Draft
January 23, 2018

Governor's Committee on Energy Choice
Technical Working Group on Innovation and Technology and Renewable Energy
Issue Statements

THIS IS A WORKING DOCUMENT THAT CONTINUES TO BE REVISED AND MODIFIED

A. Issue: Nevada's current energy goals and policies recognize the need for and benefits of indigenous renewable energy development, conservation of energy, environmental protection, economic development and improved technology. NRS 701.010. Nevada currently offers legislatively mandated clean energy public and incentive programs, including energy efficiency and conservation programs, incentives for the installation of distributed renewable generation, economic development incentives, the renewable portfolio standards, net metering and other burgeoning technologies like storage and electric vehicles. How will a restructured energy markets potential affect the programs and the technologies they help advance?

TWG Findings:

- This Technical Working Group was tasked with assessing identifying requirements, entities responsible for implementing/complying, agencies responsible for administration and oversight agencies, cost and funding sources for the following should the ECI pass again in 2018:
  - Renewable portfolio standards
  - Electric vehicles
  - Energy Storage
  - Metering (net, time of use)
  - Demand-side management programs
  - Energy efficiency programs
  - Aggregation programs, including Community Solar
  - Blockchain
  - Incentive programs for other technologies of interest

- Technologies have been advancing and evolving rapidly and new opportunities in solar, storage demand side management and energy efficiency, aggregation, transportation electrification and advanced technologies such as smart homes provide potential benefits for Nevada's residential and commercial customers. A nimble environment to analyze and adopt these new technologies may provide a public benefit.

- Current public benefit and incentive programs currently offered
- under the Energy Choice Initiative, the public and incentive programs implemented by NV Energy may still be maintained.
- These public and incentive programs support the state's energy goals.
- The laws that may need to be addressed if the ECI passes again include, but not be limited to, a number of bills from the 2017 session, including AB 223, SB 145, and SB 150.
- Other policies in advancing RE in states with retail competition
  - Green tariffs
  - Net energy metering
  - Green banks
  - Compensation for the value of solar (and distributed energy resources)
  - Long-term contracting
  - Regional power markets
  - Transmission investment for RE development

TWG Recommendations:

Nevada should identify the essential characteristics and attributes of the restructured market that will best serve Nevada's citizens and policy goals, including renewable energy requirements and subsidized services for low-income customers.

Nevada should ensure policies created in the establishment of a competitive retail market do not impede progress and innovation in current and future technologies through either statutory or regulatory mechanisms.

Investigate opportunities for funding through, for example, the Governor's Office of Energy or as a condition to market entry by Retail Energy Providers, to develop an incubator that brings together new energy marketplace providers and suppliers and the utilities to create and test pilot projects on various technologies/products that would create greater options for meaningful choice by Nevadans. (e.g., energy management devices that follow wholesale prices, blockchain, peer-to-peer energy sales, DSO, etc.).

Ensure regulatory flexibility for incentives to REP's that offer pilot programs to integrate "smart" energy technologies that encourage support for DG, storage and other clean energy advances.

Storage Recommendations from the Energy Storage Association include:

1. Capture the full *value* of energy storage: Ensure that the unique and myriad benefits of energy storage are realized via accurate market signals that monetize economic value, operational efficiency, and societal benefits. ("ESA Recs", p.2).

2. Enable energy storage *competition* in all grid and resource planning and procurements. Energy storage can serve as a cost-saving and higher-performing resource at the meter, distribution, and transmission levels, but only when fully considered in all planning processes. ("ESA Recs", p. 2).
3. Ensure fair and equal *access* for storage to the grid and markets. Numerous barriers to market and grid access exist, dramatically limiting the ability for energy storage systems to interconnect and offer their full range of potential services – especially multiple services from a single asset. ("ESA Recs", p. 2).

The ESA Recs provide specific examples of policies that could account for **value** including: (ESQ Recs", p.3)

A. Procurement targets:
B. Time-varying rate design:
C. Distributed Energy Resource ("DER") compensation:
D. Storage investigations and cost-benefit studies:
E. Demand-side programs:
F. Incentives:
G. Financing Support

The ESA Recs provide specific examples of policies that could account for **competition** including: (ESQ Recs, p.4)

A. Integrated Resource Planning:
B. Distribution system planning:
C. Renewable and clean energy standards:
D. Grid resilience and emergency management planning:
E. Peak demand reduction and energy efficiency programs:
F. Resource adequacy requirements:
G. RFP's:
H. RFI's
I. New procurement processes:

The ESA Recs provide specific examples of policies that could account for **access** including: (ESQ Recs, p.5):

A. Updating transmission interconnection:
B. Modernizing distribution interconnection rules and standards:
C. Distribution system transparency:
D. Improve queue management for DER's:
E. Enable multi-service provision:
F. Clarifying ownership options:

Electric Vehicle Findings & Recommendations, include:

- EV's are a key area of technology growth in Nevada's clean energy economy and it is recommended that funding programs through SB 145 and private partnerships be encouraged to continue under Energy Choice.

- Shifting Electric Vehicle Load via Price Signals through time of use rates to allow energy savings for entire home, not just EV load. (Egan Presentation, p.34). EV's can also be utilized as a DER (Egan Presentation, p. 39) and maintained at the distribution level.

- Investigate other transportation innovations including autonomous vehicles and green fleets. (Egan pres., p. 37-38).

Energy Efficiency and Public Policy Programs Recommendations include:

- Energy Efficiency and Conservation programs provide a benefit to Nevada ratepayers. NV Energy provides Demand Side Management Services to Nevada ratepayers of all classes, including commercial, schools, and residential. (Egan pres., p.12). These programs have resulted in annual energy savings of .94% of total sales with a cumulative annual energy savings for the past ten years is 2,745 gigawatt-hours. (Egan pres., p. 17).

- Several Public Policy Customer Programs were enacted during the 2017 legislation. (Egan presentation, 20), including AB 223 (transition from stand-alone program approval to portfolio approval; allocation of 5% of DSM budget to low income customers); SB 150(commission establishes energy efficiency target and cost effectiveness tests), and SB 145 (provides combined funding for solar, wind, water, EV infrastructure or storage with $10million specifically allocated to storage).

- Review of opportunities to maintain these programs should be undertaken. *Further recommendations on options TBD.*

Renewable generations incentive programs recommendations include:

- Renewable generations incentive programs are funded through the Renewable Energy Program Rates (REPR) on monthly NVE bills. In 2017, they were pooled to provide funding for private solar, wind, and hydro systems, along with eligible technologies, such as electric vehicle infrastructure and energy storage. (Egan pres., p.24).

- Review of opportunities to maintain these programs should be undertaken. *Further recommendations on options TBD.*

- Lower Income Solar Energy Pilots to serve low-income populations also have to be reviewed to maintain the programs.

- Review of opportunities to maintain this program should be undertaken. One example is the Illinois Power Agency's "Solar for All Program" which brings "photovoltaics to low- income communities in [Illinois] in a manner that maximizes the development of new photovoltaic generating facilities, to create a long-term, low-income solar marketplace throughout [Illinois], to integrate, through

interaction with stakeholders, with existing energy efficiency initiatives, and to minimize administrative costs." (Star pres., p.10). This program includes: Low-income Distributed Generation Incentive, Low-income Community Solar Project Initiative, Initiatives for Non-profits and Public Facilities, Low-Income Community Solar Pilot Projects

B. Issue: Executive Order ("EO") 2017-10, amending EO 2017-03, directed the Committee on Energy Choice to examine "whether or how to implement the ideas in Assembly Bill 206, which would have raised Nevada's Renewable Portfolio Standards. EO 2017 -10 stated that the bills were vetoed because, "among other things, there was significant uncertainty as to how the policies in the bills would be affected by the proposed amendment to the Nevada Constitution contained in the upcoming 2018 ballot question." Further, EO2017-10 stated that "the members of the CEC are uniquely qualified to examine whether or how to implement the ideas in AB 206 and SB 392 should Nevada's voters pass the Energy Choice Initiative for the second time. " Finally, EO 2017-10 stated that it is "necessary and prudent that the CEC study, review and discuss Nevada's renewable portfolio standards . . .and make recommendations". Nevada's RPS currently calls for 25% of energy be renewable by 2025. Can an RPS be maintained at this or a higher level under the language of the Energy Choice Initiative, and how will renewable energy to meet the requirements of an RPS be procured?

TWG Findings:

- Nevada is committed to being the nation's leader in clean and renewable energy generation development. (*See Governor's Accord for a New Energy Future* and *Nevada's Strategic Planning Framework, 2016 – 2010*, First Edition, April 11, 2016). Nevada's efforts to develop its renewable resources have been very popular, and have provided an economic benefit to the state.

- The Energy Choice Initiative is intended to reinforce, and not replace, Nevada's existing public policies on clean energy.

- The ECI contemplated that Nevada's existing and future clean restructuring to an open and competitive electricity market would not abrogate energy policies. As such, the ECI's implementation provision specifically states:

> (c) Nothing herein shall be construed to invalidate Nevada's public polices on renewable energy, energy efficiency and environmental protection or limit the Legislature's ability to impose such policies on participants in a competitive electricity market.

- The proponents of the Energy Choice Initiative have posited that an open retail market will result in more renewable energy, and that Nevada may pursue its

renewable and clean energy future through robust policies that promote renewables and storage development.

- "Customer choice will not, and was not intended to, by itself guarantee more clean energy or the resulting economic benefits. (NRDC)

- A Renewable Portfolio Standard is not in conflict with an open and competitive retail energy market.

- RPS drives deeper development of RE (relative to no RPS scenario) (Tierney presentation, p. 15)

- In a number of states with open retail markets, RPS standards were instituted as a reaction to state energy de-regulation and were often instituted alongside de-regulation. (AEE pres., p. 2, 4). These policies exist in 29 states and DC.

- States with open retail markets include RPS's, some with percentages higher than Nevada, including New York (50% by 2030), Maine (40% by 2017), Rhode Island (38.5% by 2035), DC (50% by 2032) (NRDC Pres., p.8)

- In the absence of a vertically integrated utility entering into contracts to procure renewable energy resources, an alternative method must be developed.

- Load Serving Entities are typically responsible for RPS compliance (Tierney presentation, p. 5).

Policy Recommendations:

- Implementation of the ECI should be effectuated in alignment with Nevada's renewable energy, energy efficiency and technology goals . Additionally, it should recognize the Legislature's ability to impose those policies, as they currently exist or may be changed in the future, on all participants in a restructured electricity market.

- Incentivize customer-sided renewables and efficiency through market-based programs. This includes rules and assistance for those interested in programs like solar leasing, community solar, demand-response providers (ex. ESCO's)

- Policies could include potential requirements that REP's offer renewable options as a condition of participating in the market.

<u>Renewable Portfolio Standard Recommendations:</u>

Advanced Energy Economy and Natural Resources Defense Council

-- "Having an open market doesn't guarantee clean energy in the state" (AEE pres. p. 6).

- Ensure that any renewable energy system and products are easy and accessible to all consumers and the requirements cover utilities and retail suppliers. (AEE pres. P. 6)
- Requirements to procure long-term contracts with renewable generators as in CT, NY, MA, IL (NRDC pres., p.9)
- Create a central procurement agency, like the Illinois Power Agency –(AEE pres. p.6)
- Geographic restrictions on REC's (such as deliverability requirements, usually set at regional grid level). (NRDC pres., p.9)
- Established rules around use of Alternative Compliance Payments (e.g. In-state community solar, rooftop solar deployment, ex. "Illinois Solar For All"). (NRDC pres., p.9)

- Consider requiring the POLR to provide a standard offer of 100% clean energy. (AEE Pres. P.6)
- Nevada cities and counties consider aggregation to purchase RE power (AEE pres. p.6)
- Consider test pilot for commercial and industrial class developed after the vote on the 2018 ballot. (AEE pres. P. 8)
- Consider shifting cost-of-service ratemaking to a market-based ratemaking process could lead the PUC to open up new dockets to explore how to incorporate DER into the grid. (AEE Pres. p. 8)
- Consider alternative to REC compliance to prevent volatility and large variations in RPS compliance costs. (NRDC Pres., p.8).
- Consider technology carve-outs (e.g. storage, offshore wind, solar, industrial - CHP). (NRDC Pres., p.9)
- Tiers that have in-state and/or operational date restrictions (NRDC Pres., p.9).

• - Require default provider to offer innovative, regulated rate options for all customer classes. This would include 100% renewable/green pricing plans and dynamic pricing options (e.g. time-of-use, real time pricing).

Procurement findings and recommendations:

• One model is the Illinois Power Agency, created in 2007 in response to the question of how to procure power for customers who did not switch to alternative suppliers. Enabling legislation allows the IPA to conduct procurement activities with transparency, objectivity, and in an ethical manner (Star pres., p.2). Funding comes from a variety of fees charged to utilities (for planning), suppliers (to run procurement events), and investment income from a Trust Fund. (Star pres., p.2).

• Key responsibilities include:
  • Developing annual procurement plan, subject to Illinois Commerce

Commission (ICC) approval (akin to Nevada's PUCN).
• Running procurements and programs via third-party administrators. Procurement results subject to ICC approval (Star presentation, p.2).

- Criteria in the Illinois Power Agency Act:
"Develop 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."
  - Approach has been to procure each year standard energy blocks to meet 100% of expected load in the current delivery year, 50% in the following year, and 25% in the next year. (Star press, p.3)

  - Utilities have annual RPS percentage requirements for eligible retail customers Alternative Suppliers also had a separate RPS responsibility (same percentage goals). IPA administers the Renewable Energy Resources Fund to purchase additional renewables resources (funds collected from alternative suppliers as a portion of their RPS compliance) (Star pres., p.4)

  - Illinois' proposed long term procurement plan from IPA is pending. It includes quantitative targets for new construction, procurements to meet percentage targets, an adjustable block program with community solar and distributed PV generation, and the "Illinois Solar for All Program" that serves low income customers. (Star pres., p.6, 8).

  - Multiple models exist for RE/REC procurement:
    - Each LSE arranges for its own RE/REC's and have to include REC's as part of supply offers/obligations (Decentralized) (Tierney presentation, p.6, 8)
    - Utility also has major role in contracting for RE/REC's through RFP's and competitive solicitations (Hybrid) (Tierney pres., p. , 6, 10)
    - Power agency has major role in contracting for RE/REC's, but LSE's hold RPS obligation. Paid for through non-bypassable charges or energy charges to basic service customers. (Centralized) (Tierney pres., p. 6, 12).

C. <u>Issue</u>: Community Solar and Net Metering

Executive Order 2017-10, amending Executive Order 2017-03, directed the Committee on Energy Choice to examine "whether or how to implement the ideas in Senate Bill 392, which would have allowed community solar gardens to begin operating in Nevada." Executive Order 2017 -10 stated that the bills were vetoed because, "among other things, there was significant uncertainty as to how the policies in the bills would be affected by the proposed amendment to the Nevada Constitution contained in the upcoming 2018 ballot question." Further, EO2017-10 stated that "the members of the CEC are uniquely qualified to examine whether or how to implement the ideas in SB 392 should Nevada's voters pass the Energy

Choice Initiative for the second time. " Finally, EO 2017-10 stated that it is "necessary and prudent that the CEC study, review and discuss community solar gardens, and make recommendations". Specifically, EO 2017-03 was amended to add the following topics for the CEC to address to include "allowing community solar gardens to begin operating in Nevada."

Additionally, in 2017, AB 405 established a new program for rooftop solar. Does the potential restructuring of the retail market impact AB 405 and net metering? Which entities in the market will offer net metering under AB 405?

NET METERING/ROOF-TOP SOLAR:

- AB 405 governs net-metering and rooftop solar in Nevada.
- A presentation on this issue for restructured states will be provided on 1/23/2018 with recommendations pending.

COMMUNITY SOLAR:

Marta Tomic, Community Solar, Program Director with Vote Solar presented to the working group on December 5, 2017. Subsequently, she submitted the following recommendations, for implementing a community solar program in Nevada (see attached).

General

- » Enable a statewide community solar program to provide all customer types and all customer classes the opportunity to access solar energy through off-site solar installations.
    - Note: Statewide community solar programs are distinguished from green tariff programs, which offer subscribers the ability to purchase environmental attributes, portfolio credits, or renewable energy credits from a renewable energy facility. Green tariff programs typically offer subscriptions at a premium price, versus community solar programs, which should offer the opportunity for tangible economic bill savings.
- » Any statewide program should include clear guidance on the community solar goal for that state with a defined amount of community solar energy capacity to be achieved by a certain year. A clear mechanism should also be included to add capacity to the community solar program based on established metrics or milestones. Clarity around annual program capacity is necessary to create a stable market and drive private investment in the state.
- » Allow for multiple subscribers to receive a fair bill credit for the production of an offsite solar energy facility. The bill credit rate must reasonably allow for the creation and financing of community solar facilities. An appropriate bill credit is a dollar-per-kilowatt-hour rate determined by the Public Utilities Commission and used to calculate a subscriber's bill credit.

» Particular public policy goals should be considered with any statewide community solar program, such as the goal to provide solar energy access to businesses and residents across Nevada that have historically faced barriers to rooftop solar.
    - Mechanisms to promote commercial, small customer, or residential participation can come in particular forms such as per project carve-outs (e.g.: 15%) or requirements for certain capacity allocations within an entire program.
    - Limits can also be placed on individual subscription sizes (e.g. 40%) to ensure each community solar project serves multiple subscribers.
    - These goals and mechanisms can be specifically established in legislation, or the legislation can require the Public Utilities Commission to consider these public policy goals during the rulemaking process.
» Include public policy goals to ensure participation and accessibility by low-income households and low-income service organizations in any community solar program. Mechanisms could include:
    - Community solar program capacity carve-outs (e.g. 10% of community solar program capacity to serve low-income customers and low-income service organizations).
    - Integration with complementary programs such as energy efficiency, energy assistance, workforce development, and others.
    - A directive for the Public Utilities Commission, electric distribution companies, and stakeholders to work with appropriate state agencies to consider the development of financing options, financial incentives, education and outreach programs, or appropriate community solar program participation goals or minimums. Financing considerations can include incentives, adders, and on-bill financing.
    - Consider ways to directly engage and educate low-income customers and low-income service organizations about community solar.
    - Allow for siting preferences for community solar facilities dedicated to low-income customers and low-income service organizations.
    - These goals and mechanisms can be specifically established in legislation, or the legislation can require the Public Utilities Commission to consider these public policy goals during the rulemaking process.
» Establish clear customer eligibility requirements, such as:
    - A customer may subscribe to a community solar facility located in the same electric company service territory as the customer.
    - Allowing all rate classes to be eligible to subscribe to a community solar energy generating system.
    - Subscribers served by retail electricity suppliers and subscribers served by Standard Offer Service may subscribe to the same community solar energy generating system.
» Include the appropriate community solar program oversight and administration to ensure the goals of the program are met. This can be

accomplished with a third-party program administrator or the appropriate state agency oversight and should also include annual reporting requirements.

- » Any legislation should require the Public Utilities Commission to establish rules for a Community Solar Program by a certain date, and require each electric distribution company to file any necessary tariffs, agreements, or forms for implementing the community solar program.
- » Provide for consumer protection in accordance with existing laws.
- » Allow the electric distribution company to recover reasonable costs for administering the community solar program.
- » Ensure non-discriminatory and efficient requirements and electric distribution company procedures for interconnecting projects with the appropriate level of transparency for any program queue.
- » Include a program implementation schedule.

Example Definitions

- » Include the appropriate definitions for a community solar program, community solar facility, bill credit, electric distribution company, electricity supplier, low-income customer, low-income service organization, subscriber, subscriber organization, subscription and unsubscribed energy. Example definitions:
  - "Community Solar Program" or "Program" means the program created through the adoption of rules to allow for the development of Community Solar Facilities described.
  - "Community Solar Facility" means a facility that generates electricity by means of a solar photovoltaic device whereby Subscribers receive a Bill Credit for the electricity generated in proportion to the size of their Subscription. A Community Solar Facility is a facility that:
    - (a) Is located in the service territory of the Electric Distribution Company submitting compliance filings;
    - (b) Is connected to the electric distribution grid serving the state;
    - (c) Is able to generate electricity as a community solar facility for at least twenty-five years.
    - (d) Has at least 3 Subscribers;
    - (e) Is located on a single parcel of land.
  - "Bill Credit" means the monetary value of the electricity (in kilowatt-hours) generated by the Community Solar Facility allocated to a Subscriber to offset that Subscriber's electricity bill.
    - A fair bill credit is necessary to enable robust participation by residents, businesses, and small commercial customers.
  - "Electric Distribution Company" means an entity that physically transmits or distributes electricity in the State to a retail electric customer.

- "Electricity Supplier" means an entity that sells electricity, electricity supply services, competitive billing services, or competitive metering services and purchases electricity for sale to a retail electric customer.
- "Low-Income":
  - Example Definition 1: means persons and families whose income does not exceed 80% of area median income, adjusted for family size and revised every 5 years.
  - Example Definition 2: means a subscriber whose gross annual household income is at or below 175 percent of the federal poverty level for the year of subscription or who is certified as eligible for any federal, state, or local assistance program that limits participation to households whose income is at or below 175 percent of the federal poverty limit.
- "Low-Income Service Organization":
  - Example Definition: means an organization or nonprofit whose primary function is to provide services or assistance to low-income individuals.[1]
- "Subscriber":
  - Example Definition 1: means a retail electric customer of an Electric Distribution Company who owns one or more Subscriptions of a Community Solar Facility interconnected with that Electric Distribution Company. A Subscriber must be located in the same Electric Distribution Company service territory where the Community Solar Facility is located.
  - Example definition 2: means a retail customer of an electric company that (1) holds a subscription to a community solar energy generating system; and (2) has identified one or more individual meters or accounts to which the subscription shall be attributed. (text from MD)
- "Subscriber Organization":
  - Example Definition 1: means any for-profit or nonprofit entity that owns or operates one or more Community Solar Facilities. A Subscriber Organization shall not be considered an Electric Distribution Company or Electricity Supplier solely as a result of its ownership or operation of a Community Solar Facility.
  - Example Definition 2: (1) A person that owns or operates a community solar facility; or (2) the collective group of subscribers to a community solar facility. A Subscriber Organization may contract with a third-party to finance, build, own or operate a community solar facility.
- "Subscription":

[1] Persons providing services which benefit low-income customers, including, without limitation, homeless shelters, low-income housing developments, Indian reservations, Indian colonies and schools with a significant population of low-income pupils.

        - Example Definition 1: means a contract between a Subscriber Organization and a Subscriber setting forth the Subscriber's proportional interest in a Community Solar Facility. A Subscription shall be sized such that the estimated Bill Credits do not exceed the Subscriber's average annual bill for the customer account to which the Subscription is attributed.
        - Example Definition 2: means the portion of the electricity generated by a community solar facility that is credited to a subscriber.
    - "Unsubscribed Energy":
        - Example Definition 1: means electricity, measured in kilowatt-hours, generated by a community solar garden that is not allocated to a subscriber.
        - Example Definition 2: means any community solar system output in kilowatt-hours that is not allocated to any subscriber (text from MD)

Program Administration

Although legislation may allude to particular elements of program administration, the Public Utilities Commission when adopting any rules governing a community solar program should:

- Ensure the electric distribution company provides bill credits to community solar subscribers for a period of not less than twenty-five years from the date the facility is first interconnected.
- Allow for regular updates to the subscriber list and a reasonable time requirement for the electric distribution company to apply bill credits to new subscriber's electricity bills. The Public Utilities Commission should ensure that the privacy of customer data is considered when designing the process for subscriber organizations to update their subscriber lists.
- Allow for individual bill credit to roll over for a twelve-month period. The Public Utilities commission should establish a methodology for the annual distribution of excess bill credits.
- Allow subscriber organizations to retain ownership of renewable energy credits.
- Allow for the transferability and portability of community solar subscriptions.
    - Transferability of subscriptions allows individual subscribers to transfer their subscription to another entity.
    - Portability of subscriptions allows an individual subscriber to move within the same service territory (or applicable geographic restriction) and maintain their subscription to the same community solar facility.
- Require the purchase of unsubscribed energy from a community solar facility by the electric distribution utility.

» Address the co-location of two or more community solar facilities on a single parcel of land, and provide guidelines for determining when two or more facilities are co-located and can be co-located.

D. Issue: Net Export

EO 2017-03 directed the CEC to assess Nevada's goal of becoming a net exporter. How can DER's and other renewable resources work in a restructured market to support this goal?

Grid Infastructure & Distributed Energy Resources (DER) findings & recommendations

- DER's provide broad opportunity for technology advances for integration (Pettingill presentation, p. 2),

- DER's are located on the distribution side of the bulk electric system and distribution operators are responsible for DER's below the T-D interface. (Pettingill pres., p.2).

- DER's are becoming an increasingly important part of the CAISO energy resource mix, because CALISO established the DER provider as a new type of market participant in 2015. (Pettingill pres., p.4-5). DER providers can aggregate a variety of distribution connected resources to the ISO market. (Pettingill pres., p. 6). They can also participate as a demand response or non-generator resource (which allows storage to participate). (Pettingill pres., p..7)

Recommendations to facilitate DER's in an open retail market.

- Broadened consumer protection rules
- Universal regulatory obligations on all LSEs
  – state policies, rate policies (NEM), provider of last resort
- Establish short and long-term adequacy obligations on all LSEs in alignment with reliability needs and state policy goals
- New interconnection rules and procedures, including DER – wholesale distribution access tariffs
- Access to customer information with confidentiality
  – enable DER providers to assess investments that make sense