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**GOVERNOR'S OFFICE OF ENERGY**

# MINUTES
## Technical Working Group on Innovation, Technology, & Renewable Energy

October 10, 2017

Technical Working Group on Innovation, Technology, & Renewable Energy held a public meeting on October 10, 2017 beginning at 1:00 P.M. at the following location:

**CARSON CITY**
Legislative Counsel Bureau
401 South Carson Street, Room 3137
Carson City, NV 89701

1. **Call to order and Roll Call:** The meeting was called to order at 1:00 PM by Chair Jennifer Taylor. Chair Taylor thanked all for attending and noted the agenda would be taken out of order. The agenda item was opened for roll call and quorum was confirmed.

The following Board Members were present:

| **Committee Members Present** | **Committee Members Absent** |
|---|---|
| Jennifer Taylor | Adam Kramer |
| Steve Hill | |
| Dana Bennett | |
| Daniel Witt | |

**2. Public Comment and Discussion**:

Chair Taylor opened Agenda Item No. 2 and asked if anyone from the public sought to make a comment. No public comment was provided.

**3. Approval of August 9, 2017 minutes**

Chair Taylor opened Agenda Item No. 3 and asked if there was a motion to approve the August 9, 2017 meeting minutes. Vice Chair Steve Hill made a motion to approve the minutes. This motion was seconded by Ms. Dana Bennett. The motion passed unanimously.

**4. Presentation: Representative from the Illinois Power Agency (IPA) (***For Discussion***)**
Presentation to include the following topics:

i. Structure of the IPA
ii. Electricity procurement plans and programs by an independent agency in an open market
iii. Introduction to IPA's long-term Renewable Resources Procurement Plan

Chair Taylor opened Agenda Item No. 4 and introduced Mr. Anthony Star, Director, Illinois Power Agency (IPA) to provide an overview of the Agency and changes to the Illinois Renewable Portfolio Standard.

Mr. Star provided some background on the IPA and its approach. Illinois restructured its electricity market in the late 90s essentially phasing in customer choice and allowing utilities to restructure and spin their generation off to other companies. This commenced by phasing in choice for larger commercial industrial customers followed by residential customers who, during a 10-year transition period were given a rate reduction and a rate freeze concluding in 2006. During this time utilities had sold off their generation and it was necessary to develop new ways procure power for customers who did not switch to alternative suppliers. The IPA was created as a state agency, in 2007, as part of resolution of debate on how to procure power for these customers (eligible retail customers).

In 2011 the IPA became an independent Agency under the oversight of the Illinois Executive Ethics Commission. The Agency is funded through fees it charges the utilities for its energy planning services, suppliers (to run procurement events), and investment income from a Trust Fund. Even though the IPA is a state agency it is not taxpayer funded. Two of its key responsibilities are developing an annual procurement plan, subject to Illinois Commerce Commission (ICC) approval, and running procurements and programs via third-party administrators.

The IPA's approach to energy procurement is to meet the load requirements of eligible customers by developing electricity procurement plans to ensure adequate, reliable, affordable, efficient, and environmentally sustainable electric service at the lowest total cost over time, taking into account any benefits of price stability. The IPA has historically met this approach by developing a procurement model for blocks of on-peak and off-peak energy, with a goal to have

to have all the required power under contract for the upcoming delivery year, half of the year after and a quarter of a year after that. This allows for a layered set of contracts providing price stability and minimizing exposure of risks to the markets.

IPA originally planned on meeting the state's Renewable Responsibilities for the eligible retail customers. Utilities had annual RPS percentage requirements for eligible retail customers and alternative Suppliers also had a separate RPS responsibility. The IPA would then administer the Renewable Energy Resources Fund to purchase additional renewables resources (funds collected from alternative suppliers as a portion of their RPS compliance). This resulted in Illinois having multiple RPSs which was complicated and didn't work as planned. One of the biggest issues was, because of retail choice, customers could switch back and forth between utility service and alternative suppliers. This led to budget and target uncertainties and made long term planning difficult. The Renewable Energy Resources Fund also encountered challenges as funds were redirected to other purposes, and the wording of the law constrained its use.

It is anticipated current and planned changes will bring improvements. Substantial legislation took effect June 1, 2017 and fundamentally alters how Illinois' RPS works. Over the forthcoming two years the alternative suppliers are going to have their obligations phased out and the state will move to a single RPS. The IPA has developed a long term renewable resources plan which was released for comment on September 29, 2017. Implementation of the new procurement programs is targeted for late March or early April 2018.

The new plan will comprise the target of 25 percent by 2025 of retail sales. The law will also implement quantitative targets and specific goals for new build of utility-scale wind projects and utility scale solar projects. An Adjustable Block Program is being created and will have set Renewable Energy Credit (REC) prices available for people who want to do community solar or distributed photovoltaics. The IPA is also setting up the Illinois 'Solar for all program' which will use the remainder of the money collected from the alternative suppliers to create targeted programs for low income customers. Existing contracts will also be used to assist in meeting targets.

Currently the IPA's future plan does not include net metering and smart inverter rebate as these will be handled by the utilities and energy sales from renewable resources as the plan will focus on RECs instead.

Chair Taylor asked about the fees contributing to funding the agency. Mr. Star advised the investor owned utilities pay the planning fees. Alternative suppliers do not pay the IPA any fees. The three largest utilities in Illinois pay fees, to the IPA, to do the procurement so eligible customers will have power available to them. When the IPA run a procurement event, the winning bidders pay supplier fees to help cover the event costs.

Chair Taylor asked about the Agency's trust fund. Mr Star confirmed when the Agency was set up the utilities had to put $25 million into a trust fund. The IPA is able to use the investment income to help offset some of the agency's operating expenses. Therefore, this fund is purely for

operating expenses. There is also a Renewable Energy Resources Fund which comprises funds collected from the alternative suppliers as part of their RPS compliance obligation.

Chair Taylor noted the Agency was positioned under the Illinois Executive Ethics Commission. Mr. Star stated the Agency was originally established under the Governor's office and this later changed due to a General Assembly decision. Having a separate agency has proved to provide an efficient system for checks and balances and keeps balancing risk ideas separate from the regulatory process.

Vice Chair Hill asked if IPA's plan was currently working for smaller and residential customers and whether those customers also felt it working well for them. From an energy procurement side, Mr. Star noted Illinois' energy prices had been significantly reduced and there were no longer controversies regarding how the energy was being procured. On the renewable side, there were initial challenges around approaching distributed generation and pricing of renewable energy credits. It was difficult for companies, selling residential systems, when they didn't always know what their new energy credit prices would be. Hence the introduction of the Adjustable Block Program which provides administratively set prices. While some of the competitive procurement markets are lost, companies selling residential systems are able to provide definitive numbers which will assist the economics of developing their systems.

Mr. Daniel Witt asked about the state of Illinois' current energy mix in terms of procurement. Mr. Star advised Illinois is a net exporter of power. Approximately the state is 50 percent nuclear, 40 percent coal, and 4 or 5 percent renewable most of which is utility scale wind. There is also natural gas and other things on the margin.

Chair Taylor requested, if the information was available, Mr. Star submit any updates from the IPA Procurement Plan as the agency went through public hearing. Mr Star advised the final plan would be available after April 22, 20018.

Chair Taylor thanked Mr. Star for his time and presentation.

**5. Presentation: Pat Egan, Senior VP of Renewable Energy and Smart Infrastructure, NV Energy** (*For Discussion)*

Presentation to include a review of current NV Energy programs, including the following topics:

i. Energy efficiency, demand-side management, and demand response resources
ii. Programs administered by NV Energy to support renewable energy, storage and electric vehicles
iii. Nevada Green Energy Rider projects
iv. Recently-approved programs as directed by the 2017 Legislature

Chair Taylor opened Agenda Item No. 5 and introduced Mr. Pat Egan, Senior VP of Renewable Energy and Smart Infrastructure, NV Energy (NVE), to provide an overview of NVE's current public policy based programs.

Mr. Egan commenced by outlining NVE's client engagement programs and advised the customer interaction component was supported by the availability of contact centers, bills, regular community interaction and direct customer interface. The provides a substantial amount of efficiency in providing these programs to customers. In September 2017, NVE rolled out new functionality to its website which increases the efficiency of its customer web interaction. This also improves customer engagement by leveraging customer provided information to more efficiently assist them to better manage their services. NVE has experienced an increasing trend of its customers engaging with them digitally.

NVE provides Demand Side Management (DSM) and energy efficiency services to a wide array of customers including commercial, residential, schools, and nonprofits. These services have been provided for almost 20 years and are an important part of NVE's resource mix. Up until approximately three or four years ago NVE's energy efficiency services were centrally the result of either commercial customers that would request or a high bill complaint where we'd go in and do an assessment or leave it to the contractor. Over the last past few years NVE has developed a suite of services to proactively reach out to customer to identify the value of the service for them. NVE customers receive both direct and indirect benefit from its DSM programs. Direct benefits include air conditioner tune ups, home energy assessments, and NVE's smart thermostat program. An Indirect benefit is these costs go into NVEs renewable resource plan and they are below avoided cost. This means kilowatt hours NVE reports are economic. Over the last five years NVE has typically underspent it's allocated funding and over achieved its energy efficiency objectives.

NVE's Renewable Generations Program started 2003 as an incentive program to buy down the relatively high cost of renewable energy and to assist customers with installing private solar, wind, and hydro systems. Wind and hydro have not been heavily used programs and NVE has not received an application for either since 2013. In the 2017 legislative session the applicability of this program was expanded. To date, the bulk of these funds have been spent on solar. Since the inception of the SolarGenerations program Schools and Public Institutions received a majority of funding, and the highest average incentive for capacity installed. Residential customers have generated the largest number of projects.

NVE administers the Lower Income Solar Energy Pilot Program (LISEPP) which was created by the 2013 Legislature to build 2,000 kW of solar capacity to benefit low income customers and paid for 100 percent from the SolarGenerations program. The Legislature directed NVE to provide support for Title 1 schools and nonprofits to demonstrate solar has value across the community. A lot of these types of facilities are not in a position where they have the capital to support these kinds of programs. NVE worked with contractors and Title 1 Schools to build these projects.

Net metering is also growing. There were 26,273 net metering systems interconnected for 231.4 MW and an additional 2,210 systems in the pipeline for 23.1 MW. NVE handles the netting function and purchases excess energy. In 2017 legislation was passed which requires that net metering customers are in the same rate class as similarly situated non-net metering customers.

Average residential solar installation costs have declined by 61 percent since the beginning of this decade. From 2016 to 2017, costs declined 6 percent, driven primarily by module cost declines, offset partially by increases in ancillary soft costs. The design of the program has essentially been to support those customers to buy down that the cost of the system.
The 2017 Legislature, Senate Bill 145 Enhancements to Program combined individual funding limits into one combined pool of $295.2 million. Remaining funding of $54.8 million can be applied toward solar, wind, water, electric vehicle infrastructure, or storage projects and $10 million explicitly allocated through the bill toward energy storage. This also provides for a successor program to LISEPP, allocating up to $1 million per year specifically for low income projects. At current incentive levels, funding is adequate to achieve solar 250 MW capacity goal, spend entire allocation toward energy storage, and allow significant investment in electric vehicle infrastructure.

With the implementation of the Electric Vehicle Infrastructure Demonstration Program, as part of Senate Bill 145, NVE will support and accelerate the realization of electric vehicle growth in Nevada. NVE has already demonstrated strong leadership in supporting electric vehicles and has been expanding its hybrid fleet since the first hybrid bucket trucks were available in 2009. This is growing every year and currently 11 percent of NVE's fleet has electrification technology. In 2013 NVE partnered with 50 Nevadan companies to double the electric vehicle charging infrastructure in Nevada. NVE is one of a few power utilities nationally that has an Electric Vehicle Time of Use (EV TOU) specific rate for electric vehicle customers. 96 percent of Nevada Power Customers experience lower bills on their EV TOU than other rate classes.

The Nevada GreenEnergy Rider (NGR) program provides a means for customers to have all or some portion of load supported by renewable energy generation. Through the NGR, NVE and the customer may enter into a special contract under which the customer agrees to assume all of the costs of the renewable energy resource up to a specified amount, not to exceed the customer's total energy consumption. The PUCN approves this special contract upon, a satisfactory showing that NVEs other customers do not subsidize the NGR transaction.

Nevada has the largest percentage of commercial and industrial load under a green tariff. A 2017 National Renewable Energy Lab (NREL) report indicates that in 17 states, utilities have offered large customers the option to procure renewables through green tariffs or bi-lateral contracts. These partnerships offer customers access to off-site universal scale, low cost renewables. Most states have no green tariffs or associated transactions, so customers primarily just purchase RECs. Benefits include, long-term renewable energy at fixed price, no additional administration costs or energy expertise required for customers, and utilities can aggregate customer load to get economies of scale.

Renewable Portfolio Standard (RPS) is an energy policy that promotes the use of clean energy to meet the retail energy needs of the consumers in the state. REC equals 1 kWh. Credits are generated from utility scale solar, geothermal, wind, biomass, small hydro projects, and private generation

Chair Taylor asked where the Electric Vehicle (EV) load would go if NVE were no longer the investor owned regulated monopoly utility and how EVs would be handled as a resource if this

were passing into 2018 and NVE was out of the generation business. Mr. Egan advised NVE's role is currently unknown. If NVE is not the fully integrated services company it is uncertain whether it would it provide a service or a further customer engagement resource. At the 2017 legislative session, NVE supported the legislation to do a Distributed Energy Resources plan to offer up all the potential value whether it's through rooftop, EVs or storage. Mr. Egan stated the NVE team is very engaged in making sure this is adhered to.

Chair Taylor referred to the example of an NVE Energy bill included in Mr. Egan's presentation and the 'Government Fee' listed in the breakdown of fees shown. Chair Taylor asked if Mr. Egan could advise on the statutory authority for this. Mr. Egan confirmed he would get this information to the Committee.

Mr. Witt asked about existing resources and technologies that should be applied, in a world with multiple providers, to ensure customers receive the best possible quote information to encourage transparency and confidence in their service and provider. Mr. Egan advised the current rubric of a regulation is that all NVE's customer engagement costs get offered up, audited and reviewed. NVE tracks its customer engagement activities and programs to ensure the capture of accurate data and to consistently review efficiencies. It is important to put rigor around these processes to ensure the best possible customer engagement.

Chair Taylor thanked Mr. Egan for providing a comprehensive overview.

**6. Presentation: Representative from the California Independent System Operator (CAISO) on Electrical Grid Infrastructure and Distributed Energy Resources (***For Discussion***)**

Chair Taylor opened Agenda Item No. 6 and introduced Mr. Phil Pettingill, Director, Regional Integration, CAISO, to provide a presentation on Electrical Grid Infrastructure and Distributed Energy Resources.

Mr. Pettingill advised there were two main progressive ways CAISO was developing markets and integrating Distributed Energy Resources (DERS). This is via a focus on its wholesale markets and what is happening as these resources are connecting to the distribution grid and affecting distribution operations as well.

DERs are becoming an increasingly important part of the CAISO energy resource mix. The increasing number of DERs is due to the technology becoming more cost effective for residential customers, and a shift to renewable energy resources, away from convention fossil-fuel generation at all scales of the electric industry. DERs are located on the distribution side of the bulk electric system. DERs are any resources connected on the distribution level, customer side or utility side of the customer meter. Technological types of DERs can include rooftop solar, energy storage, plug-in electric vehicles, and demand response.

The California (CA) market currently has over 1000 megawatts of demand response participating in its market today. In approximately 12-18 months another 1200 megawatts will be added. Therefore, on a 50000 megawatts system it is anticipated there will be 2200

megawatts of demand response participating directly in the wholesale market. In addition, storage is a significant product growing in CA. Currently there is approximately 100 megawatts of storage. It is anticipated there will be a significant increase in storage either directly or indirectly participating in ISO markets and contributing to the mix of resources that are available on the electric system.

CAISO established the DER provider as a new type of market participant in 2015. CAISO recognized the need to be progressive in opening up the wholesale markets to support this development and therefore created the Distributed Energy Resource Provider (DERP) for resources wishing to participate in the wholesale market. This provider is the energy that can accumulate these resources and then be able to offer them into the ISO market. DERs can participate in the ISO market via demand response resource or Non-generator resource (NGR). Demand response is the direct participation of load reduction as a supply resource in the market and can participate under the model of Proxy Demand Response (PDR) or Reliability Demand Response Resource (RDRR). Non-Generator Resource (NGR) allows for the participation of energy storage resources such as flywheel, lithium ion battery, electric vehicles, and pumped hydro.

It is important to recognize once a large number of load serving entities (LSEs) are introduced, consumer rules will need to be established to ensure LSEs have a similar code of conduct. Some focuses of facilitating DERs are broadened consumer protection rules, universal regulatory obligations on all LSEs, establishing short and long-term adequacy obligations on all LSEs in alignment with reliability needs and state policy goals, new interconnection rules and procedures, and access to customer information with confidentiality.

Chair Taylor asked about the protection of the grid and grid reliability as new targets increased. Mr. Pettingill advised CAISO is working with the distribution operators to recognize, as there is a proliferation of distributed resources, the key focus should be the communication channel between CAISO as the wholesale side, and the distribution operators. It is necessary for all parties involved to communicate on a real-time basis.

Chair Taylor asked about the current DER providers in CAISO. Mr. Pettingill advised these were load serving entities that solely worked on building and providing the demand response product and aggregating commercial customers into a resource participating in the ISO market.

Vice Chair Hill noted there has been conversation around how Nevada and CAISO could work together. This was discussed at the recent CA legislative session and Vice Chair Hill asked Mr. Pettingill to provide an update on the session discussions and any changes made. Mr. Pettingill confirmed there were current conversations regarding CA changing its governance to an independent board like other ISOs and two bills, regarding this, were introduced in the 2017 session. The Chair of the Assembly Energy Committee was unable to hear those bills in 2017. As CA's legislative session is essentially a two-year process, these bills are still alive for 2018. There is still another legislative cycle in 2018 to hear the bills and have that legislative discussion.

Chair Taylor thanked Mr. Pettingill for his presentation and the work he was doing with distributed energy resources in CAISO.

**7. Update from Committee on Energy Choice (CEC) staff on the progress of the CEC's request to the PUCN to open an Investigatory Docket (*For Discussion*)**

Chair Taylor opened Agenda Item No. 7 and introduced Mr. Ryan Cherry, Chief of Staff, Office of Lt. Governor Mark Hutchison, to provide an update on the progress of the CEC's request to the PUCN to open an Investigatory Docket.

Mr. Cherry noted he had presented at the September 13th Committee on Energy Choice (CEC) and discussed the reasons for the CEC to request an investigatory docket from the PUCN. The CEC membership voted 8 to 5 to authorize Lt. Governor Hutchison, Chairman of the Committee on Energy Choice, to submit a request, to the PUCN, for the opening of an investigatory docket.

The letter was sent to the PUCN on September 27th and received by Chairman Reynolds. The docket was opened on October 2nd. The docket can be found on the PUCN's website in the general dockets category: number is 17 – 10001.

Chair Taylor thanked Mr. Cherry for his update.

**8. Public comment and discussion.**

Chair Taylor opened Agenda Item No. 8 and asked if anyone from the public sought to make a comment.

Mr. Fred Voltz, citizen, provided public comment in Carson City. Mr. Voltz advised he wished to raise an observation particularly after hearing the presentation by the CAISO representative and looking at the numbers on the generation needs of the state. Mr. Volz stated there is a shrinking CA generating asset base thanks to the closure of San Onofre, the pending closure of the Diablo Canyon nuclear plant, and Ivanpah not producing the planned amount of electricity among others. With renewables, currently at 30 to 40 percent of CA's electricity supply, Nevada and other states are taking the unusable CA renewables at substantially discounted prices and the CA rate payers are effectively subsidizing this. Mr Voltz queried if the ultimate supply target is to come 100 percent from renewables, but the grid cannot economically use the current renewable sourced electricity, whether this would result in rate payers paying for something that offers them no value.

**9. Adjournment. (For Possible Action)**

Chair Taylor opened Agenda Item No. 9 and asked for a motion to adjourn the meeting. A motion was made by Vice Chair Hill. This motion was seconded by Mr. Witt. The motion passed unanimously.