense energy needs of the Department of Defense and its contractors. It also could be used to facilitate petroleum transportation during an emergency, for example, by requiring pipelines, marine terminals, and other facilities to perform oil transport contracts necessary or appropriate to promote the national defense. (50 U.S.C. App. §2071(a)) Section 101(a) authority is not available to control the general distribution of material in the civilian market unless further findings required by Section 101(b) of the DPA are made, i.e., that the material is a ''scarce and critical material essential to the national defense'' and that defense needs cannot be met without causing dislocations in that market that will create ''appreciable hardship.'' (50 U.S.C. App. §2071(b)) Section 101(c) authorizes contract ''priority ratings'' and the allocation of equipment, material, and services to maximize domestic energy supplies, if the Secretaries of Energy and Commerce, under E.O. 12919, make certain findings with respect to the need for the material, equipment or services for the exploration, production, refining, transportation, or conservation of energy supplies, or for the construction and maintenance of energy facilities. This authority could be used, for example, to assist oil companies or electric utility companies in

obtaining equipment needed to repair damaged facilities, or to provide fuel oil to electric utilities. (50 U.S.C. app. §2071(c))

Section 708 provides a limited antitrust defense for industry participating in voluntary agreements ‘‘…to help provide for the defense of the United States through the development of preparedness programs and the expansion of productive capacity and supply beyond levels needed to meet essential civilian demand in the United States.’’ In the event of widespread damage to energy production or delivery systems, this authority could be used to establish a voluntary agreement of service companies to coordinate the planning of the restoration of the facilities. (50 U.S.C. app. §2158). The Secretary has delegated authority (E.O. 11790 and E.O. 12919) under Section 710 to train and employ persons from the private sector to facilitate planning for and responding to emergencies. (50 U.S.C. app.§2160)

NUCLEAR ENERGY

Atomic Energy Act of 1954 (42 U.S.C. §2011 et seq.): Authorizes the Nuclear Regulatory Commission, upon the declaration by Congress of a state of war or national emergency, to suspend any licenses granted under the Act if such action is necessary for the common defense and security. (42 U.S.C. §2138).

INTERNATIONAL AUTHORITY

International Emergency Economic Powers Act (IEEPA) (50 U.S.C. §1701 et seq.): Authorizes the President to declare a national emergency to deal with a threat, which has its source in whole or substantial part outside the United States, to the national security, foreign policy, or economy of the United States. Upon declaration of a national emergency, the Act provides the President with plenary control over property that is subject to U.S. jurisdiction and in which any foreign country or national thereof has an interest. If a petroleum shortage is sufficiently severe to invoke a presidentially declared national emergency, the IEEPA could be used to control supplies of petroleum products in which foreign countries or foreign nationals have an “interest” (e.g., regulate exports of petroleum products owned or controlled by a U.S. company and in which a foreign national has contract right to acquire). (50 U.S.C. §§1701-1702.

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APPENDIX D: CONTINUITY OF OPERATIONS PLAN

STATE OF NEVADA GOVERNOR'S OFFICE OF ENERGY CONTINUITY OF OPERATIONS PLAN

This Continuity of Operations Plan (COOP) was prepared by Governor's Office of Energy to develop, implement, and maintain a viable COOP capability. This COOP complies with applicable internal agency policies, state and local regulations and supports recommendations provided by the Federal Emergency Management Agency. The Governor's Office of Energy prepared this Continuity of Operations (COOP) to establish policy and guidance to ensure the execution of the essential functions for the Governor's Office of Energy if an emergency at the agency or in the State threatens or incapacitates operations, and/or requires the relocation of staff and functions.

1. **EXECUTIVE SUMMARY**

The Governor's Office of Energy has essential functions that must be performed, or rapidly and efficiently resumed, in an emergency. While the impact of an emergency cannot be predicted, planning for operations under such conditions can mitigate the impact of the emergency on our people, our facilities and our mission – in addition to maintaining services for State citizens.

2. **INTRODUCTION**

A. Purpose

The capability to prepare for, respond to and recover from emergencies affecting the office's operations is dependent upon the proficiency and well-being of its employees and leadership. The Governor's Office of Energy has adopted this plan, which allows the Governor's Office of Energy to:

- Have the capability to implement the COOP both with and without advance notice.
- Perform essential functions no later than 12 hours after activation of the COOP.
- Maintain essential functions for up to 30 days (90 days in a pandemic scenario).
- Develop standard operating procedures which enable the performance of essential functions.

B. Applicability and Scope

This plan describes the actions that shall be taken to activate a viable COOP capability within 12 hours of an emergency event and to sustain that capability for up to 30 days. The COOP can be activated during business and non-business hours, both with and without warning.

C. Policy

It is the policy of the State of Nevada to respond quickly in the event of an emergency or threat in order to continue essential functions and operations. COOP capabilities must be maintained at a high level of readiness, capable of being activated both with and without warning, ready to achieve operational status no later than 12 hours after activation, and able to maintain sustained operations for up to 30 days (90 days in a pandemic scenario).

D. Objectives The objectives of this plan are to:

- Ensure the continuation of essential functions.
- Protect facilities, equipment, records, and other assets.
- Facilitate decision-making during an emergency.
- Achieve an orderly recovery from emergency operations; and
- Fulfill the Office's responsibilities in local, regional and state emergency operations plans and agreements.

E. Assumptions

The following assumptions are made in considering continuity of operations planning by the Governor's Office of Energy:

- Upon declaration of COOP activation, employees will be instructed about

their responsibilities under the activation of the COOP. Emergencies or threatened emergencies can adversely impact the agency's ability to continue to support essential functions and to provide support to the operations of clients and external agencies.

- Agency and non-agency personnel and resources located outside the area affected by the emergency or threat shall be available as necessary to continue essential functions.
- A disaster may require staff to function with limited support and some degradation of service until full recovery is made.
- In compliance with the National Incident Management System (NIMS), and Homeland Security Presidential Directive (HSPD) - 5, all COOP program activities shall incorporate the principles of NIMS and the Incident Command System (ICS).

3. AUTHORITIES AND REFERENCES

A. Authorities

The COOP has been developed with the full endorsement of the Governor's Office of Energy's Director and senior management.

B. References

The reference used to develop this plan includes The State of Idaho Continuity of Operations (COOP) Template, August 2008. Other references that have supported the development of this COOP include the Homeland Security Presidential Directive (HSPD) 20, National Security Presidential Directive (NSPD) 51: National Continuity Policy. Though not required, the COOP addresses elements identified in the Federal Emergency Management Agency, Federal Continuity Directive 1.

4. CRITICAL BUSINESS FUNCTIONS

When confronting events which disrupt normal operations, the Governor's Office of Energy is committed to ensuring that essential business functions will be continued even under the most challenging emergency circumstances. During activation of this COOP, all other activities may be suspended to enable the agency to concentrate on providing the essential functions and building the internal capabilities necessary to increase and eventually restore operations.

Essential Functions of the Governor's Office of Energy include:

- Serve in the capacity of the ESF-12 position when an emergency is declared in the State.
- Provide appropriate communication to the Governor and other essential stakeholders.

The Governor's Office of Energy currently operates out of two facilities in the State. Most documents, equipment and staff are located in Carson City, Nevada, with an additional position located in Las Vegas.

5. CONCEPT OF OPERATIONS (CONOPS)

To implement the COOP, the agency has developed a Concept of Operations (CONOPS), which focuses on establishing emergency decision-making authority and defining a decision process for determining appropriate actions in implementing COOPs and procedures.

A. Planning Scenarios

Activation of the COOP may involve:

- The pre-planned movement of selected key personnel and technical personnel to an alternate operating facility.
- The implementation of temporary work procedures.
- The delegation of emergency authorities to successors of senior management and technical personnel due to their being unavailable during the emergency; and/or
- The assignment of COOP teams to perform specific activities necessary to ensure essential functions.

When activating the COOP, certain items of cybersecurity need to be considered. Cybersecurity and policy are to protect an individual's information. The following should be considered:

- Consider the source of USB devices.
- If necessary, have USB devices cleared by IT personnel.
- Consider the vulnerability of PDF readers on Smartphones. Storing email on Smartphones could allow hackers to read emails stored on phones.
- Personal Smartphones are not to be used for state purposes or to download state information.
- Verify that appropriate and approved software is installed on home computers or Smartphones that are allowed access to State systems.
- Employees can often unknowingly be the biggest threat to system security. Alert supervisors to any unusual emails or computer activity.

Three threat scenarios have been identified as the most likely to trigger COOP activation:

- **Class 1 Scenario: Single Building/Agency:** In this scenario, a portion or all the agency's operations are disrupted at one location, with limited displacement of operations to alternate facilities. The most likely causes of such a disruption are fire; system/mechanical failure; loss of utilities such as electricity, telephone, water, or steam; or explosion (regardless of cause) that produces no significant damage to any other facilities or systems used by the agency.
- **Class 2 Scenario: Catastrophic Event:** This scenario assumes that an incident affects a geographic region with a cluster of state operations (e.g., the Capitol). This scenario also assumes the disruption of operations to several agencies, leading to widespread displacement of the workforce and a disruption to multiple interdependencies between and among agencies. Disruption of normal business operations is assumed to be for an extended period.

- **Class 3 Scenario: Pandemic:** This scenario assumes that there is a pandemic-related disruption of the workforce, and that infrastructure is affected only to the extent that systems require maintenance and/or operation by a severely depleted workforce. Operations from an alternate (continuity) location will probably not be required. A pandemic event will most likely last for 12-18 months with as many as three waves of new infections lasting 4-6 weeks each. Continuous essential function evaluation may be required. See the Centers for Disease Control and Prevention's pandemic resources online, which contains more information: (www.cdc.gov)

B. COOP Execution

The Director, or his or her designee, may implement the COOP. The COOP is implemented based on known or anticipated threats and emergencies occurring with or without warning.

- **Known Threats and Emergencies (with warning):** There are some threats to operations that may afford advance warning that shall permit the orderly alert, notification, evacuation, and, if necessary, the relocation of employees. Such situations may include seasonal flooding, a transportation accident resulting in a threat of a release of hazardous material (HAZMAT) or a threat of a terrorist incident.
- **Unanticipated Threats and Emergencies (no warning) During Non-Business Hours**: Incidents may not be preceded by warning (e.g., earthquakes, arson, HAZMAT, or terrorist incidents) and may occur while on-site staff is not at work. In these circumstances, while operations from the primary facilities may be impossible, employees may still be able to respond to instructions, including the requirement to relocate following notification.
- **Unanticipated Threats and Emergencies (no warning) During Business Hours:** Incidents may also occur with no warning during normal office hours. Execution of the COOP would begin with implementation of building evacuation and safe assembly procedures, continuing through to notification of the COOP team.

C. COOP Team

The Governor's Office of Energy has identified key positions to provide management necessary to establish essential functions within 12 hours after an emergency event. These are identified in Personnel Contact List (Rapid Recall List) located in this Appendix.

D. Time-phased COOP Implementation

When confronting events that disrupt the normal operations of the agency, the office shall implement its COOP using a time-phased approach detailed below.

- **Phase 1: Activation and Relocation, 0-12 hours**
  - **Alert and Notification:** The agency has established specific procedures to alert and notify the director and staff that COOP activation is imminent. The Personnel Contact List (Rapid Recall List) is in the Appendix. Any staff member may recommend to the Director or his/her designee COOP

activation. Upon declaration by the Director, the continuity of operations plan staff will proceed with Initial Actions.

- **Initial Actions:** The Office has identified specific actions to be taken to terminate primary operations and activate the COOP team, communication links, and alternate work locations. Initial actions emphasize staff safety. Staff should be notified by the Director (or designee) of COOP activation in an orderly manner, via the Rapid Recall List in the Appendix. If office evacuation is necessary, staff should secure vital records and equipment if it is reasonable to do so and relocate to alternate work sites, to include home offices, the Division of Emergency Management facility (2478 Fairview Drive, Carson City) and/or Washoe County's Emergency Operations Center (5159 Spectrum Boulevard, Reno). Home office sites are available to staff who can connect to state computers via a Virtual Private Network (VPN). Upon COOP activation, staff should:
    1. Secure vital records and equipment (if it is safe to do so
    2. Relocate to alternate work locations, to include
        a. Home office if VPN exists
        b. DEM
        c. Washoe County EOC

- **Phase 2: Alternate Operations, 12 hours to end of emergency**
    - **Operational Hours:** During COOP activation, the office's operating hours will be 8 a.m. and 5 p.m., Monday through Friday, or as otherwise necessary to provide essential functions.
    - **Execution of Essential Functions:** The agency will perform any functions determined to be essential to operations from the alternate facilities using temporary procedures. The agency will re-establish normal lines of communication within the agency, to other agencies, and to the public via email, online communications and via the news media if necessary.
    - **Development of Plans and Schedules for Reconstitution and Termination:** As soon as it is feasible, and safe to do so, preparation for transferring operations of communication, vital records, databases, and other activities back to the primary office will begin. Circumstances may dictate that a new primary facility is designated and subsequently occupied.
- **Phase 3: Reconstitution, end of emergency**
    - Reconstitution Process: Upon the conclusion of the emergency event, staff should begin reconstitution procedures.
    - Reconstitution Procedures: Vital records and equipment should be relocated back to the office, and staff should return to the office under normal work conditions.
    - After-Action Review and Remedial Action Plans: An after-action review should be conducted with staff input to determine what, during the COOP, worked well, what did not and what specific solutions can be made to correct any areas of concern. The after-action review should occur within five business days of the COOP, and, depending upon the event's severity, may be a staff debriefing or a written report.

E. Notification and Alert

The Governor's Office of Energy recognizes that the COOP may be activated under different conditions:

- **With Warning:** It is expected that, in many cases, the Governor's Office of Energy will receive a warning of at least a few hours prior to an event via office emergency declaration from the state Division of Emergency Management, the Governor's Office, or local emergency officials. Staff notification of the COOP will occur through email, text message and/or telephonic methods listed in the Rapid Recall List in the Appendix.
- **Without Warning:** The ability to execute the COOP following an event that occurs without warning depends on the severity of the emergency and the number of personnel who survive.
  a. **Non-Business Hours.** Staff will be alerted and activated to support operations for the duration of the emergency. Notification will occur through email, text message and telephonic means as listed in the Rapid Recall List in this Appendix.
  b. **Business Hours**. If possible, the COOP will be activated, and available staff will be deployed as directed to support operations for the duration of the emergency. Depending on the status of communications, notification will be made by telephone, in-person at the office, and using designated call down procedures as listed in the Rapid Recall List in the Appendix.

F. Delegations of Authority and Orders of Succession

If executive leadership, senior management, or senior technical personnel are unavailable during an emergency, the Governor's Office of Energy has developed a set of procedures to govern delegations of authority.

- Authorities have been identified for delegation in support of policy determinations and executive decisions. Delegations specify what the authority covers, what limits may be placed upon it, who (by title) will have the authority, and under what circumstances. See COOP Response Team / Delegation of Authority in this section.

RESPONSIBLITIES

A. Responsibilities

The following lists identify major responsibilities of key personnel required to implement Governor's Office of Energy's COOP.

The Director is responsible for:

- Activating the COOP
- Working with emergency management agencies and the Governor's Office to ensure the office's resource needs are met
- Deactivating the COOP

The COOP coordinator is responsible for:

- Initiating communications via the Rapid Recall List in the Appendix.
- Overseeing staff evacuations when applicable

- Overseeing that records and equipment are maintained safely
- Overseeing the reconstitution of the office's operations

6. ADMINISTRATION AND LOGISTICS

A. Alternate Facility

The Governor's Office of Energy recognizes that normal operations may be disrupted and that there may be a need to perform essential business functions at alternate facilities. The Office, through cooperative agreements and mutual aid agreements, also has access to additional facilities that could support essential business functions. The current options for alternate work sites are:

1. Home offices with VPN connections
2. The Office of Emergency Management (Carson City)
3. Washoe County EOC (Reno)

B. Vital Records, Equipment and Systems

The Governor's Office of Energy may have records, equipment and systems that should be prioritized for restoration and recovery in an emergency event. Energy Program Managers, in coordination with the Deputy Director and Administrative Assistant, should identify key records and equipment for preservation during emergencies and ensure these items are maintained during a COOP activation.

C. Interoperable Communications

Communications is a critical component of a successful COOP activation. Communications must support connectivity to internal organizations, other agencies, critical customers, and the public. Primary and alternate modes of communication are listed in the Rapid Recall List in Appendix D.

D. Employee Support

If circumstances require, the Office recognizes that the well-being of employees' dependents and domestic companion animals are of mutual concern to ensure that employees remain available to support alternate facility operations. Employees must determine a prudent course of action, and management must take this into consideration.

7. COOP MAINTENANCE

The Office has provided staff with a training program to ensure that the agency's COOP capability remains viable. The training is intended to familiarize agency staff members with their roles and responsibilities during an emergency, ensure that systems and equipment are maintained in a constant state of readiness, and validate aspects of the COOP.

COOP RESPONSE TEAM & DELEGATION OF AUTHORITY

Response Team

PRIMARY: Director
FIRST ALTERNATE: Deputy Director
SECOND ALTERNATE: Designated Energy Program Manager

Delegation of Authority

The Deputy Director or designated Energy Program Manager may temporarily delegate specific authorities in accordance with the Line of Succession (above) if the Director is absent due to vacation, illness, or other circumstances. If the Continuity of Operations Plan is activated, the Director hereby delegates all authorities and responsibilities identified within the scope of the Director position, including those listed below, to staff members listed in the above Line of Succession who may act in the Director's absence, beginning with the First Alternate and progressing through each alternate as necessary:

1. Activation and execution of the Governor's Office of Energy's COOP as necessary.
2. Signatory authority for contracts, agreements, or other actions which, under normal circumstances, require the written approval of the Director.
3. Specific authority to commit Governor's Office of Energy resources and establish any new operational policies, consistent with office protocols that may be required in the event of an emergency or disaster.
4. Re-direction, as necessary, of office staff and programs to assure performance of the office's essential functions.
5. Providing information to the Director or their designee on the operational status and capabilities of the Governor's Office of Energy and, as needed, recommendations for the modification, reduction, or cessation of essential services within the office
6. Collaboration with external partners in forums and circumstances appropriate to the role of the Director.
7. Manage or delegate as appropriate all personnel activities within the Governor's Office of Energy such as hiring authority, employee leave of absence requests, potential disciplinary actions, lay off or termination actions in conjunction with the Governor's Office.

Individuals acting for the Director shall retain such authorities until authority is assumed by the Director of the Governor's Office of Energy, or their designee. The Governor's Office of Energy Line of Succession is designated by the name of individual, not by job title. Only the individuals named above are included in the Line of Succession.

PERSONNEL CONTACT LIST / RAPID RECALL LIST

GOE utilizes the What's App smartphone app for agency-wide emergency contact. This app allows timely notification of energy sector emergencies and provides interoperability with the Nevada Office of Emergency Management's What's App notification method. It is critical that GOE as ESF-12, have communication with the Nevada Emergency Operations Center (NVOC) during periods of activation.

The following list provides cell phone numbers for office personnel for intra-agency communications and to facilitate phone calls and text messages beyond the initial alert notification.

NAME	PHONE	ORDER OF CALL
Dwayne McClinton	702-833-0649	1
Nicole Kelleher	775-434-4534	2
Rachelle Doubinkine	775-315-2839	3
Lisa Fredley	775-461-6635	4
Fay Aboussleman	775-431-4373	5
Laule'a Akana-Philips	775-431-6290	6
Margorie Hilke	775-431-4222	7
Sara Miller	775-434-3018	8
Leah Touchstone	775-431-6046	9

Updated: 10/22/2025

The last person on the call-down list calls the first person after receiving his/her call-in order to confirm that the call down has been successfully completed. If the next person to be contacted is unreachable, the following person will be called.

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APPENDIX E: EMERGENCY MANAGEMENT DIRECTORS/COORDINATORS

This appendix lists contact information for individuals responsible for emergency action within their city or county. Additional contacts for energy commodities are found in a confidential list in Appendix A.

2024 Emergency Manager List

State and Counties

STATE OF NEVADA

Brett Compston, Emergency Manager 775-220-8211
Office of Emergency Management
2478 Fairview Dr.
Carson City, NV 89701
b.compston@oem.nv.gov

NVOEM Duty Officer 775-687-0498
NHP Dispatch 775-687-0400

CARSON CITY

Jon Bakkedahl, Fire Chief 775-283-7820
Office of Emergency Management
777 South Stewart St.
Carson City, NV 89701
jbakkedahl@carson.org

Kenneth Furlong, Sheriff 775-887-2500
KFurlong@carson.org

LE/SAR Dispatch 775-887-2014
Fire Dispatch 775-887-2215

CHURCHILL COUNTY

Rich Ingram, Emergency Manager 775-423-4188
Office of Emergency Management 775-223-3182 (C)
155 North Taylor St., Suite 177
Fallon, NV 89406
rich.ingram@churchillcountynv.org

Richard Hickox, Sheriff 775-423-3116
Joint Fire/LE Dispatch: 775-423-3116

CLARK COUNTY

Brian O'Neal, Deputy Fire Chief 702-455-7757
Clark County Fire Department
575 E. Flamingo Rd.
Las Vegas, NV 89119
boeneal@ClarkCountyNV.GOV

Kevin McMabill, Sheriff 702-828-3111
LE/SAR Dispatch 702-828-3111
Fire Dispatch 702-229-0291

DOUGLAS COUNTY

Kara Easton, Fire Chief/ Emergency Manager
775-783-60359048
East Fork Fire and Paramedic Districts Office
775-790-3021 (C)
P.O. Box 218
Minden, NV 89423
keaston@douglasnv.us

Tanner Dye, Deputy Fire Chief/Deputy EM 775-790-6427
trdye@douglasnv.us

Dan Coverly, County Sheriff 775-782-9900
dcoverley@douglas.nv.us
Joint Fire/LE Dispatch 775-782-5126

ELKO COUNTY

Lee Cabaniss, Emergency Manager
775 West Silver St. 775-748-0366
Elko, NV 89801
lcabaniss@elkocountynv.net

Aitor Narvaiza, Sheriff 775-738-3421
anarvaiza@elkocountynv.net

Joint Fire/LE Dispatch 775-777-7300

James Johnston, Fire Chief/EM
911 West Idaho St. 775-777-7347
Office
Elko, NV 89801 775-934-5104
jjohnston@elkocitynv.gov

ESMERALDA COUNTY

Paul Melendrez, Emergency Management Coordinator
775-227-0047 (C) 775-741-9350
P.O. Box 520
Goldfield, NV89013
pmelendrez@esmeraldacountynv.org
Ken Elgen, Sheriff 775-485-6373

Joint Fire/LE Dispatch 775-485-3524

EUREKA COUNTY

Jeb Rowley, Emergency Manager 775-237-5372
Director of Public Works 775-340-3662
P.O. Box 714
Eureka, NV 89316 jrowley@EurekaCountyNV.gov

Joint Fire/LE Dispatch 775-237-5330

HUMBOLDT COUNTY

Carol Lynn, Emergency Manager 775-304-8673(C)
Office of Emergency Management
50 W. Fifth Street
County Courthouse, Room 205
Winnemucca, NV 89445
carol.lynn@humboldtcountynv.gov
775-375-3195 (O)

Angel Cardenas, County Sheriff 775-623-6419
Email: **Joint Fire/LE Dispatch** 775- 623-6429

LANDER COUNTY

Ron Unger, Emergency Manager 775-635-1100
Lander County Sheriff 775-635-5161 Disp.
Mailing: PO Box 1625
Physical: 2 State Route 305
Battle Mountain, NV 89820 775-374-0808 (C)
sheriffrunger@landerso.org

Joint Fire/LE Dispatch 775-635-5161

Robert Quick, Undersheriff
rquick@landerso.org

LINCOLN COUNTY

Eric Holt, Emergency Manager 775-962-2376
Office of Emergency Management
P.O. Box 90
Pioche, NV 89043
Eholt.em@Gmail.com

Derek Foremaster, County Sheriff 775-962-5151

Joint Fire/LE Dispatch 775-962-8080

LYON COUNTY

Taylor Allison, Emergency Manager
Emergency Manager 775-344-8325
tallison@lyon-county.org 775-302-7088 (C)

Brad Hope, County Sheriff 775-463-6600

Joint Fire/LE Dispatch 775-463-6620

MINERAL COUNTY

Heidi Johnson, Emergency Manager 775-945-2497
525 West 9th St. 775-217-5801 (C)
P.O. Box 1301
Hawthorne, NV 89415
hjohnson@mineralcountynv.org

Bill Ferguson, County Sheriff 775-945-2434
mcsosheriff@mineralcountynv.org
Emergency Management 775-945-2434
Fire Dispatch 775-945-2497

NYE COUNTY

Scott Lewis, Emergency Manager 775-751-4279
1510 E. Siri Lane Suite 100 775-209-5883 (C)
Pahrump, NV 89060
slewis@pahrumpnv.org

Joe McGill, County Sheriff
775-751-7000
Pahrump

Joint Fire/LE Dispatch 775-727-7839

PERSHING COUNTY

Sean Burke, Director 703-999-3901 (C)
Office of Emergency Management
Box Drawer E, County Courthouse
Lovelock, NV 89419
sburke@pershingcountynv.gov

Jerry Allen, County Sheriff 775-273-2641
County Website: www.pershingcounty.net

Joint Fire/LE Dispatch 775-273-2641

STOREY COUNTY

Adam Wilson, EM Director 775-847-0986
Office of Emergency Management
P.O. Box 7 775-634-7443(C)
10 South B Street Virginia City, NV
89440 awilson@storycounty.org

Michael Cullen, County Sheriff 775-847-0959
mcullen@storeycounty.org

Joint Fire/LE Dispatch 775-847-0950

WASHOE COUNTY		WHITE PINE COUNTY	
Kelly Echeverria, Emergency Manager	775-337-5898	**Mathias Rieske, Emergency Manager**	775-296-0418
Office of Emergency Management	775-379-5995	Office	
337-5898 Office		mrieske@whitepinecountymv.gov	775-293-9998
5195 Spectrum Blvd.	775-379-5995	(C)cell	
Reno, NV 89512-0027		HC 33 Box 33447	
kecheverria@washoecounty.gov		1150 US Highway 93 North	
		Ely, NV. 89301	
Darin Balaam, County Sheriff	775-328-3001		
dbalaam@washoecounty.gov		**Scott Henriod, County Sheriff**	775-289-8808
		Office	
		shenriod@whitepinecountynv.gov	
LE/SAR Dispatch	775-785-9276		
NLTX	775-785-4253		
RNOX	775-334-2121	**Joint Fire/LE Dispatch**	775-289-8808
SPKX	775-353-2231		
TMFX	775-785-4253		

Nevada Tribal Contacts and Emergency Managers

Battle Mountain Band **Rhonda Hicks, Tribal Chair** 775-6352004	**Confederated Tribes of the Goshute Reservation** **Rupert Steele, EM** 435-234-1143 Rupert.steele@ctgr.us
Duck Valley Sho-Pai Tribe **Brian Mason, Chair Justin** P.O. Box 219, Owyhee, NV 89832 208-759-3100 ext. 1231	**Duckwater Shoshone Tribe** **Janry Bryan** 775-293-0591 dst.empg@duckwatertribe.org
Elko Band **Leah Brady, Chair** 775-738-8889 Silver Eagle Drive, Elko, NV 89801	**Ely Shoshone Tribe** **Ross Rivera, EM** riverar@elyshoshonetribe.com
Fallon Paiute Shoshone Tribes **Jackie Conway, EM** emd@fpst.org 775-427-0996 (C)	**Fort McDermitt Paiute-Shoshone Tribe** **Natasha York, Chair** P.O. Box 457, McDermitt, NV 89421 775-532-8259
Fort Mojave Indian Tribe **Irene Evanston** 760-326-9650 irene.evanston@fortmojave.com	**Las Vegas Paiute Tribe** **Harrier Vegas** hvegas@lvpaiute.con 702-912-1152 ddawkins@lvpaiute.com 702-449-1436 (C)
Lovelock Paiute Tribe **Tia Happy, Chair** P.O.Box 878, Lovelock, NV 89419 775-273-7861 **Amanda Fitzpatrick** admin@lovelocktribe.com	**Moapa Band of Paiutes** **Mario Monroe, Chair** P.O. Box 340, Moapa, NV 89025
Pyramid Lake Paiute Tribe **Don Pelt, EM** 775-574-1000 dpelt@plpt.nsn.us 775-560-4417 (C)	**Reno-Sparks Indian Colony** **Daniel Thayer, Clinic Dir.** 775-334-0902 dthayer@rsicclinic.org 775-225-3786 (C)

South Fork Band **Edith Smartt**, Chair HC 30 Box B-13 Spring Creek, NV 89815 775-744-4273 775-744-4273	**Summit Lake Tribe** **Randi Lone Easgle**, Chair 2255 Green Vista Drive 775-827-9670
Te-Moak Tribe **Edith Smartt**, Chair 525 Sunset Street Elso, NV 89801 775-738-9251	**Timbisha Shoshone** **Sookaaki Charley** 760-872-3614 administrator@timbisha.com
Walker River Paiute Tribe **Melanie McFalls, Chair** P.O.Box 220 Schurz, NV 89427 775-773-2306	**Washoe Tribe of Nevada & California** **Lisa Christensen** 775-781-3916 (C) Lisa.Christensen@washoetribe.us
Wells Band **Gaila Montoya, Chair** P.O. Box 809 Wells, NV 89835 775-260-2610	**Winnemucca Indian Colony** **Eric Magiera, Chair** 433 West Plumb Lane, Reno, NV 89509 775-329-3500
Yerington Paiute Tribe **Ginny Hatch, Chair** 171 Campbell Lane Yerington, NV 89447 775-783-0200 775-346-0627 (C)	**Yomba Shoshone Tribe** **Cameron Blair** cameronblairsmith@ymail.com 775-346-0627

City Jurisdictions

BOULDER CITY **Deputy Chief Greg Chesser Boulder Fire Dept.** 702-589-9641 1101 Elm Street Boulder City, NV 89005	**ELKO** **James Johnston, Fire Chief** 911 West Idaho St. 775-777-7347 Elko, NV 89801 775-934-5104 jjohnston@elkocitynv.gov
FALLON **Steven Endacott, Director** Fallon Emergency Management 775-427-5356 55 West Williams Ave. Fallon, NV 89406 sendacott@fallonnevada.gov	**HENDERSON** **Ryan Turner** **Division Chief, Emergency Manager & Safety** City of Henderson 240 Water St 702-267-2212 P.O. Box 95050 MSC 133 702-210-4023 (C) Henderson, NV 89009-5050 ryan.turner@cityofhenderson.com **Diana Clarkson, Emergency Management Officer** Diana.clarkson@cityofhenderson.com 725-274-5126
LAS VEGAS **Carolyn Levering, Emergency Manager** 702-229-6501 Las Vegas Emergency Management 702-229-0313 7551 Sauer Dr. 702-491-2820 (C) Las Vegas, NV 89128 clevering@LasVegasNevada.gov	**MESQUITE** **Jayson Andrus, Emergency Manager** 702-346-2690 x5013 Mesquite Fire & Rescue 702-378-1024 (C) 3 John Deere Rd Mesquite, NV 89027 jandrus@mesquitenv.gov

NORTH LAS VEGAS	RENO
Ben Erickson, EM/Deputy Fire Chief 702-633-1102 702-416-3236 (C) North Las Vegas Office of Emergency Mgmt. 4040 Losse Rd. North Las Vegas, Nevada 89030 **Solomé Barton, Asst. Emergency Manager & Homeland Security Liaison** 702-278-5943 (C) bartons@cityofnorthlasvegas.com 702-633-1125	**Andy Ancho, Emergency Manager** Office of Emergency Management 775-333-7774 1 East First Street 775-432-3805 (C) Reno, NV 89505 anchoa@reno.gov **Reno Police Department** Dispatch 775- 334-2121
SPARKS	**WEST WENDOVER**
Scott Means, Chief 775-353-2310 431 Prater Way 775-741-6904(C) Sparks, NV 89432-0857 nkrutz@cityofsparks.us	**Jeff Knudtson, Fire Chief** 775-664-2274 West Wendover Emergency Management 801-598-2734 P.O. Box 3226 West Wendover, NV 89883 jknudtson@westwendovercity.com

Regional, State, Federal & FEMA RIX Partners

CALOES **California State Warning Center**	(916) 845-8911 3650 Schriever Ave, Mather, California 95655-4203
ADEMA **Arizona Department of Emergency and Military Affairs**	(602) 469-3401 Deputy Duty: 602-469-3402 5636 E. McDowell Rd, Phoenix, AZ 85008
UDEM **Utah Division of Emergency Management**	(801) 538-3400 1110 State Office Building, Salt Lake City, UT
IOEM **Idaho Office of Emergency Management**	(208) 258-6500 4040 Guard St., Bldg. 600, Boise, ID 83705-5004
OEM **Oregon Office of Emergency Management**	(800) 452-0311 3225 State St., Room 115, Salem, Oregon 97301
FEMA Region IX Watch	(888) 709-3362 or (510) 627-7802 Fema-R9watchofficer@dhs.gov
DHS Protective Security Advisor Region IX- Nevada Cybersecurity and Infrastructure Security	Mike Matthews- (202) 897-6400 Michael.Matthews@cisa.dhs.gov
FBI	North – David Elkington 702-250-1861 South – David Elkington 702-250-1861

Airport, University, Fusion & Military Jurisdictions

AFRCC **24 hour** 800-283-3051 AFRCC.console@us.af.mil	**Joint Operations Center (JOC)** **Duty Officer -** 775-887-7200 **COL John Krueger** 775-830-3117 (C)
Harry Reid International Airport **A.J. Cieplenski, ACE** (702) 261-4437 Airport Emergency Administrator McCarran International Airport adolphc@mccarran.com (702) 589-6222 (C)	**Reno Tahoe Airport Authority** PD Dispatch 775-328-6600 **Ops Manager** 775-328-6407 Police Department Chief 775-328-3471 Fire Department Chief 775-328-6501

NAS FALLON **Robert Frank, Emergency Manager** 775-426-4026 4755 Pasture Rd. Fallon, NV 89406 robertc.frank8civ@us.navy.mil NAS Fallon Emergency Operations Center 775- 426-3240	**Nevada Civil Air Patrol** **Lieutenant Colonel Darrin Scheidle** 702-420-6334 Nevada Wing Director of Emergency Services Darrin.scheidle@nvwg.cap.gov
UNIVERSITY OF NEVADA – Reno (UNR) **Amanda Windes, Emergency Manager** 775-784-6478 1664 N. Virginia Reno, NV 89557 awindes@unr.edu Adam Garcia, Chief of Police 775-784-4013 agarcia@police.unr.edu Website: www.unr.edu	**UNIVERSITY OF NEVADA – Las Vegas (UNLV)** **Gregg Maye, Emergency Manager** 702-895-4849 4505 S. Maryland Pkwy. Box 452007 702-945-5406 (C) Las Vegas, NV 89154 Gregg.maye@unlv.edu
NTAC 775-687-0450 **Greg Pestipino, Director** 775-315-6158 (C) 2478 Fairview Drive Carson City, NV 89701 **Selby Marks, Deputy Director** 775-434-9372 (C) smarks@dps.state.nv.us 775-247-1336 (C)	**SNCTC** **24 hour Watch** 702-828-2261 ANSEC@lvmpd.com
Warning Coordination Meteorologist 702-263-9753 National Weather Service Las Vegas, NV daniel.berc@noaa.gov Back Line: (702) 263-9750	**NWS Reno:** 775-673-8106 National Weather Service Reno, NV Chris.smallcomb@noaa.gov Back Line: 775-673-8106
NNSS Luca Basham-Murphy 702-295-3835 bashamlj@nv.doe.gov	**Bureau of Reclamation** Viginia Ann-Marie Payumo (702) 293-8465 Regional Emergency Manager U.S. Bureau of Reclamation – Lower Colorado Basin P.O. Box 61470 Boulder City, NV 89006-1470 vperez-payumo@usbr.gov Hoover Dam Control Center/LC Basin Region 1-888-748-7220 24/7 Reclamation Duty Officer 303-445-3601

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APPENDIX F: COMMUNICATIONS TEMPLATES

This appendix provides sample templates for public information officers and other communication teams members in the event of Fuel Supply Disruptions.

FUEL SUPPLY DISRUPTION
Public messaging and templates

NOTE: This messaging is to be used in accordance with established operations and emergency management plans and corresponding emergency phases as determined by the Nevada Department of Agriculture (NDA). Messaging shall be in accordance with the currently designated phase and shall not be upgraded to subsequent phase messaging until such phase designation has been made by the NDA.

Verification phase – one or more fuel supply sources are down or scheduled to be down, but on-hand supply levels are sufficient to meet routine demand.

Messaging during **verification** could be used as needed on social media or other inquiries:

- **Currently down, no impacts:**
  The [name of pipeline] pipeline that supplies fuel to [northern/southern] Nevada is currently shut off due to a [public safety power shut-off/public safety outage management] event in [northern/southern] California. The pipeline is expected to come back online by [date], and we do not expect any impacts to consumers.
- **Scheduled to be down, no impacts:**
  The [name of pipeline] pipeline that supplies fuel to [northern/southern] Nevada is scheduled to be shut off from [date] to [date] due to a [public safety power shut-off/public safety outage management] event in [northern/southern] California. We do not expect any impacts on consumers.
- **Possible impacts:**
  While [northern/southern] Nevada currently has adequate fuel supply available to meet routine demand, due to [the upcoming holiday weekend/sudden disruption/duration/cooccurring incident/etc.], we are asking residents to only buy what you need. We do not expect a fuel supply shortage to occur before the pipeline is back online, but overbuying could place unnecessary strain on the supply.
- Staff at @NevGOE and @NVAgriculture regularly monitor the fuel supply throughout Nevada, and coordinate with partners in the industry to prepare for events like this.

Pre-emergency phase – one or more fuel supply sources are down, and on-hand supplies are at imminent risk of becoming insufficient to meet routine demand.

Messaging during a **pre-emergency** could be used as needed on social media or other inquiries:

- The [name of pipeline] pipeline that supplies fuel to [northern/southern] Nevada is

currently shut off due to a [public safety power shut-off/public safety outage management] event in [northern/southern] California. Staff at @NevGOE and @NVAgriculture are working to mitigate any potential shortages in the fuel supply that may occur due to [the upcoming holiday weekend/sudden disruption/duration/cooccurring incident/etc.]. Please refrain from overbuying as it could put unnecessary strain on the supply.

- Staff at @NevGOE and @NVAgriculture are coordinating with [name of company/orgs] to implement alternative methods of fuel delivery to [northern/southern] Nevada. While we do not anticipate a severe or long-term shortage, we are asking residents to only buy the fuel you need, as overbuying could place unnecessary additional strain on the supply.
- In addition, @NevGOE recommends voluntary conservation measures that residents can implement to reduce strain on the supply, including increasing use of rideshare programs, public transportation, bicycles, telecommuting/teleconferencing, and flexible work schedules.
- Other voluntary fuel conservation measures include observing speed limits, combining trips, when possible, properly inflating tires, avoiding excessive braking or idling, reducing vehicle air conditioning, and checking air filters and PCV valves.

In addition, a news release from the Governor's Office, upon recommendations by the directors of GOE and NDA, may be appropriate:

[PRESS RELEASE TEMPLATE]

Governor [Enter Name] recommends voluntary fuel conservation in [northern/southern] Nevada during pipeline shutdown

([CARSON CITY/LAS VEGAS], Nev.) – The [name of pipeline] pipeline that supplies fuel to [northern/southern] Nevada is currently shut off due to a [public safety power shut-off/public safety outage management] event in [northern/southern] California. The pipeline is expected to come back online by [date]. While [northern/southern] Nevada currently has enough fuel supply to meet routine demand, due to [the upcoming holiday weekend/sudden disruption/duration/cooccurring incident/etc.], officials are asking residents to only buy what is needed.

Staff at the Nevada Department of Agriculture and Governor's Office of Energy are coordinating with [name of company/orgs] to implement alternative methods of fuel delivery to [northern/southern] Nevada, as needed.

"We do not expect a fuel supply shortage to occur before the pipeline is back online, but overbuying could place unnecessary strain on the supply," Gov. [Enter Name] said. "We are not implementing any mandatory conservation measures, but we are asking that everyone only buy the gas you need."

Some voluntary petroleum conservation measures are provided from the Governor's Office of Energy (GOE):

- **Increase use of rideshare programs.** GOE is working with the Nevada Department of Transportation and local Regional Transportation Commissions to promote rideshare programs.
- **Carpool wherever possible.**
- **Increase use of public transportation.**
- **Increased use of bicycles.** Weather permitting, we encourage commuters who live within bicycling or walking distance of their places of employment to bike or walk to work.
- **Flexible work schedules.** Allow employees to stagger their commute hours, while still working during core hours, usually 10 a.m. to 2 p.m.
- **Telecommute.** Reduce use of transportation fuel by allowing employees to work independent of their employer's location, using their homes or alternate work locations close to their homes.
- **Teleconference.** Wherever possible, opt for telephone or video meetings instead of business trips to meetings and conferences.
- **Other conservation tips:**
    - Observe speed limits
    - Combine trips whenever possible
    - Do not idle engines unnecessarily and do not rev engines
    - Properly inflate tires
    - Avoid excessive braking
    - Reduce use of car air conditioner
    - Check air filters and PCV valves

Emergency phase – a shortage is occurring, declaration of emergency is issued by the Governor, and operations have been transitioned to GOE/DEM. In this phase, the priority communication would likely be a press release, and messaging would be pulled for social media from the release.

[PRESS RELEASE TEMPLATE]

Governor [Enter Name] declares state of emergency in response to fuel supply shortage in [northern/southern] Nevada

([CARSON CITY/LAS VEGAS], Nev.) – Today, Nevada Governor [Enter Name] declared a state of emergency in response to the ongoing fuel supply shortage in [northern/southern] Nevada caused by the [public safety power shut-off/public safety outage management] event in [northern/southern] California. The [name of pipeline] pipeline that supplies fuel to [northern/southern] Nevada is currently shut off, and not expected to come back online until [date].

In addition to voluntary conservation measures, this declaration gives the Governor the authority to implement the State Emergency Set-Aside Program for [specific petroleum product(s)] to be set aside for the following priority end users: [delete any not needed]

- Agriculture

- Aviation
- Emergency services
- Energy production
- Government
- Healthcare services
- Passenger services
- Trucking
- Utility services

"I am thankful to the petroleum industry and staff at the Nevada Department of Agriculture and Governor's Office of Energy for their quick action to implement alternative methods of fuel delivery to [northern/southern] Nevada," Governor [Enter Name] said. "While we do not anticipate a severe or long-term shortage, we are asking residents to only buy the fuel you need, as overbuying could place unnecessary additional strain on the supply."

Some voluntary petroleum conservation measures are provided from the Governor's Office of Energy (GOE) below:

- **Increase use of rideshare programs.** GOE is working with the Nevada Department of Transportation and local Regional Transportation Commissions to promote rideshare programs.
- **Carpool wherever possible.**
- **Increase use of public transportation.**
- **Increase use of bicycles.** Weather permitting, we encourage commuters who live within bicycling or walking distance of their places of employment to bike or walk to work.
- **Flexible work schedules.** Allow employees to stagger their commute hours, while still working during core hours (usually 10 a.m. to 2 p.m.), so fuel isn't wasted in traffic.
- **Telecommute.** Reduce use of transportation fuel use by allowing employees to work independent of their employer's location, using their homes or alternate work locations close to their homes.
- **Teleconference.** Wherever possible, opt for telephone or video meetings instead of business trips to meetings and conferences.
- **Other conservation tips:**
    - Observe speed limits
    - Combine trips whenever possible
    - Do not idle engines unnecessarily and do not race engines
    - Properly inflate tires
    - Avoid excessive braking
    - Reduce use of car air conditioner
    - Check air filters and PCV valves

STATE OF NEVADA
JOE LOMBARDO
Governor

DWAYNE MCCLINTON
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GOVERNOR'S OFFICE OF ENERGY

News Release

FOR IMMEDIATE RELEASE

Thursday, March 19, 2020

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Governor's Office of Energy, Department of Agriculture issue guidance to fuel providers during COVID-19

CARSON CITY – The Governor's Office of Energy and the Nevada Department of Agriculture issued additional guidance today that all elements of the fuel supply chain are considered essential services in accordance with the Nevada Health Response COVID-19 Risk Mitigation Initiative (Initiative). Fuel providers are recommended to remain open for business, including:

- Pipeline operators
- Distribution terminals
- Tanker trucks
- Fuel wholesalers
- Electric vehicle chargers
- Registered Service Agents repairing or calibrating fuel dispensing equipment

This guidance follows what was outlined in the Initiative issued yesterday from Nevada Health Response Center regarding essential and non-essential services and sectors. It listed essential services recommended to remain open, notably "gas stations & truck stops," but did not specifically list all elements of the fuel supply chain. Although these businesses may remain open, the Nevada Health Response Center maintains that all employees and patrons employ strict social distancing practices. For more information about the Initiative, please visit: nvhealthresponse.nv.gov/.

According to state analysts, fuel supply availability is ample and there are currently no disruptions to the fuel supply.

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APPENDIX G: DRAFT EXECUTIVE ORDER

DRAFT EXECUTIVE ORDER FOR EMERGENCY PETROLEUM SET-ASIDE

Establishment of State Emergency Set-Aside for [insert name of petroleum products to be set aside]
Executive Order [insert number and year] Authority and Scope

WHEREAS, NRS 701.210 authorizes the Governor to prepare a petroleum allocation and rationing plan for possible energy contingencies and to carry out and administer any federal programs which authorize state participation in fuel allocation programs.

WHEREAS, [insert a brief description of the event(s) that have required this action]; and

WHEREAS, [insert a brief description of the consequences and impacts of the event(s)]; and

WHEREAS, it is in the best interests of the State of [insert name] to establish the ability to provide emergency fuel supplies to emergency responders needed to protect the health, safety, and economic well-being of the State's residents and visitors; and

NOW, THEREFORE, I, [insert governor's name], Governor of the State of Nevada, by virtue of the power and authority vested in the Governor by [cite statute] upon declaration of a state of emergency in the Executive Proclamation [insert number] under this act,

I, [insert governor's name], Governor, hereby implement a State Emergency Set-Aside Program for [insert names of the petroleum products to be set aside], [statewide or in the state of], as set forth below on [insert time, month, day, year].

I hereby designate [insert the name of the designated state agency] as the state office responsible for the administration of the State Set-Aside Program as set forth below. In this capacity, the [insert the name of the designated state agency] or as referred to hereafter as the "state office" shall have the following duties and responsibilities:

1. Promulgate administrative rules that will specify the procedures and criteria for obtaining relief
   from the set-aside.
2. Provide a mechanism that will allow for appeals of any decisions made by the state office.
3. Provide a means to assure that fuel released from the state set-aside is used for hardship
   purposes only.
4. Utilize the set-aside to provide for the health, safety, and welfare of the citizens of [insert state name].

State Set-Aside Program

1. Volumes to be set aside for emergency fuel allocation.
   a. A prime supplier shall inform the state office, not later than one week before the first

day of each month, of the estimated volume projected monthly sales of petroleum products subject to State Set-Aside Program to be delivered into the state of [insert state name] for consumption within the state for the upcoming month. This will be consistent with the Prime Suppliers Monthly Report EIA-782c required to be reported to the U.S. Energy Information Administration that contains the prior month's deliveries using this same format. The prime supplier shall provide the volumes that are estimated to be delivered for sales in the upcoming month into the state of Nevada for final consumption. These are the volumes upon which the set-asides amount will be based.

   b. The set-aside volume available to the state office for a particular month shall be the amount calculated by multiplying .03 by each prime supplier's total projected deliveries to be available in the subsequent month for consumption within the state of [insert state name].
   c. The state set-aside for a particular month may not be accumulated or deferred but shall be made available from stocks and deliveries of prime suppliers whether directly or through their wholesale purchaser-resellers.
   d. Volumes remaining in a prime supplier's set-aside at the end of the month that have not been used shall revert to the supplier to become part of the subsequent month's supply and shall be retained and made available to accounts and customers in the state of [insert state name] in an equitable manner.

2. Company Representative – Each prime supplier shall designate a company representative to act for and on behalf of the prime supplier with respect to the State Set-Aside Program. Each prime supplier shall notify the state office, in writing and within 10 workdays of the date of this order, of such designation including name, title, physical address, phone number, and email address.
3. Authorizing Document – The state office shall issue a document authorizing the assignment of the amount of petroleum products to be released from the set-aside upon full or partial approval of an applicant's request. A copy of this document shall also be provided by the state office to the designated company representative of the prime supplier from which the assignment is to be made. An authorizing document issued by the state office is effective upon issuance and represents a call on the prime supplier's set-aside volumes for the month of issuance, even in cases where delivery of the product subject to the authorizing document cannot be made until the following month.
4. Area Release of State Set-Aside
   a. At any time during the month, the state office may order the release of part or all of a prime supplier's set-aside volume to its customers through the prime supplier's normal distribution system in the state.
   b. The state office may designate certain geographical areas within the state as suffering from an intrastate supply imbalance. At any time during the month, the state office may order some or all the prime suppliers with purchasers within such geographical areas to release part or all of their set-aside volume through their normal distribution systems. This will increase the allocation to all the supplier's purchasers located within such areas.
5. Orders issued pursuant to this declaration shall be in writing and effective immediately upon presentation to the prime supplier's designated company representative.
6. Prevailing Price – Any assignments made from the set-aside under this order shall be made available to the wholesale purchaser-consumer or end-user at prices prevailing for the same class of purchasers and products in the locality of the wholesale purchaser-consumers, end-

user, or wholesale purchaser-reseller at the time of the sale.

Violation of Order

Any person who knowingly violates this directive is guilty of a [insert any penalties that may be provided by state law. For example, this might be something like a misdemeanor punishable by a fine of not more than [insert number of dollars].] Each day a violation continues is a separate offense. The Attorney General or a Prosecuting Attorney of a county may bring an action in a court of competent jurisdiction to prevent a violation of this order or to compel a person to perform a duty imposed on the person under this Executive Order.

Duration of Order

This order shall remain in effect for [insert number of] days from its effective date unless amended, superseded, or rescinded by further Executive Order. It shall expire [insert number of days] after the proclamation of a state of energy emergency unless extended as provided for in [insert reference to the statute under which this action is based. Alternatively, it could also say until such time as supply conditions improve, and the plan is no longer needed, and the governor issues an order rescinding the plan.]

Governor: _____

Dated: _____ [insert location]

File with [insert the name of the department or legislative body with which the order may need to be filed]