MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models

Stakeholder Meeting 1

The meeting will begin shortly at 1:01 pm to allow people to join.

January 27, 2021

1PM – 5 PM

MPSC

Michigan Public Service Commission

MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models: Welcome and Overview

Joy Wang
WangJ3@Michigan.gov
Smart Grid Section
Michigan Public Service Commission

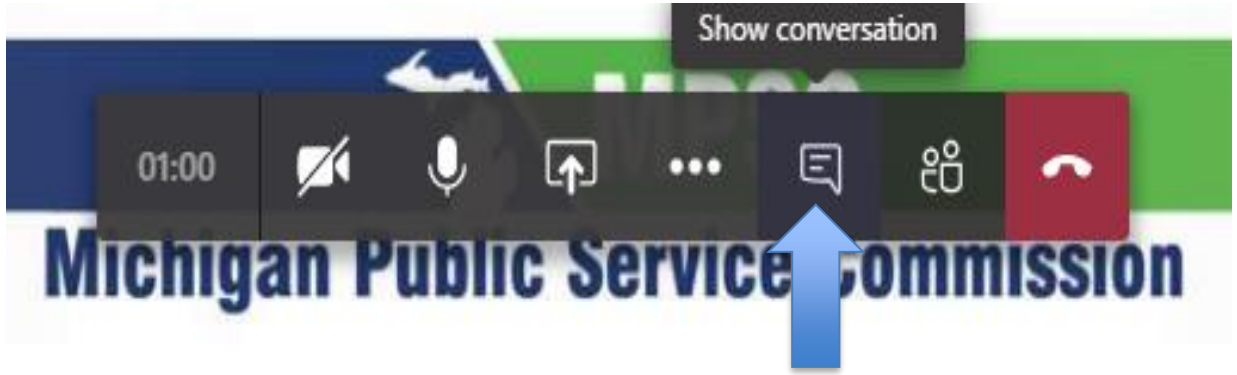
MPSC
Michigan Public Service Commission

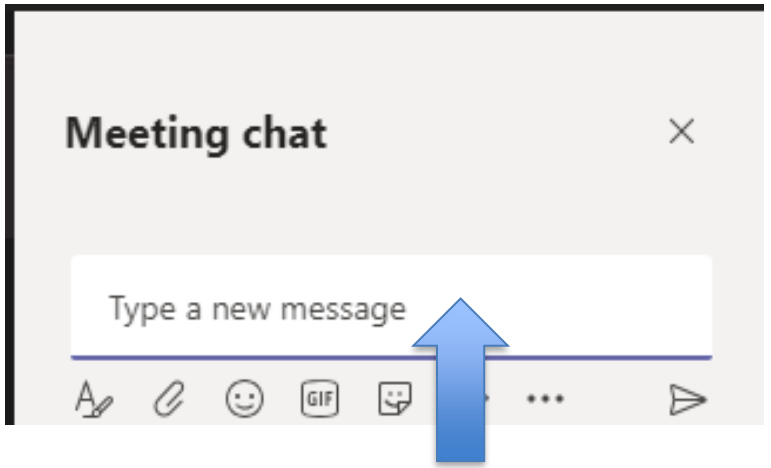
Agenda

1:00 pm	Welcome	Joy Wang, MPSC Staff
1:05 pm	Opening Statements	Dan Scripps, Chair, MPSC
1:15 pm	MI Power Grid and Workgroup Introduction	Kayla Fox, MPSC Staff
1:25 pm	Emerging Practices for Integrating Distributed Energy Resources	Zachary Peterson, National Renewable Energy Laboratory
2:00 pm	Break	
2:10 pm	Solving for the Future State of the Grid: New Technologies and Business Models	Nick Tumilowicz, Electric Power Research Institute
2:45 pm	Utility Approach to New Technologies & Business Models	Brian Hartmann, Consumers Energy Joyce Leslie, DTE Energy Subin Mathew, Indiana Michigan Power
3:20 pm	Community Interest and Experience Panelists: Melissa Davis, New Power Tour, Inc. Mindy Miner, City of Rockford Sustainability Committee Missy Stults, City of Ann Arbor	Moderator: Dr. Sarah Mills, University of Michigan
4:15 pm	Break	
4:20 pm	Utility Business Model Reform: Incentive Alignment for Clean DER Expansion	Cory Felder, Rocky Mountain Institute
4:55 pm	Closing Statements	Joy Wang, MPSC Staff
5:00 pm	Adjourn	

Housekeeping

- This meeting is being recorded
- Recording and slides posted on workgroup website in about a week
- All audience members will be muted
- Please type questions into the chat box
  - To access chat box:





- Staff will ask chat box questions during Q&A

Housekeeping, cont.

- During the meeting, if clarification of your question is needed, we will ask you to unmute.
  - To unmute:
    - Phone: Press *6
    - Teams: Click mic button
  - Please mute yourself again after your clarification.
- Chat box may note when audience member enter/exit.
  - These notices are automatic:

- If Teams via web browser is not working, try a different web browser.
  - All work except Safari

MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models Opening Statements

Dan Scripps
Chair, Michigan Public Service Commission

1:05 – 1:15 PM

Stakeholder Meeting 1
January 27, 2021

MPSC
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MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models: Summary, Tasks, & Timeline

Kayla Gibbs
Compliance & Investigation Section
Michigan Public Service Commission

January 27, 2021

MPSC
Michigan Public Service Commission

U-20645

- Focused, multi-year stakeholder initiative to maximize benefits of transition to clean, distributed energy resources for Michigan residents and businesses.
- Engages utility customers and other stakeholders to help integrate new clean energy technologies and optimize grid investments for reliable, affordable electricity service
- Includes outreach, education, and regulatory reforms

Core Areas of Emphasis

- **Customer Engagement**
- **Integrating Emerging Technologies**
  - Interconnection Standards and Worker Safety
  - Data Access and Privacy
  - Competitive Procurement
  - New Technologies and Business Models
- **Optimizing Grid Performance and Investments**

U-20898: New Technologies & Business Models

- Launched New Technologies & Business Models workgroup
  - On October 29, 2020
  - Phase II of MI Power Grid
- Provides Commission's objectives and expectations
- Problem Statement
  - *There are regulatory and business model barriers to the deployment and full utilization of clean, distributed energy resources in Michigan. Stated differently, there is the need to adapt the regulatory framework to allow for different applications of DER and to define the appropriate roles of utilities and other entities in supporting a more decentralized energy system that is clean, affordable, reliable, and accessible.*

Workgroup Objectives

- Prepare for opportunities and challenges associated with commercialization of new technologies and business models at customer and utility scale.
- Create shared understanding of different technologies and potential applications
- Identify barriers and potential solutions for Commission consideration
  - Barriers should focus on issues and solutions that the Commission can address

Workgroup Topics and Timeline

- Focus on clean distributed energy resources (customer and utility-scale), not emerging technologies.

- January 27, 2021 Meeting 1 – Kickoff
- February 10, 2021 Meeting 2 – Electric Vehicles
- February 24, 2021 Meeting 3 – Space & Water Heating using Heat Pumps
- March 10, 2021 Meeting 4 – Behind the Meter & Community Solar
- March 24, 2021 Meeting 5 – Storage
- April 7, 2021 Meeting 6 – Combined Heat and Power
- April 21, 2021 Meeting 7 – Microgrids
- May 19, 2021 Meeting 8 – Alternative Business and Ownership Models
- June 16, 2021 Meeting 9 – Summary, Discussion, Closing
- September 1, 2021 Final report due

How to Get Involved

Go to: www.michigan.gov/MIPowerGrid

Customer Engagement

Providing Michigan residents and businesses with the demand-side technologies, programs, and price signals that will allow these customers to be more active and effective participants in the state's transition to increased clean and distributed energy resources.

Integrating Emerging Technologies

Ensuring timely and fair grid access and appropriate information exchange to support customer-oriented solutions and reliable system operations.

Optimizing Grid Investments And Performance

Integration of transmission, distribution, and resource planning to increase transparency and optimize solutions; enhancement of tools, financial incentives, and regulatory approaches to adapt to technology change and customer preferences.

Interconnection Standards And Worker Safety

Interconnection standards are rules that spell out how projects owned by customers or developers connect to the utility system. These rules provide a standardized process and schedule so that interconnections can be accommodated in an orderly and timely manner. The rules also ensure that interconnections are done safely, in order to protect workers, utility and third-party owned equipment, and the public.

Learn More >

Competitive Procurement

As older electric generation plants retire, new resources will need to be brought online to replace them. Competitively bidding new resources can help to show what options are available, ensure emerging technologies can be considered as part of utility planning and procurement, and result in lower costs for customers.

Learn More >

New Technologies And Business Models

A number of new technologies and business models are quickly becoming commercialized, expanding options and providing new opportunities to control costs while also posing unique challenges. Fast-growing commercially available technologies include electric vehicles and battery (and other) storage at both distribution and utility scale, while other technologies are still in development but may soon be commercially viable at competitive prices.

Learn More >

New Technologies And Business Models

A number of new technologies and business models are quickly becoming commercialized, expanding options and providing new opportunities to control costs while also posing unique challenges. Fast-growing commercially available technologies include electric vehicles and battery (and other) storage at both distribution and utility scale, while other technologies are still in development but may soon be commercially viable at competitive prices.

SIGN UP FOR NEW TECHNOLOGIES AND BUSINESS MODELS UPDATES

To sign up for updates or to access your subscriber preferences, please enter your contact information below.

*Email Address

Many Complementary Efforts

- MI Power Grid
  - Competitive Procurement
  - Demand Response
  - Distributed Generation Pricing
  - Time-based Pricing
  - Voluntary Green Pricing Tariffs
  - Financial Incentives & Disincentives
  - Interconnection Standards & Worker Safety
- Michigan Public Service Commission
  - Energy Waste Reduction
- Michigan Department of Environment, Great Lakes, & Energy
  - Charge Up Michigan Program
  - Energy Storage Roadmap Project
  - Fuel Transformation Program
- Michigan Office of Mobility
- Michigan Energy Innovation Business Council
  - Electric Vehicle Convenings
  - Energy Storage Convenings
- Next Energy
- Local government efforts
- And many others in Michigan and nationally

Questions?

Email:

Joy Wang (staff lead) at

WangJ3@Michigan.gov

Emerging Practices for Integrating Distributed Energy Resources

Zachary Peterson

Project Manager

Strategy, Policy & Implementation Group

Integrated Application Center

National Renewable Energy Laboratory

NREL
Transforming ENERGY

Emerging Practices for Integrating DERs

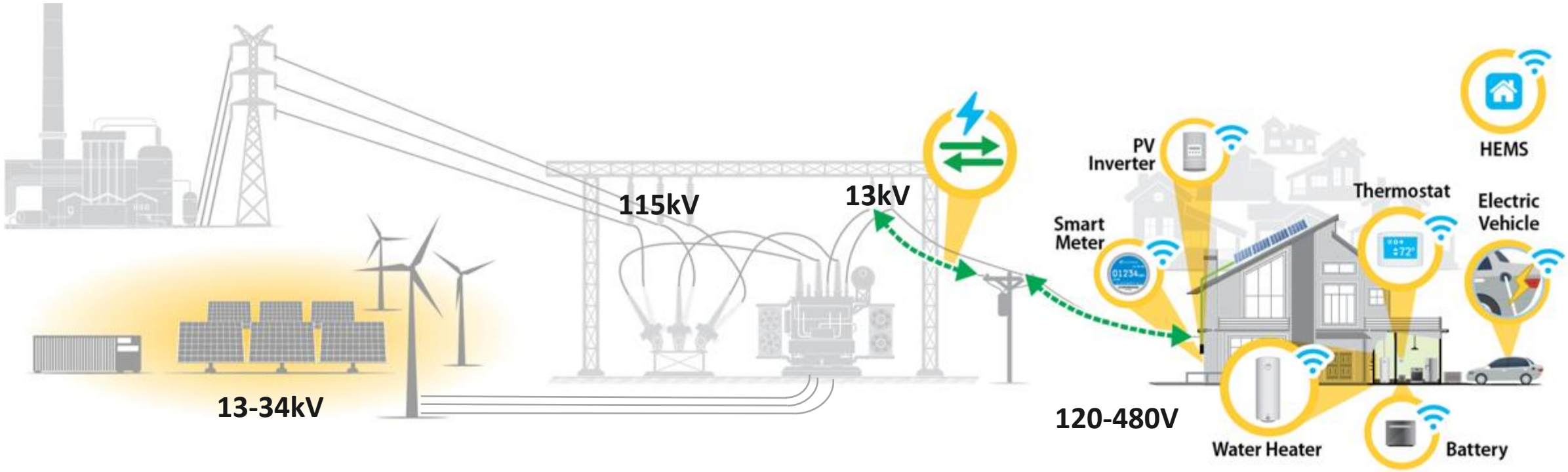
Zachary Peterson
National Renewable Energy Laboratory

Outline

1. What's the Why
2. Integration Challenges
3. Current and Emerging Practices

What’s the Why

Distributed Energy Resources (DER) are Rapidly Changing the Grid

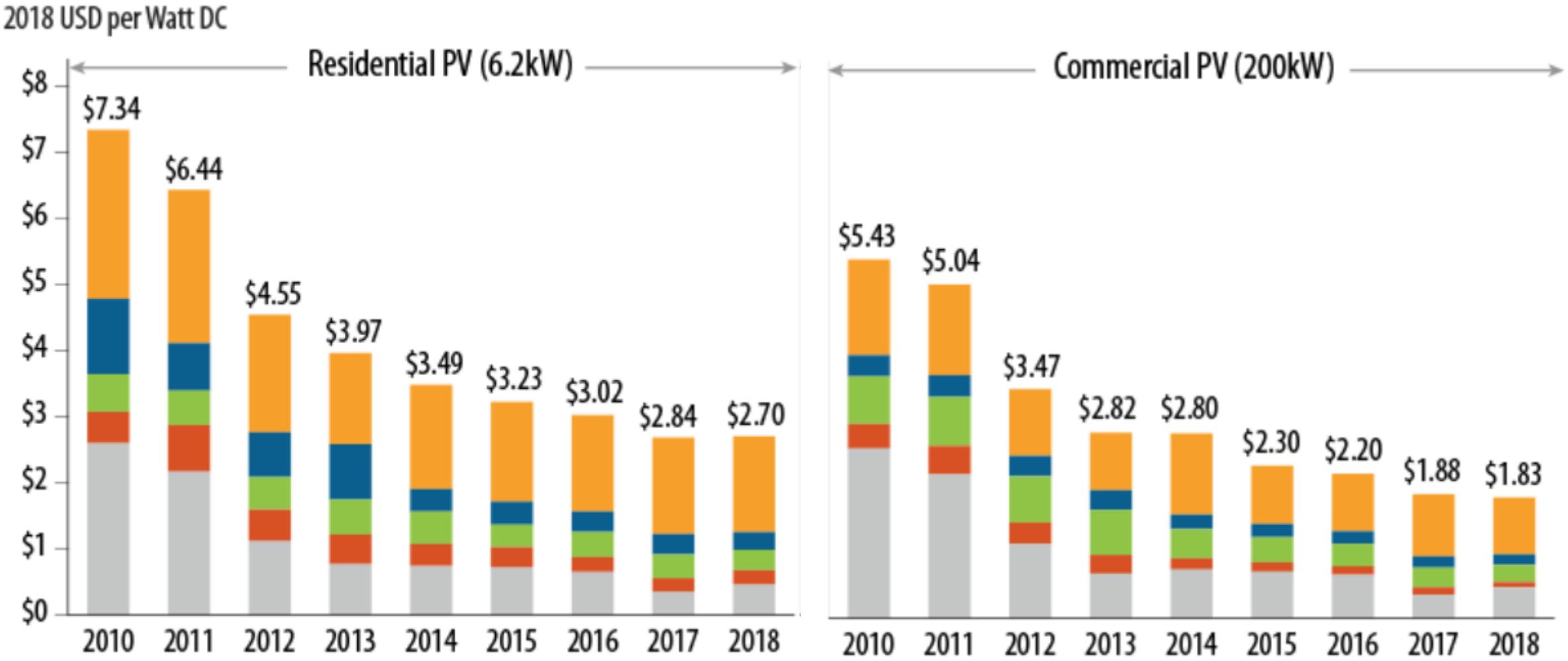


Graphic Courtesy of Ben Kroposki and Adam Warren

DER Deployment Drivers

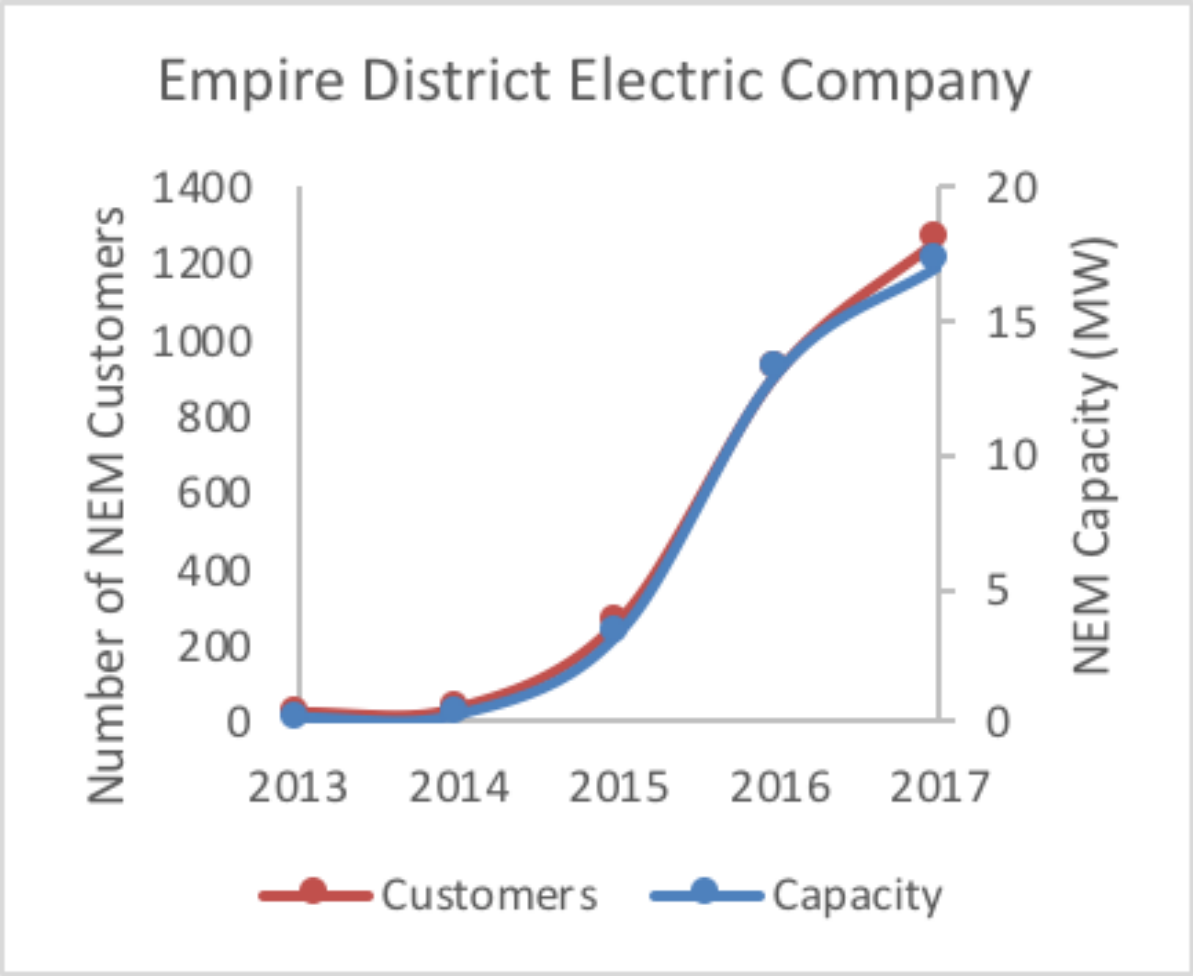
- Economics:
  - Technology cost and performance
  - Federal and state incentives
  - New business models (e.g., third party ownership)
  - Electricity prices
  - Rate design (e.g., availability of Net Energy Metering)
- Public policy:
  - Renewable Portfolio Standards and environmental requirements
- Customer preferences:
  - DER deployment may be shaped by interest in increased customer choice

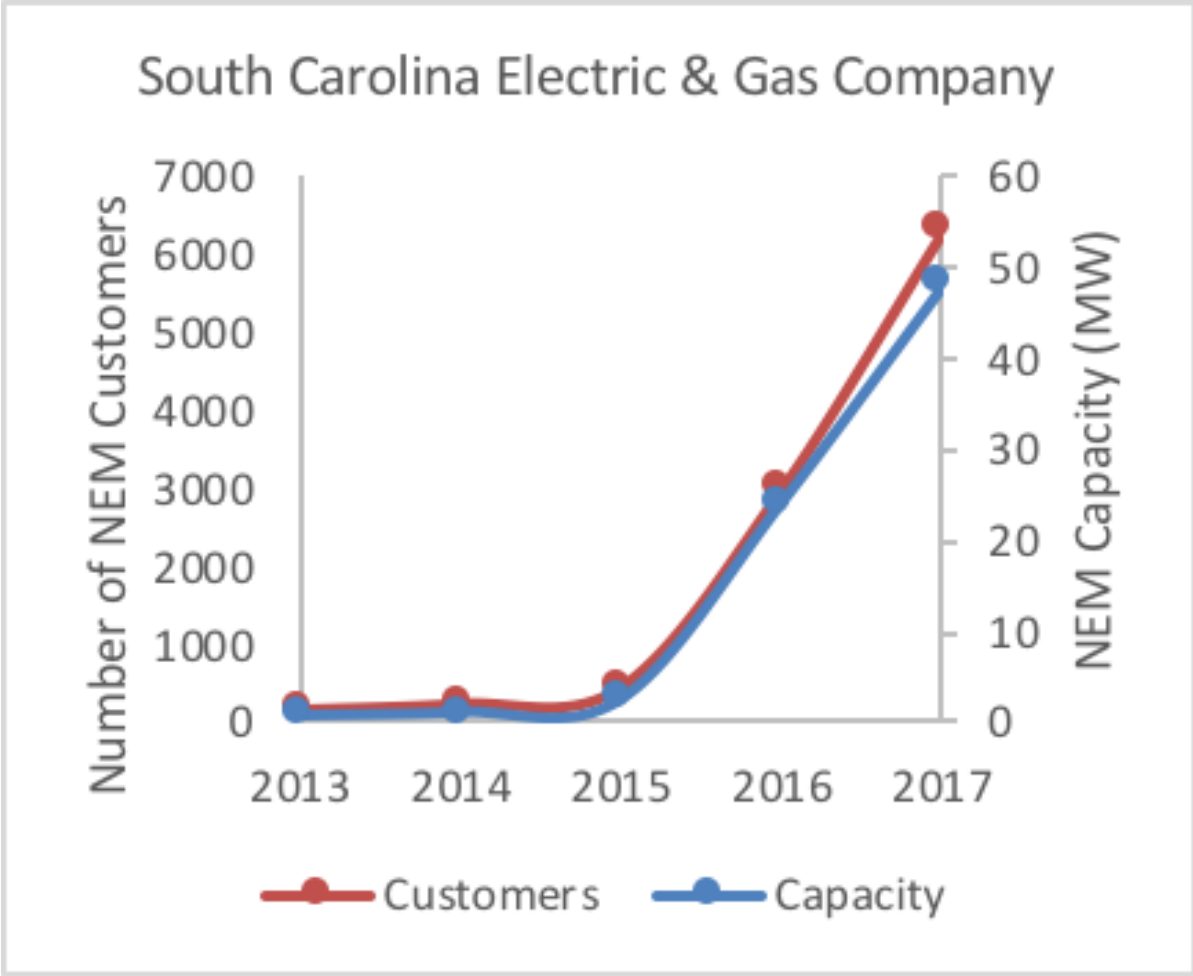
Declining PV Prices



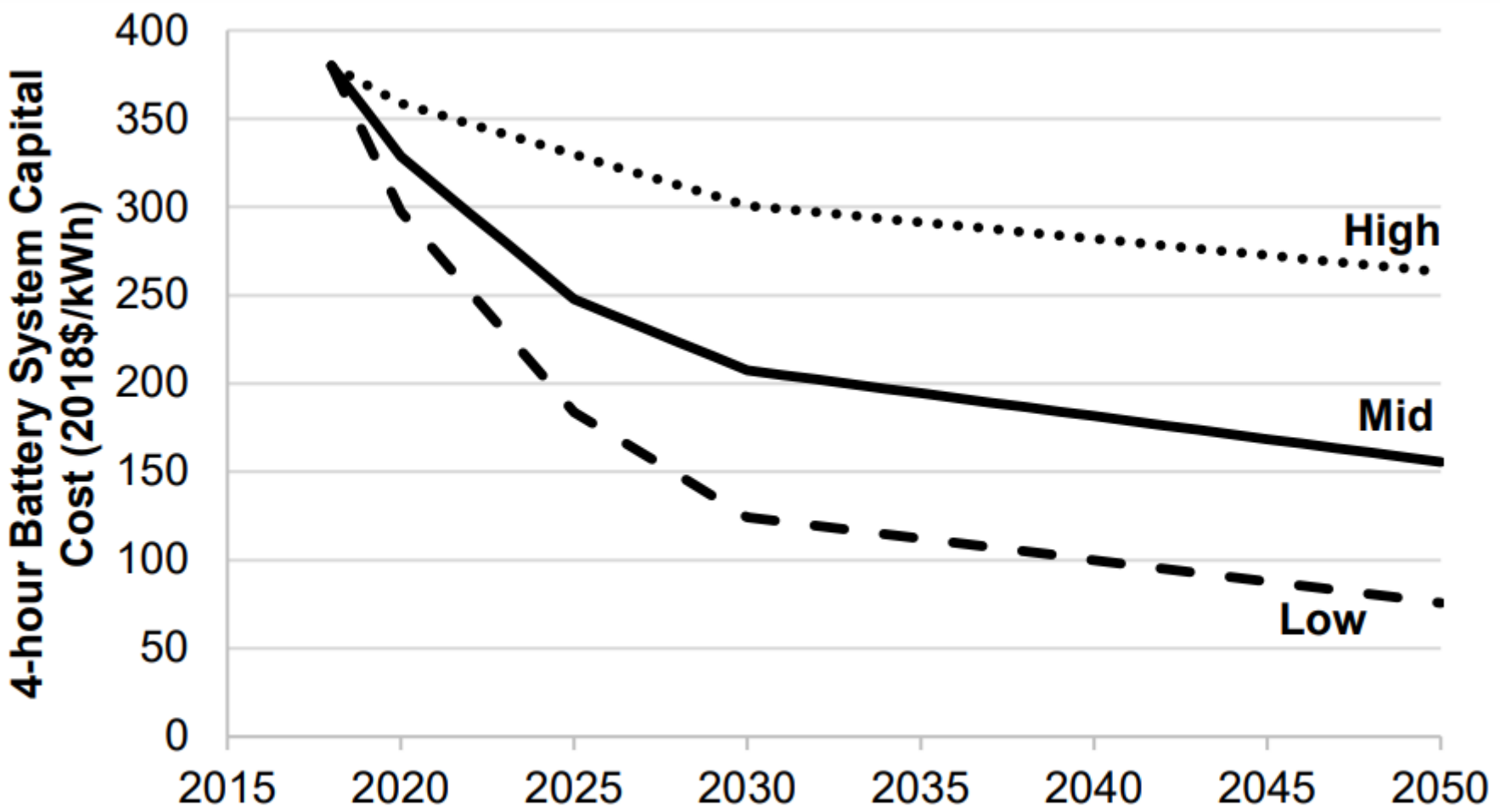
https://www.nrel.gov/analysis/solar-installed-system-cost.html

Rapid Growth in NEM Customers



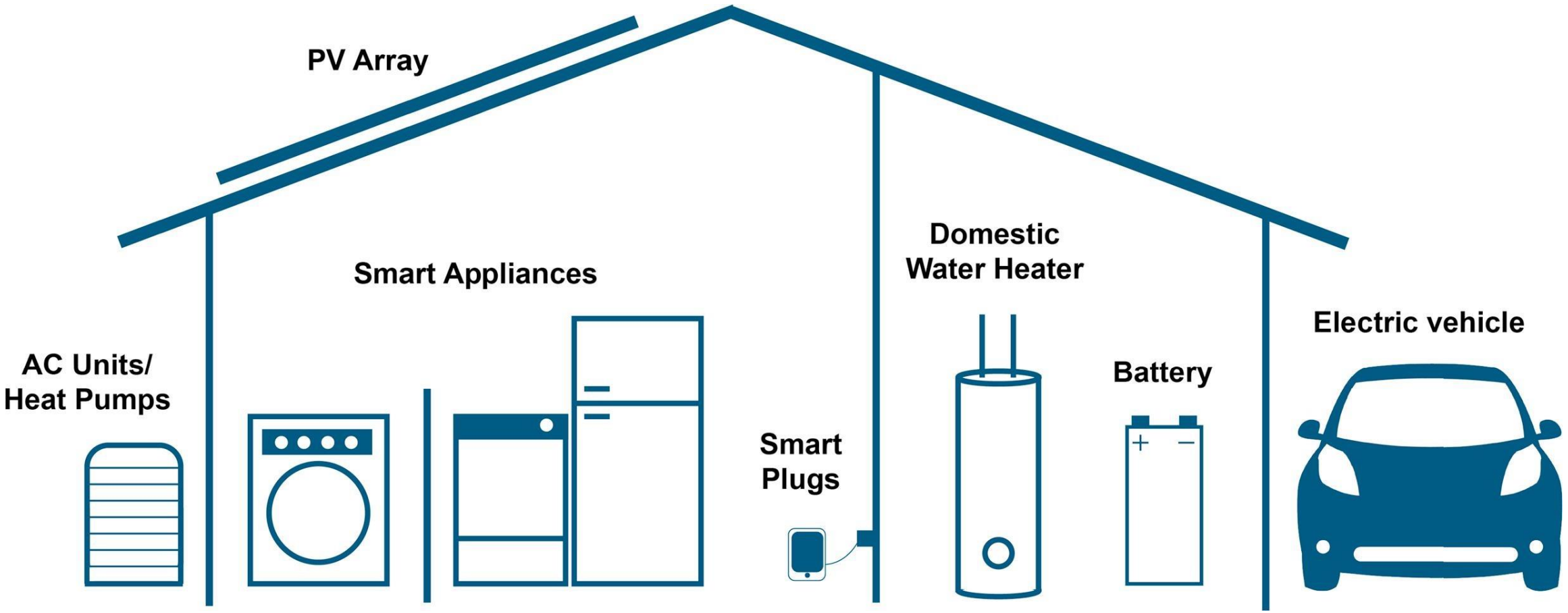


Battery Storage Cost Projections



https://www.nrel.gov/docs/fy19osti/73222.pdf

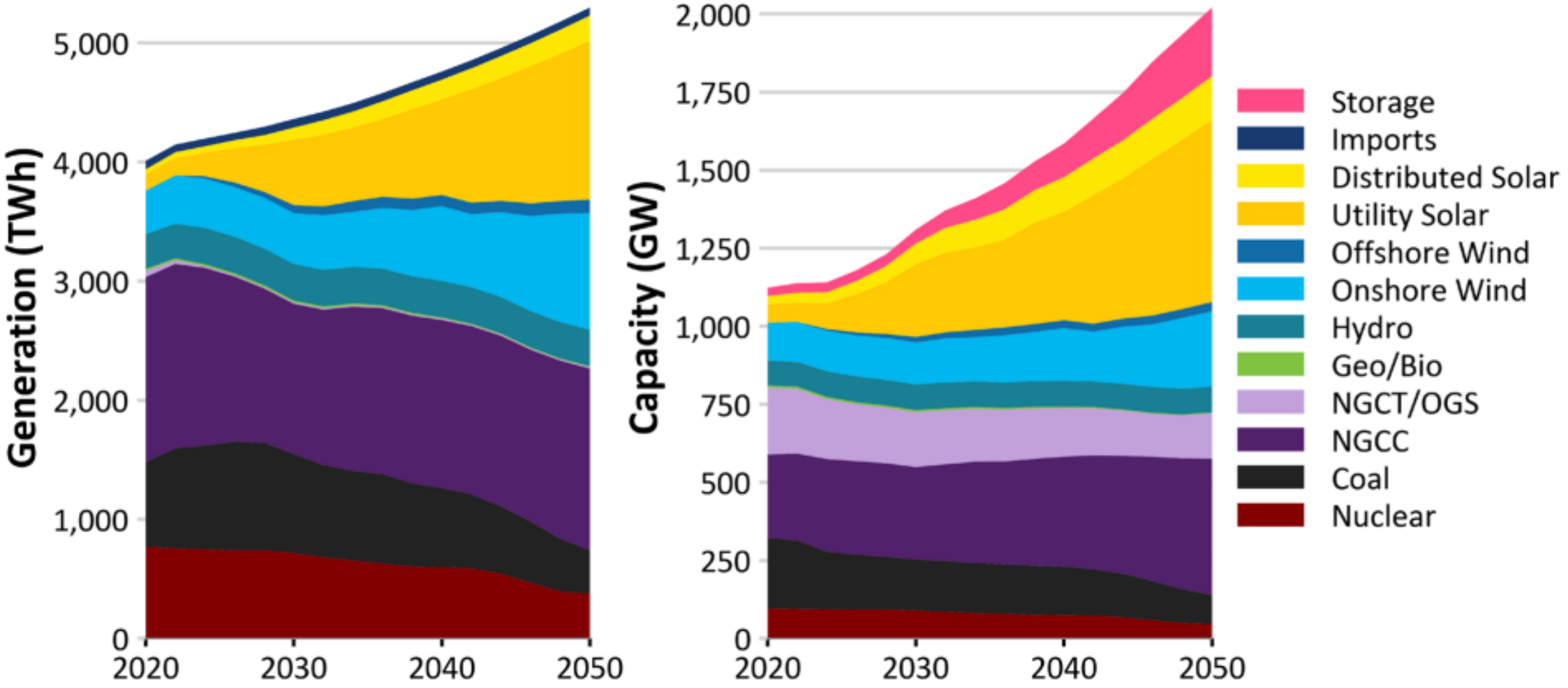
More than Solar and Storage



Michigan Climate Commitments

- Executive Directive 2020-10: established goal for economy-wide carbon neutrality no later than 2050 and 28% reduction below 2005 levels in greenhouse gas emissions by 2025.
- Consumers Energy: Net zero carbon emissions by 2040
- DTE Electric: Net zero carbon emissions by 2050
- DTE Gas: Net zero carbon emissions by 2050
- Community Action
  - 3 of 5 of Michigan's top 5 largest cities: Detroit, Grand Rapids, Ann Arbor
  - 8 Michigan Universities/Colleges and 1 military base

U.S. Power Sector Evolution



https://www.nrel.gov/docs/fy21osti/77442.pdf

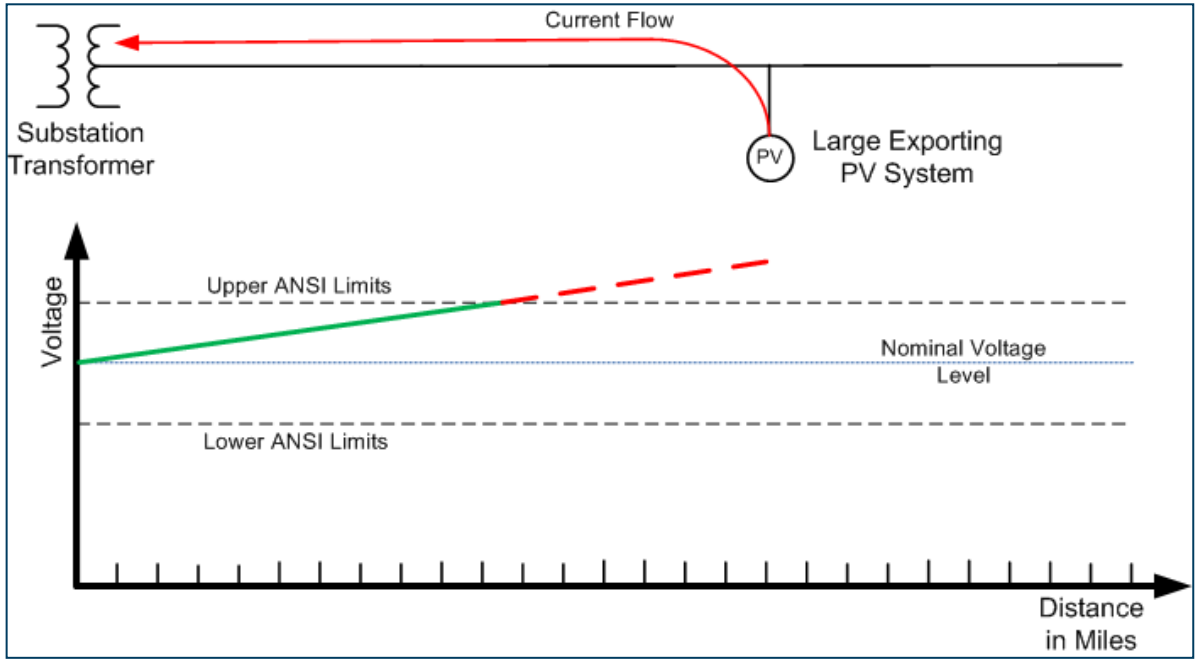
DER Disruption leads to Challenges, but also Opportunities

- DERs are a key disruptive force shaping power system transformation worldwide
- Traditional approaches to how we plan, operate, regulate, and even conceptualize the power system are being challenged
- New technologies and business models can help us tap into opportunities and mitigate risks

Challenges

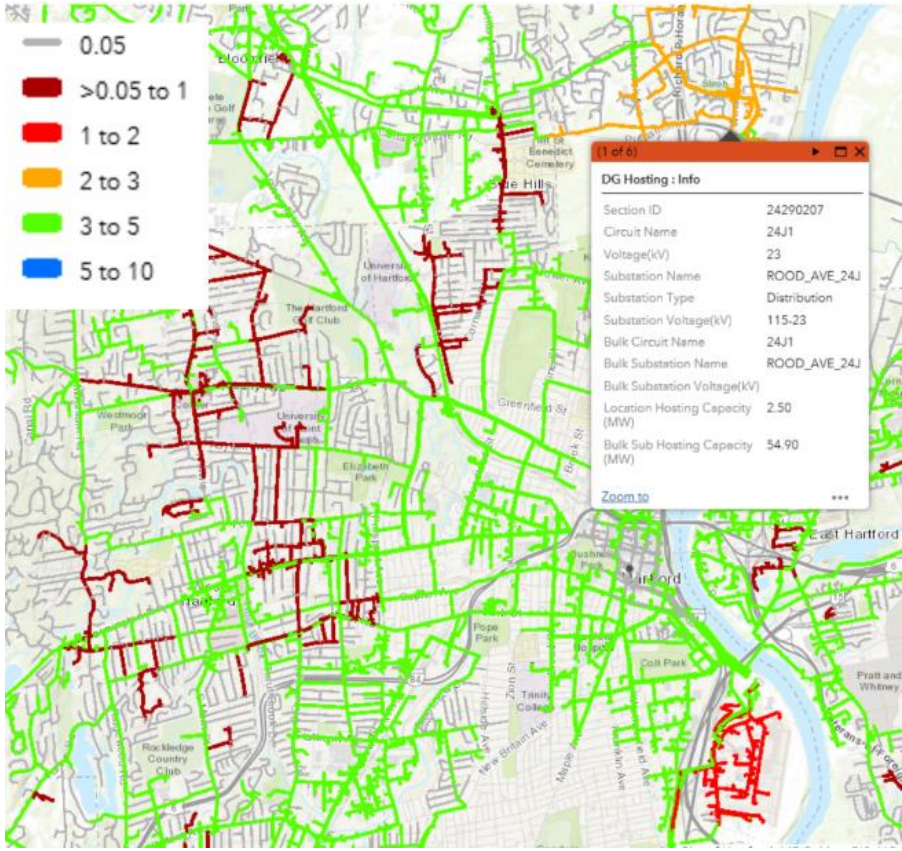
Distributed PV Integration

- Voltage regulation
- Reverse power flow
- Protection system coordination
- Unintentional islanding
- Increase in maintenance and decrease in equipment life due to increase switching
- Load masking



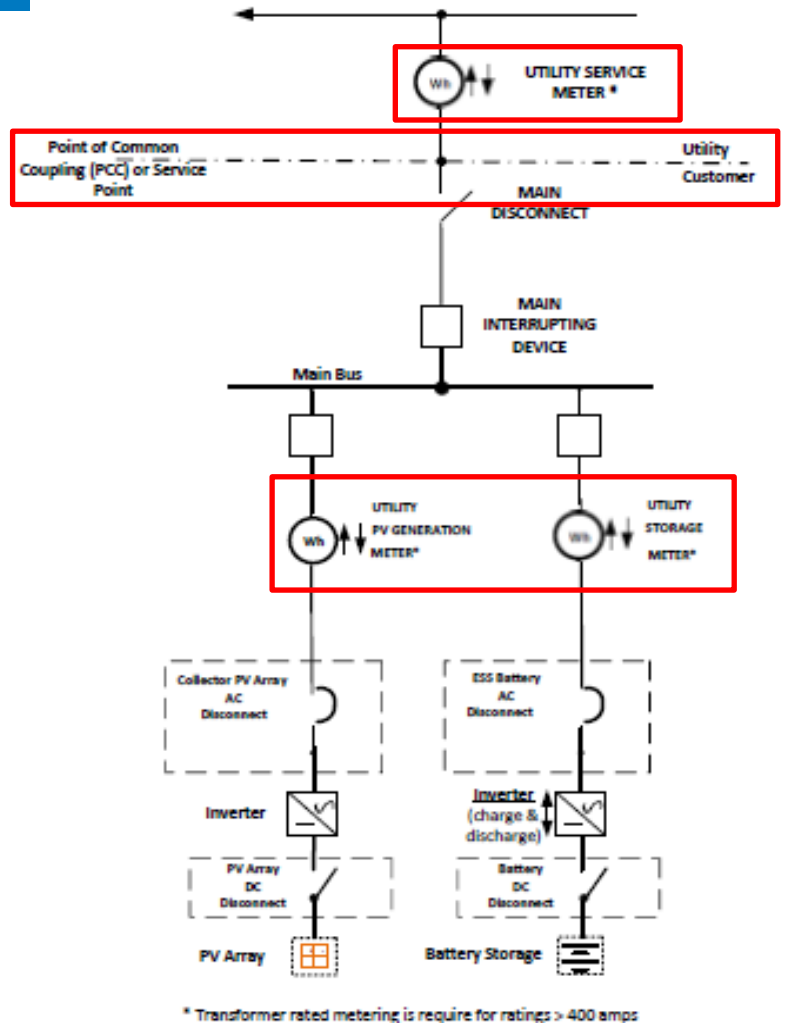
Data Transparency

- Poor data transparency increases difficulty in identifying optimal points of interconnection
- Hosting Capacity maps could help, but…
  - More guidance is needed on development pathways, financing mechanisms, stakeholder value, and key features/data that should be provided by tools
  - Methodologies for conducting hosting capacity analyses that reflect an evolving grid are still emerging

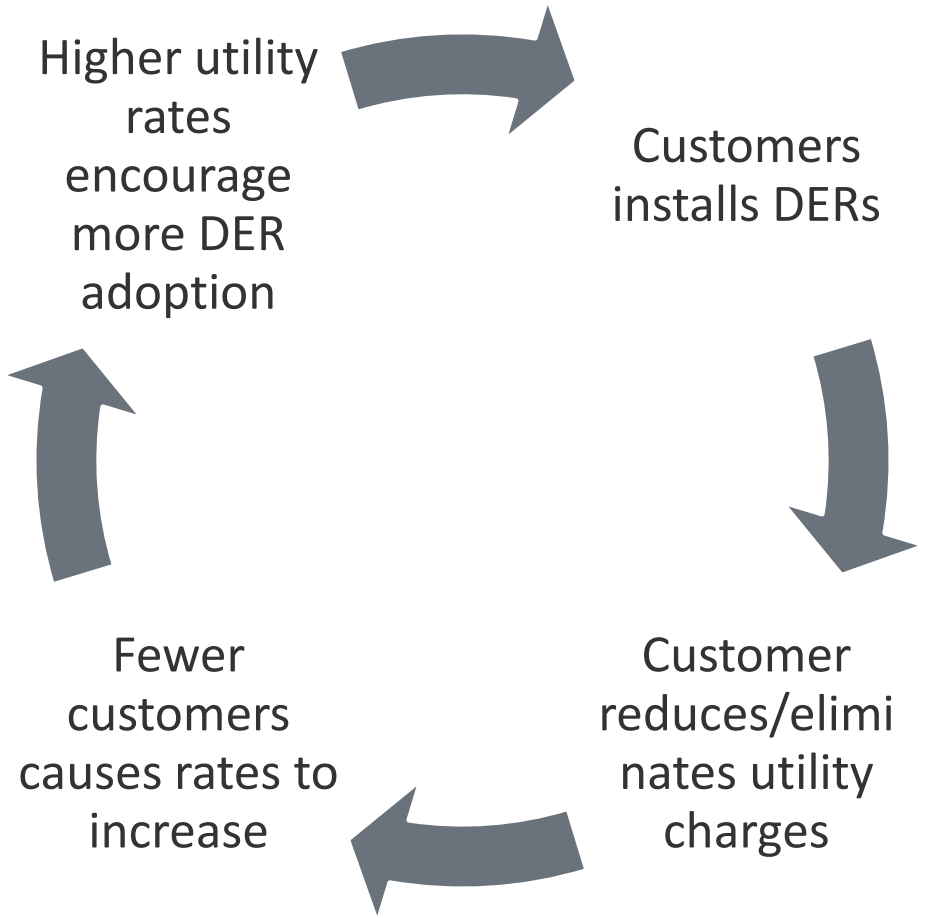


Storage Complexities

- Storage increases complexity of integration process potentially leading to increased costs and timelines for interconnecting S+S
- S+S increases complexity of managing system reliability and developing tariffs
- Lack of markets and other mechanisms to compensate DER for the provision of grid services



Utility Business Model Disruption

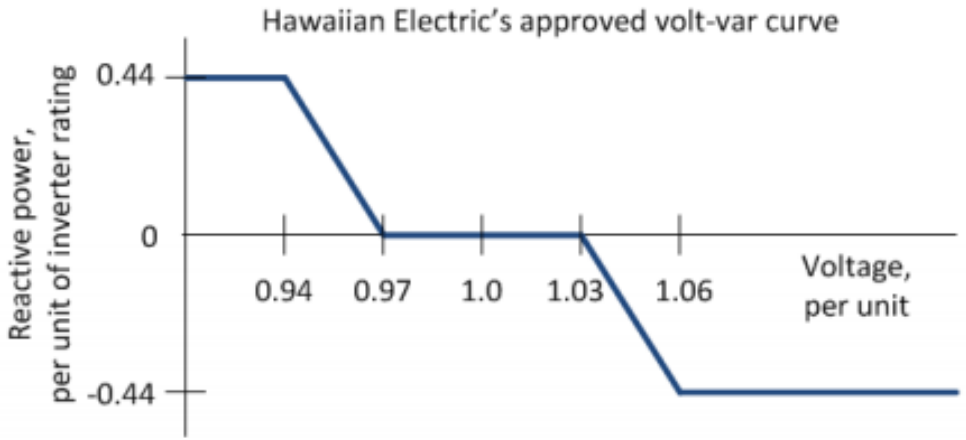


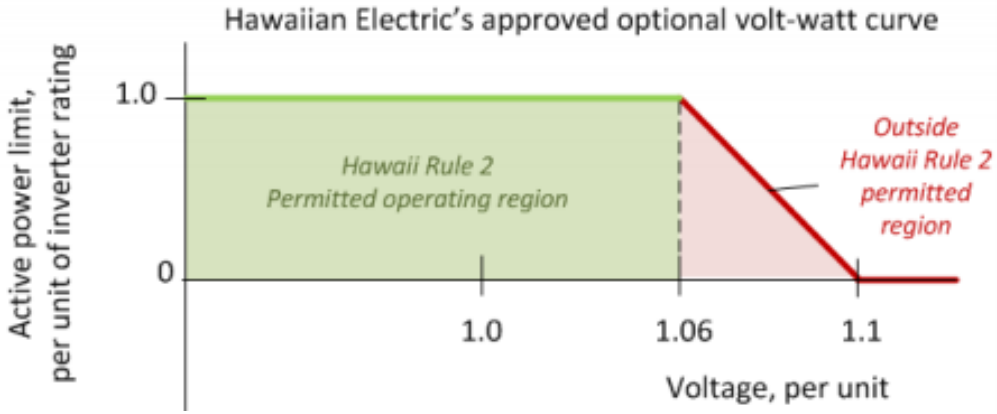
Adapted From: *Impact of Alternative Electricity Rate Structures on Solar and Non-solar Customer Bills.* NREL 2015. USA.

Current and Emerging Practices

Advanced Power Electronics

- Can address some of the challenges to the integration of high levels of distributed PV
- Potential grid services include voltage and frequency regulation, ride-through, and anti-islanding functionality





https://www.nrel.gov/docs/fy19osti/72298.pdf

Flexible Interconnection

- Controls used to dynamically curtail DER systems in response to grid needs with failsafe mechanisms to ensure reliability
- Applies dynamic hosting capacity concepts
- DER customers may have faster and cheaper interconnection in areas with limited hosting capacity

https://www.nrel.gov/dgic/assets/pdfs/dgic-webinar-flexible-interconnection.pdf

Business Models

- Customer or Third-Party Owned
  - Customer-owned model
  - Third-party leasing model
  - Community solar model
- Utility Owned
  - Utility Investments
  - Utility build-own-operate
  - Utility-led community solar projects
  - Utility partnership and investments in third-party leasing companies
  - Value-added consulting services
  - Virtual power plant operator
  - Energy services utility model

Third-party Ownership vs Customer Ownership

Customer Owned

- Building owner directly procuring, financing and owning the system

Third-Party Owned

- Procures, finances, and owns a PV system instead of building owner
- Can monetize tax credits and incentives

Customer-Owned-Group Purchase Programs

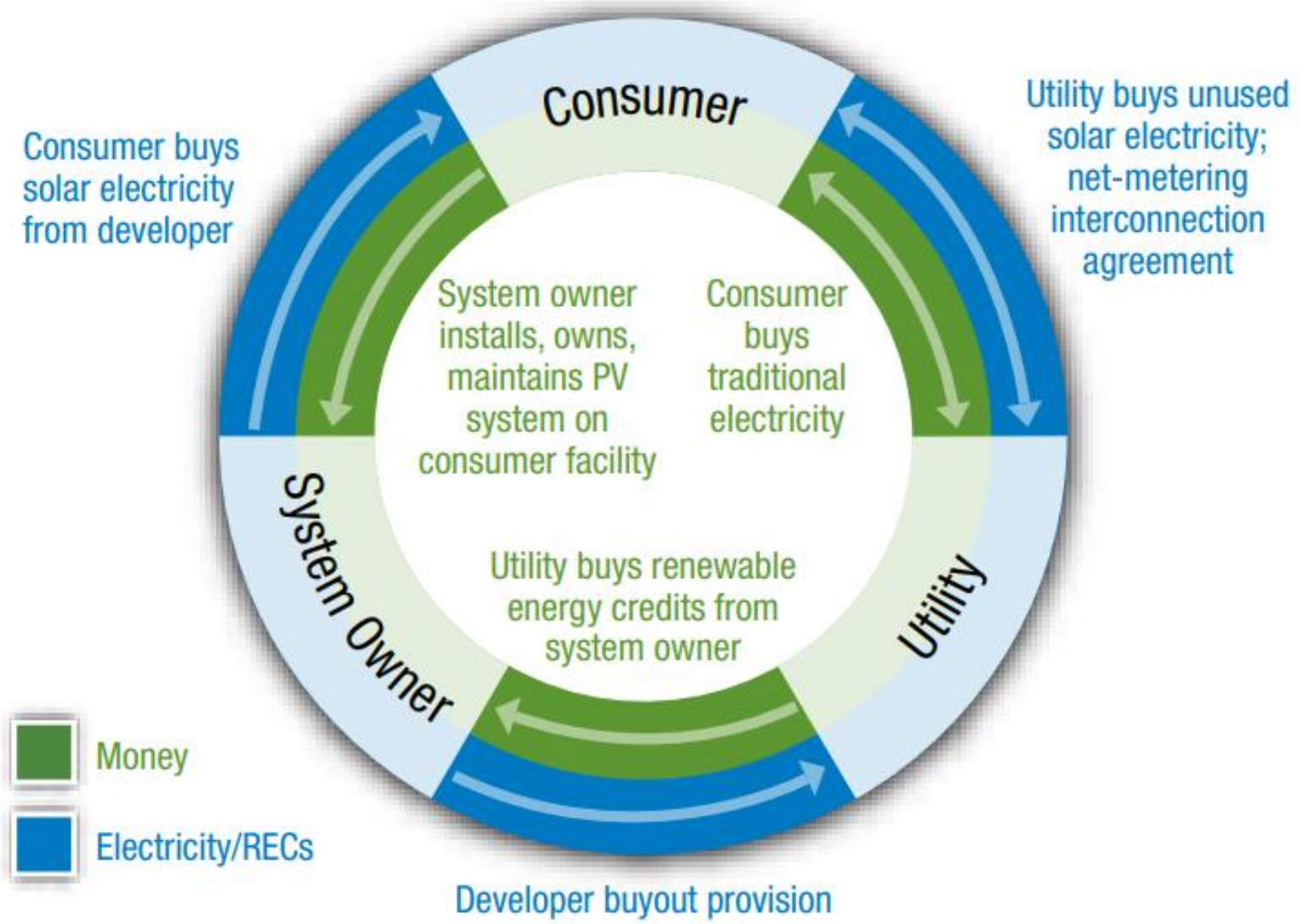
What?

- Homeowners and business owners select solar installer and negotiate bulk purchase discount for PV installations.

Why?

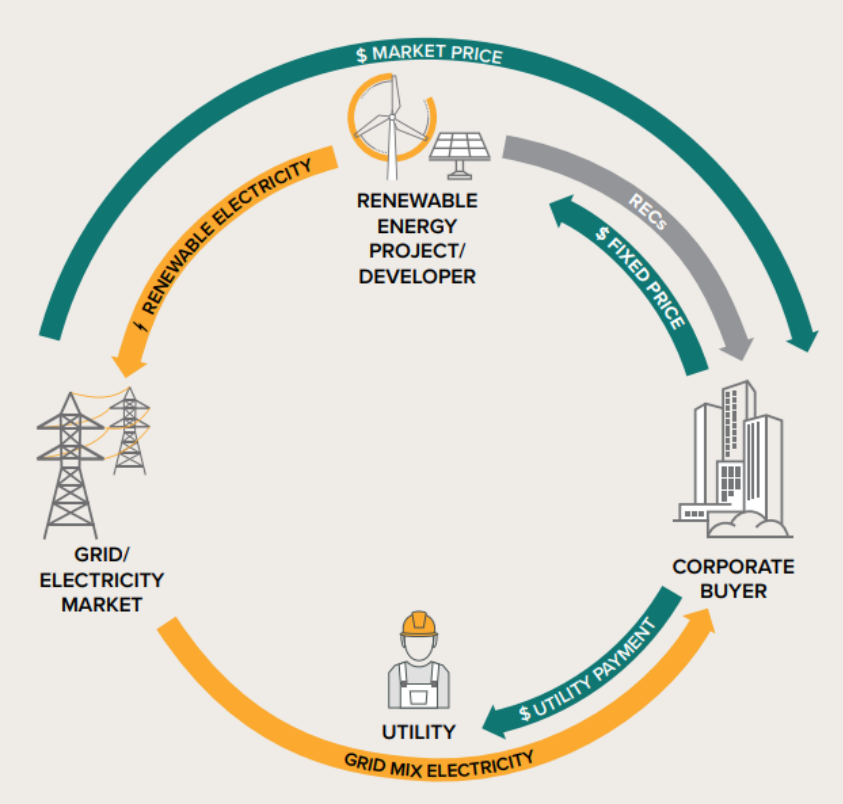
- Reduces complexities associated with installing solar
- Competitive price for consumer; economies of scale for installer
- Overcomes customer inertia

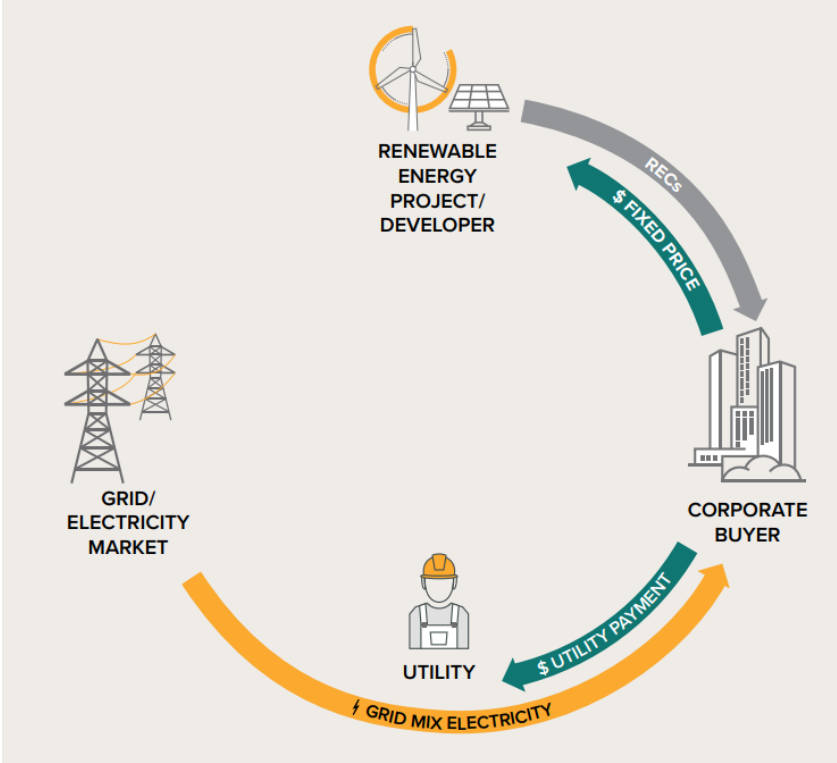
Power Purchase Agreements

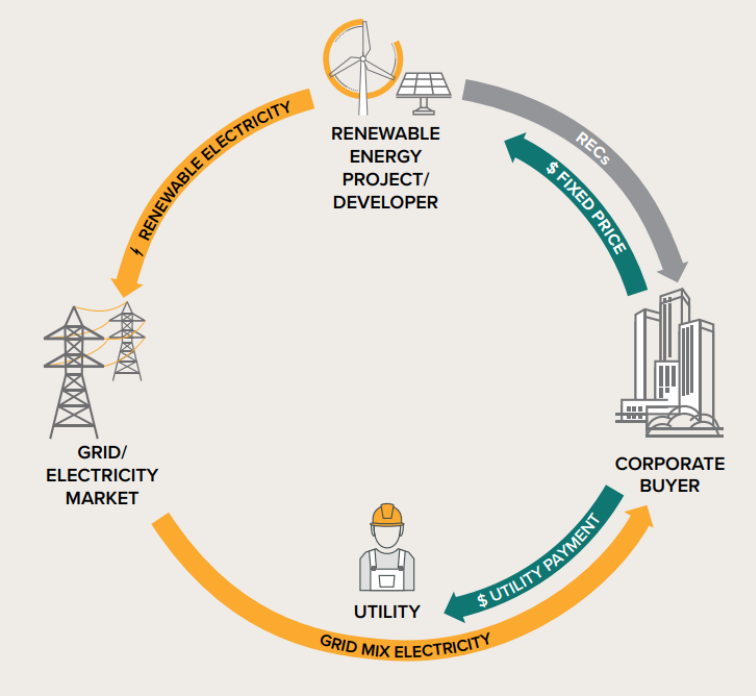


https://www.nrel.gov/docs/fy10osti/46668.pdf

Virtual Power Purchase Agreements







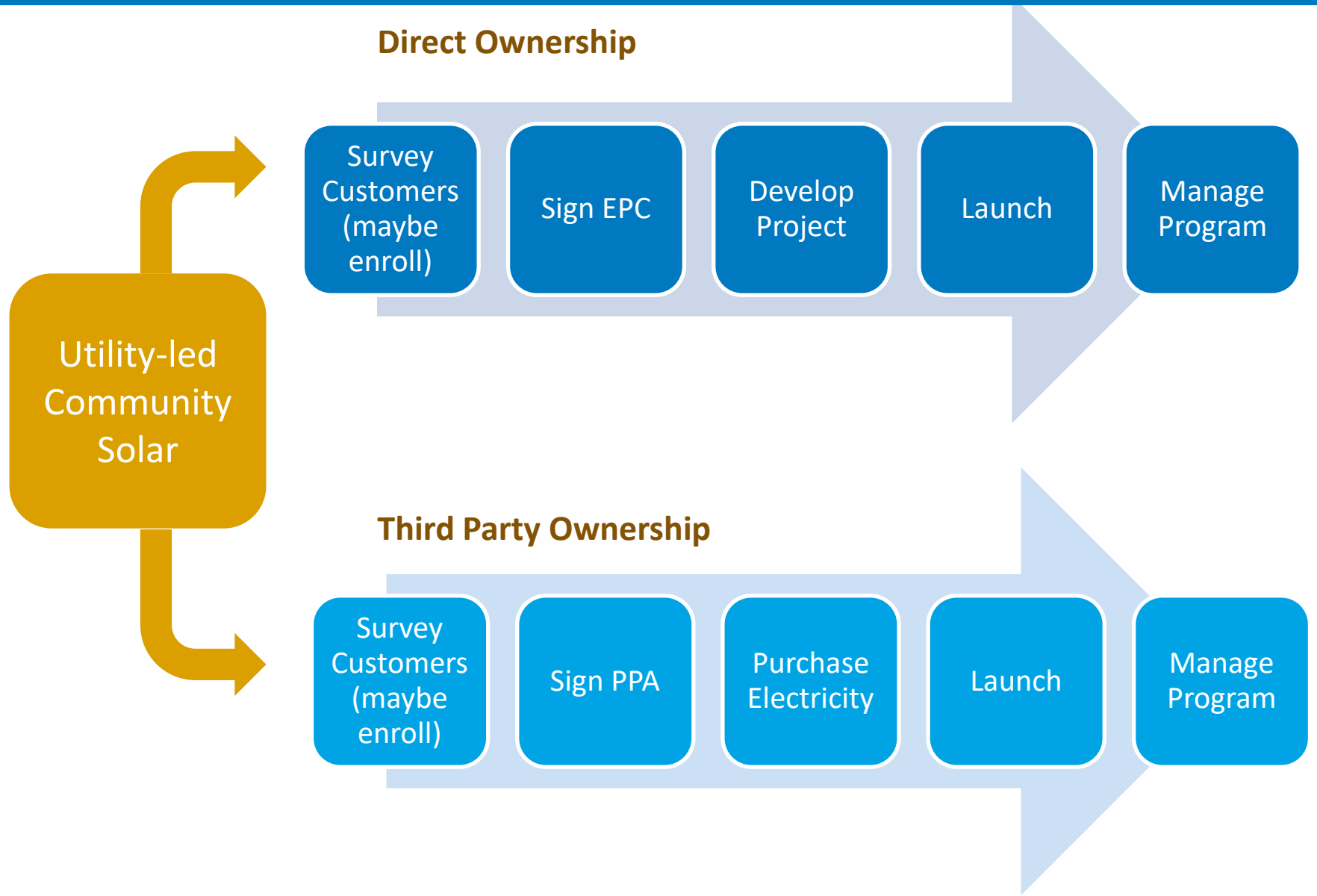
https://rmi.org/insight/virtual-power-purchase-agreement/

Community Solar

- Utility-led, developer-led, or non-profit business models
- Provides an alternative to rooftop PV systems; allow customers to enjoy advantages of solar energy without having to install their own system
- Potential grid benefits by siting projects in specific locations

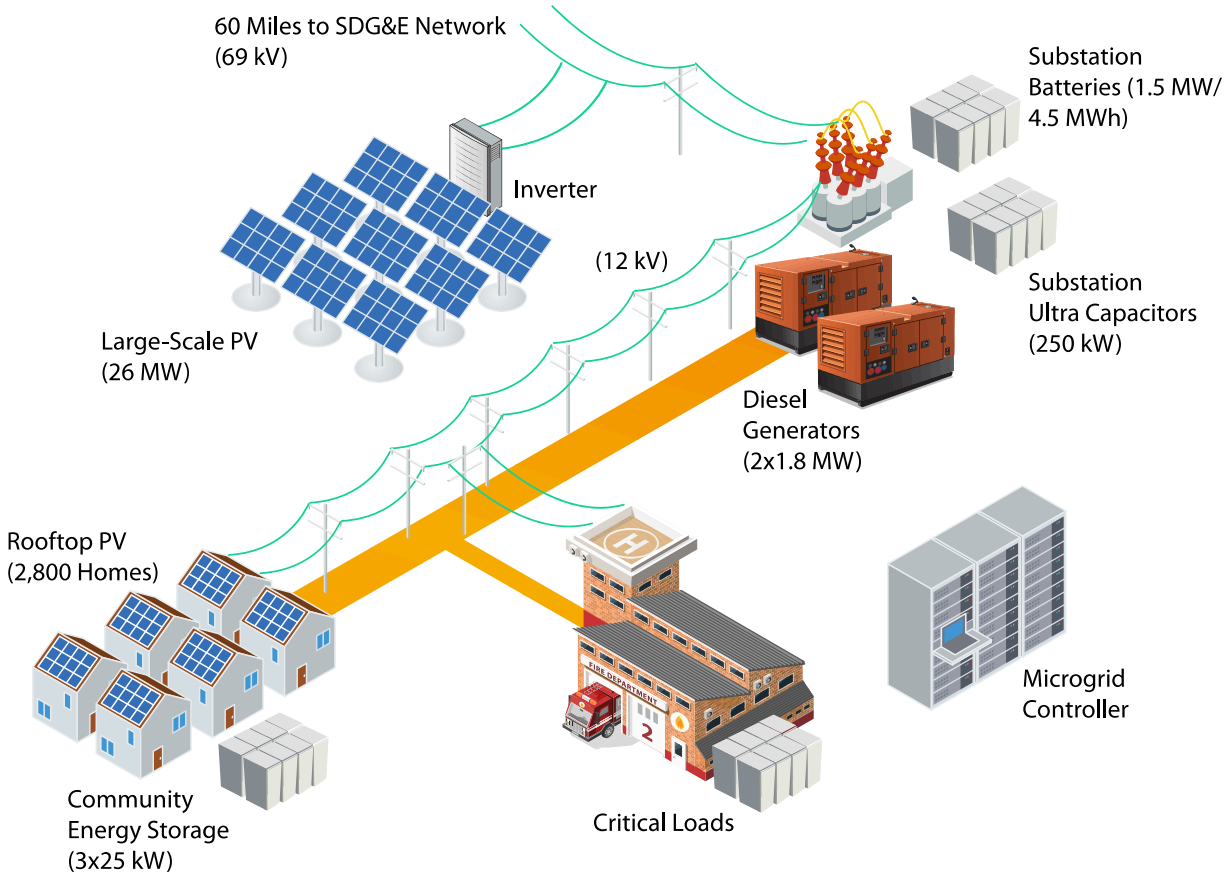
https://www.nrel.gov/state-local-tribal/community-solar.html

Utility-led Community Solar



‘Microgrids-as-a-service’

- 3rd party or utility invest in and own infrastructure
- End user gets secure energy, investor gets returns from tariff/fees
- Wide range of technologies available (CHP, fuel cells, distribution and behind-the-meter storage, etc.)
- Sells energy at set $/kWh
  - Could be separate tariff rate
  - Could include additional $/kW or $/month for guaranteed energy during outage



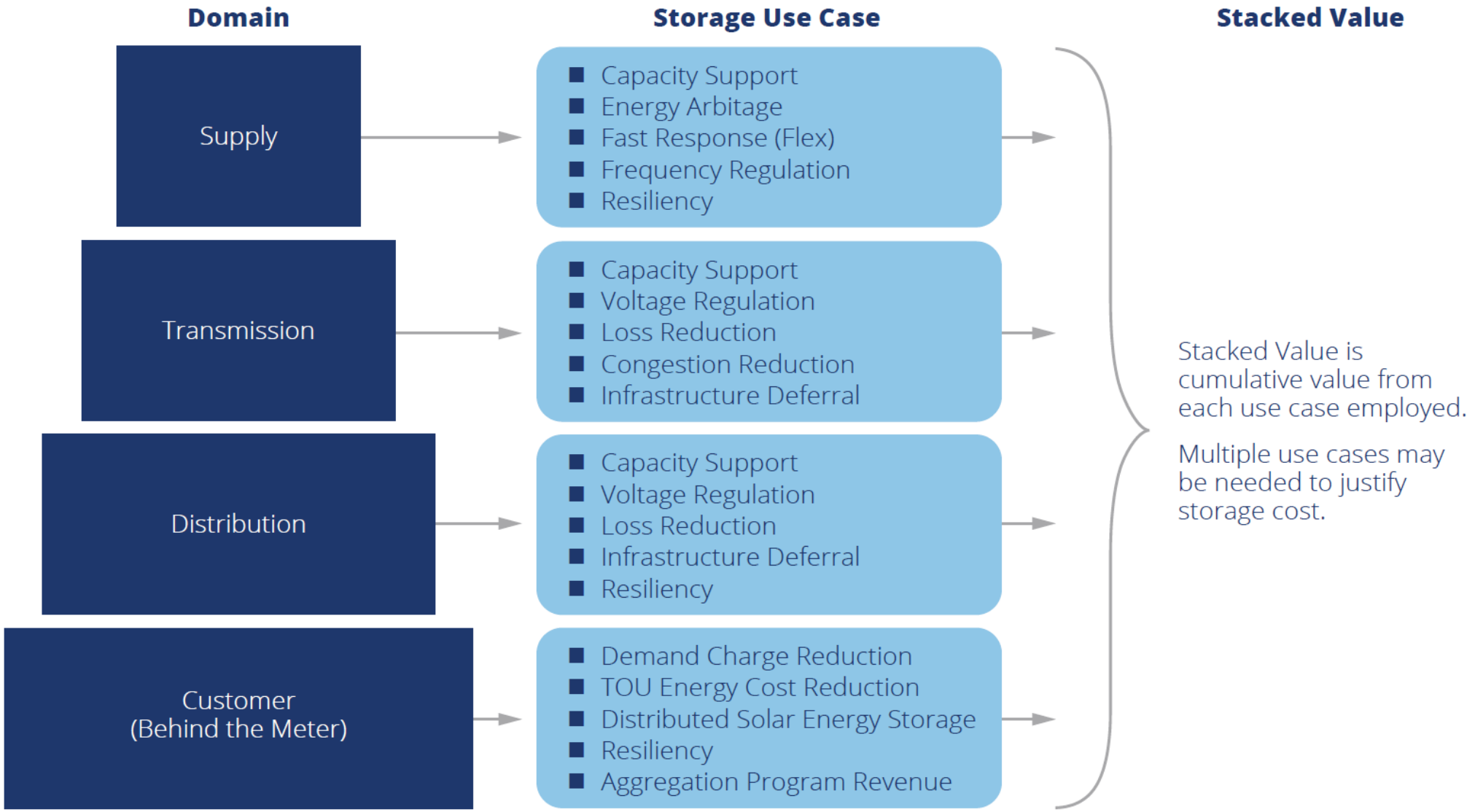
Graphics Courtesy of Ben Kroposki, NREL

Potential Opportunities for Utilities

Customer Acquisition	• Who reaches out to customer to garner interest?
Transaction Facilitation	• Who brings the project to financial close, including pricing the storage system for the customer?
Project Design / Construction (EPC)	• Who installs the system?
Interconnection Certification and Registration	• Who is responsible for certifying the system and registering with the distribution?
Battery Supply Chain	• Who manufactures and/or procures the storage system components?
Project Financing	• Who invests the capital to build the system?
Facilitation of Financing	• Who ensures that financing payments are delivered?
Battery System Ownership	• Who is the legal owner of the storage system?
Battery Site Ownership	• Who owns the location where the storage is sited?
Distribution Grid Management	• Who is responsible for investing and operating the distribution grid under increased storage penetration?

Zinaman, Owen. 2019. "Bottlenecks in Renewable Energy: Distributed Generation and Storage." Clean Energy Transition Partners. Porto Digital, July.

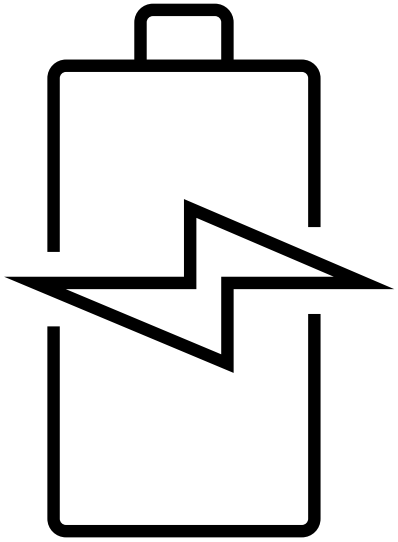
Infamous Value Stack



https://sepapower.org/resource/utility-business-models-for-grid-connected-storage/

Green Mountain Power – Vermont

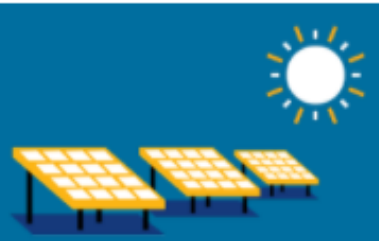
- Program deployed 13 MW of residential battery systems
- Batteries provide backup power and support grid during system peak
- Lease or “bring your own device” options
- Utility allowed to own and rate-base batteries



https://www.greentechmedia.com/articles/read/from-pilot-to-permanent-green-mountain-powers-home-battery-network-is-sticking-around

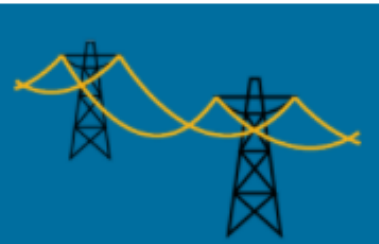
Value of Distributed Energy Resources – New York

1



A developer develops and interconnects a DER.

2



The electricity produced by that system is injected into the grid.

3

The utility determines the value of the energy produced using the Value Stack methodology.

4

The utility allocates the monetary value of the energy produced to the offtaker's bill. For a CDG project, the developer directs the utility how to split the credits between many offtakers.

5

Offtakers pay a subscription fee to the DER developer. Steps 2-5 repeat each month.*

Thank you!

Contact me:

Zachary Peterson

Zachary.Peterson@NREL.gov

MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models

Flex Time/Break: 1:55 – 2:05 PM

Stakeholder Meeting 1

January 27, 2021

MPSC

Michigan Public Service Commission

Solving for the Future State of the Grid: New Technologies and Business Models

Nick Tumilowicz

Principal Manager

Grid Integration of Distributed Energy Resources

Electric Power Research Institute

Solving for the Future State of the Grid

New Technologies and Business Models

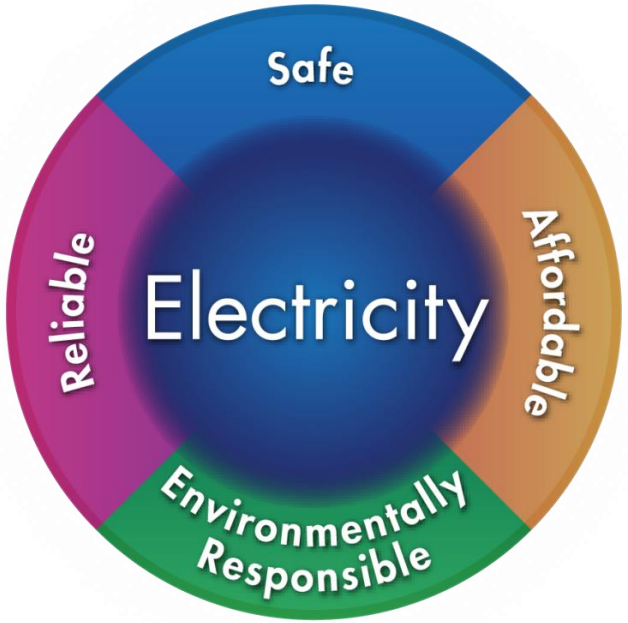
Electric Power Research Institute
Nick Tumilowicz, Principal Manager

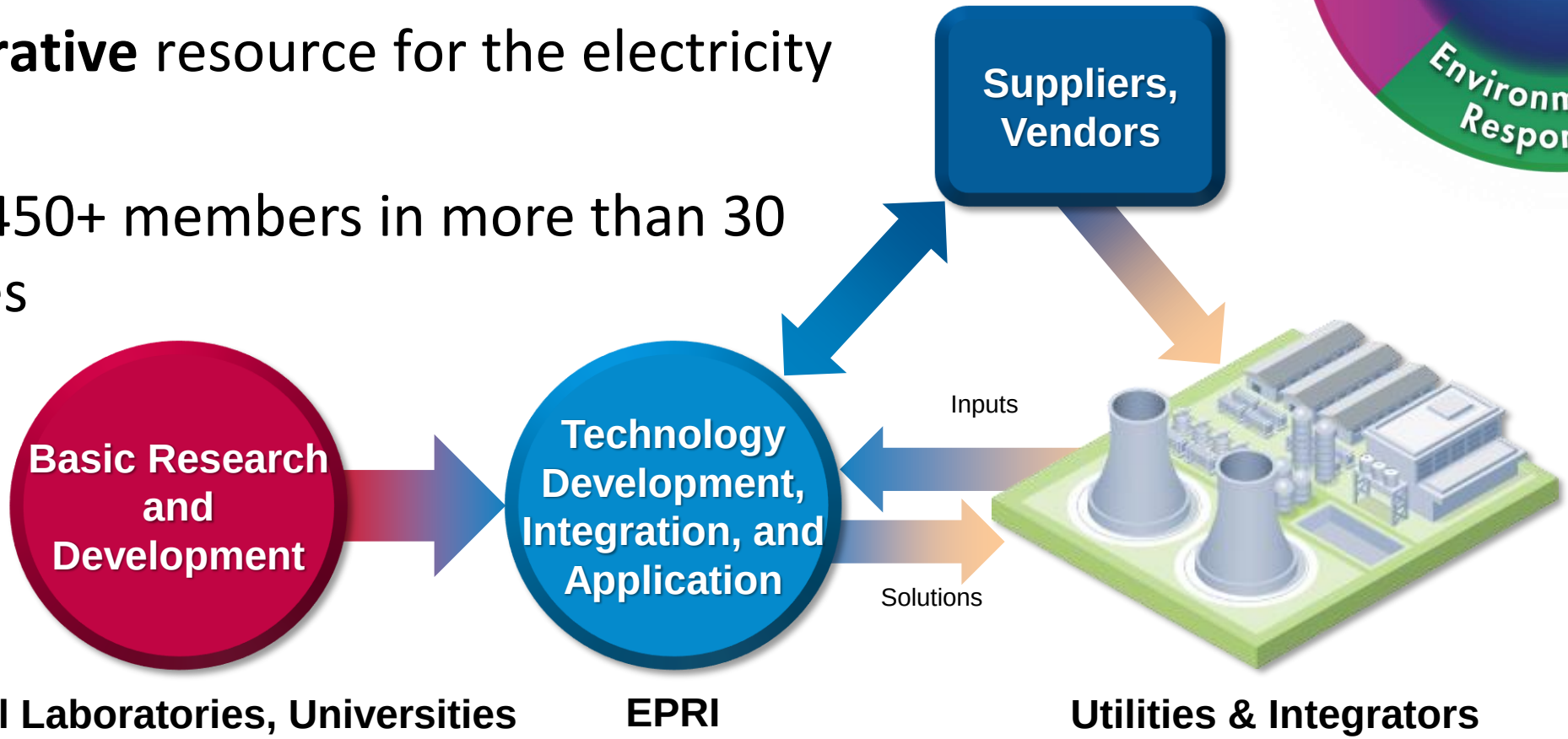
Presented to:
Michigan Power Grid New Technologies and Business Models Workgroup

January 27, 2021
2:10pm ET

Electric Power Research Institute (EPRI)

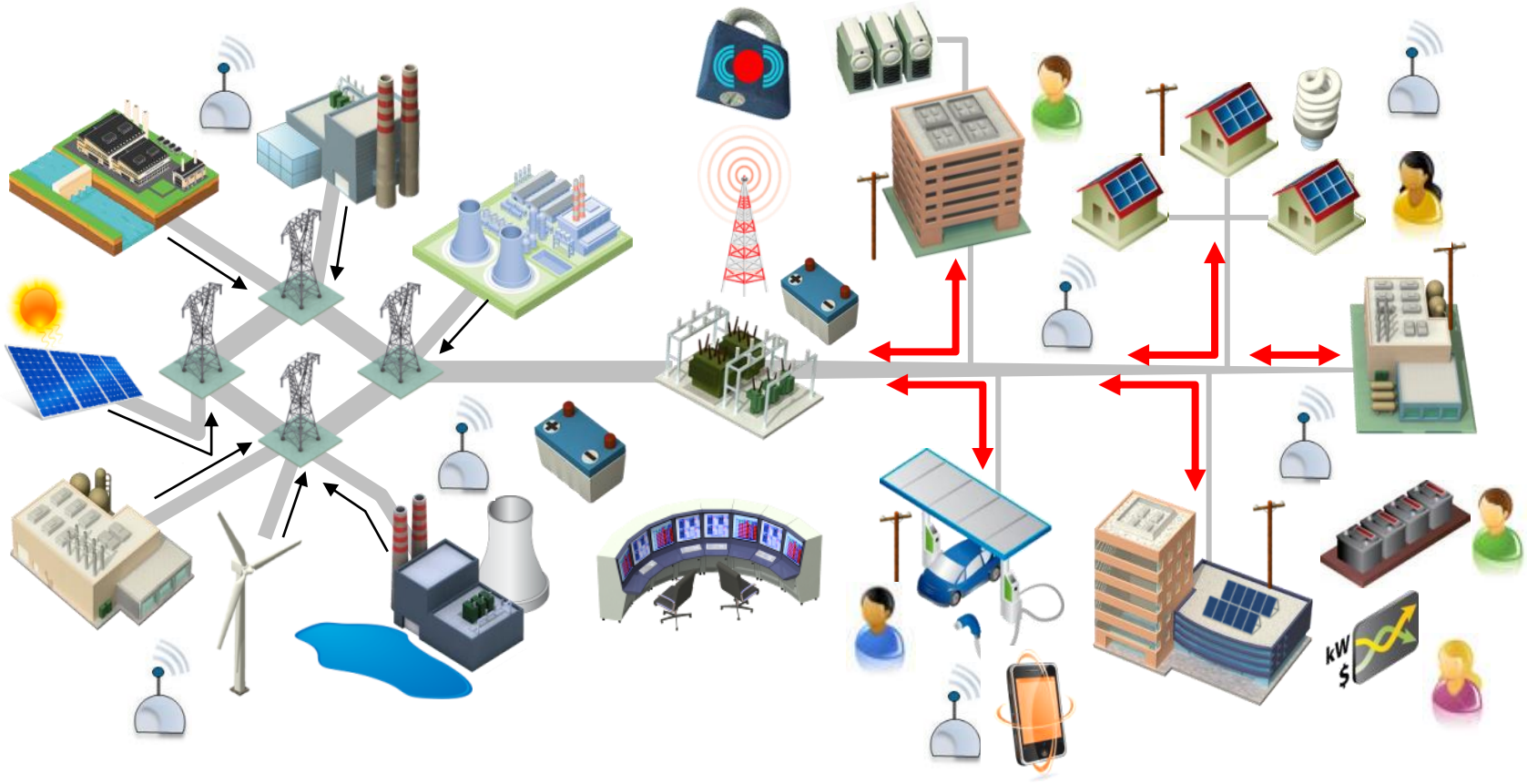
- **Independent, nonprofit** research organization for public interest energy and environmental research
- **Collaborative** resource for the electricity sector
- **Reach:** 450+ members in more than 30 countries



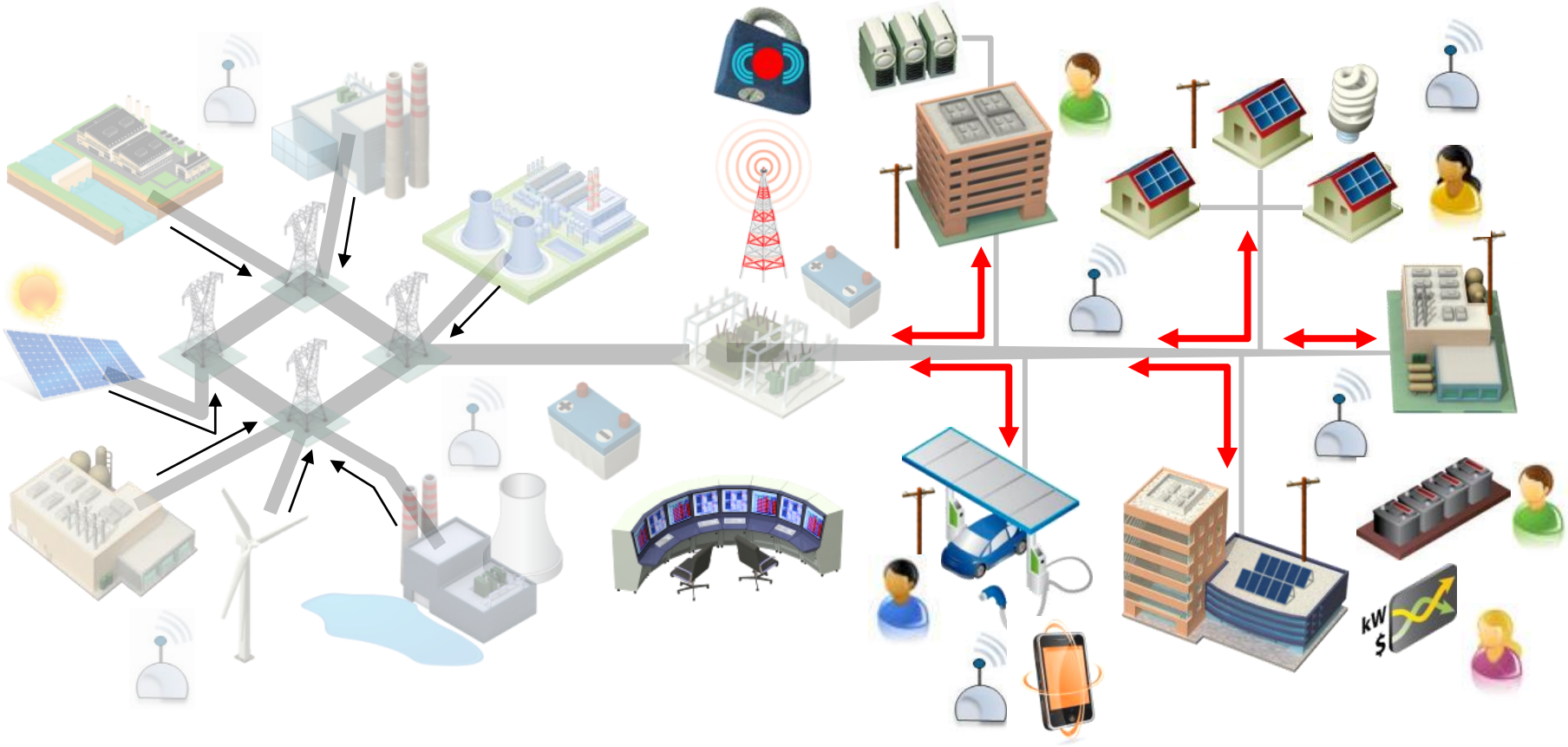


Agenda

- Future State of Grid Decarbonization
- Opportunities & Challenges
- Case Studies



The Evolving Power System



Electrification

Renewable Generation

Energy Storage

Situational Awareness and Interconnection Standardization Required

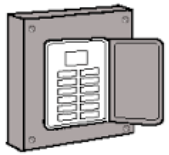
Impact of Zero Net Energy Homes & Communities

Solar Electric (PV)

Air Heating/Cooling

Energy Storage

Smart Heat Pump Water Heater

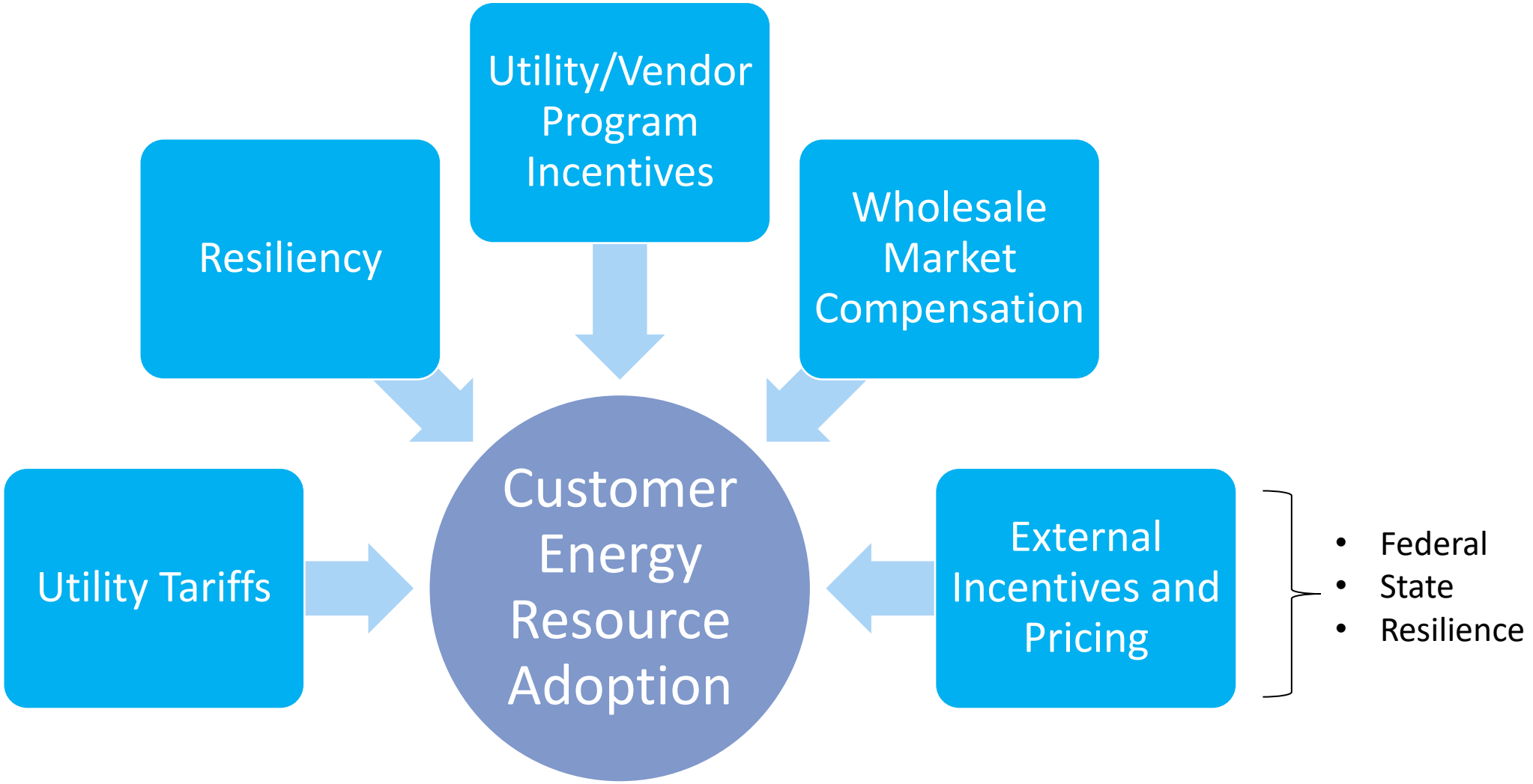


Controllable Loads

EV Fleets

Standardization & Harmonization Key to Holistic Integration

Adoption Drivers: Solar, Storage, EV



Territories With Two or More Drivers are More Likely to See Adoption

FERC Order 2222 Impact

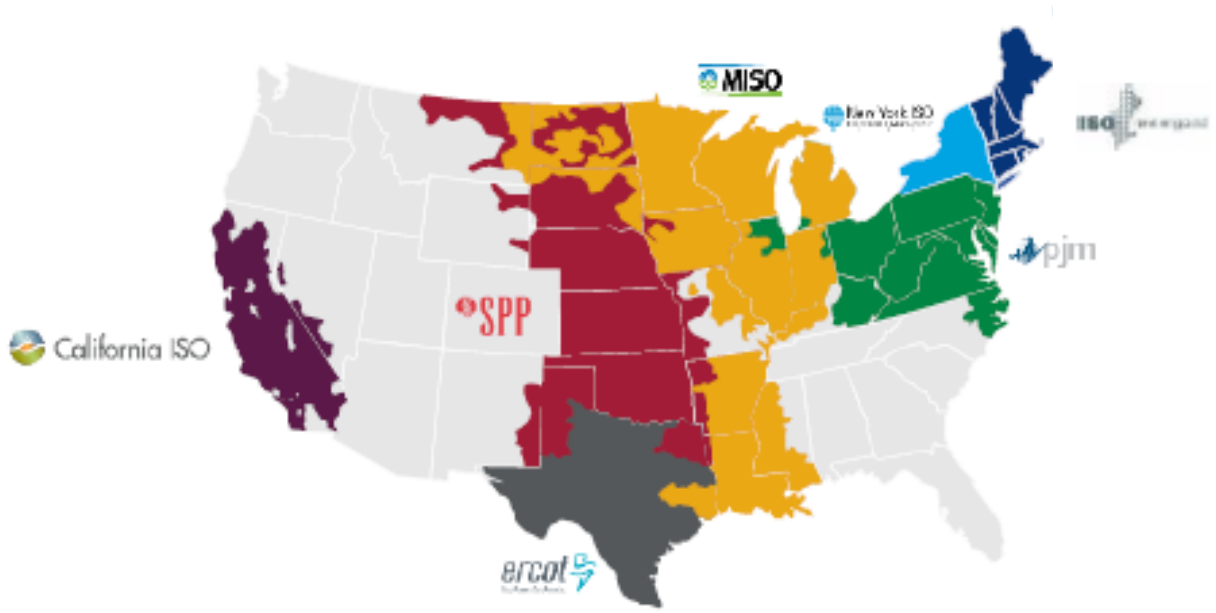
Timeline:

- Order Published: Sept 2020
- Final Decision (including changes): Sept 2021
- Implementation: “Reasonable timeframe”

Regions:

- Where Impacted: All ISO/RTO
- Plus: opt-in for small utilities

U.S. RTO/ISO footprint where FERC has jurisdiction



Highlights:

- Allows DERs to “participate alongside traditional resources in the regional organized wholesale markets through aggregation.”
- DER aggregators become single point of contact for RTOs/ISOs
- Allows dual participation in retail & wholesale markets. Market operator will be responsible for creation of rules to restrict double counting
- Small utilities (less than 4 million MWh in previous year) are exempt; allowed to opt-in.

DERs Allowed to Participate in Wholesale Market with FERC 2222

Business Model Innovation

Green Mountain Power

- Utility-owned 23kWh units whole home backup
- Customer-owned BYOD units
- Third-party owned demonstration

Rocky Mountain Power

- 600 apartments equipped w/ sonnen units
- Reliability & Frequency Response

National Grid

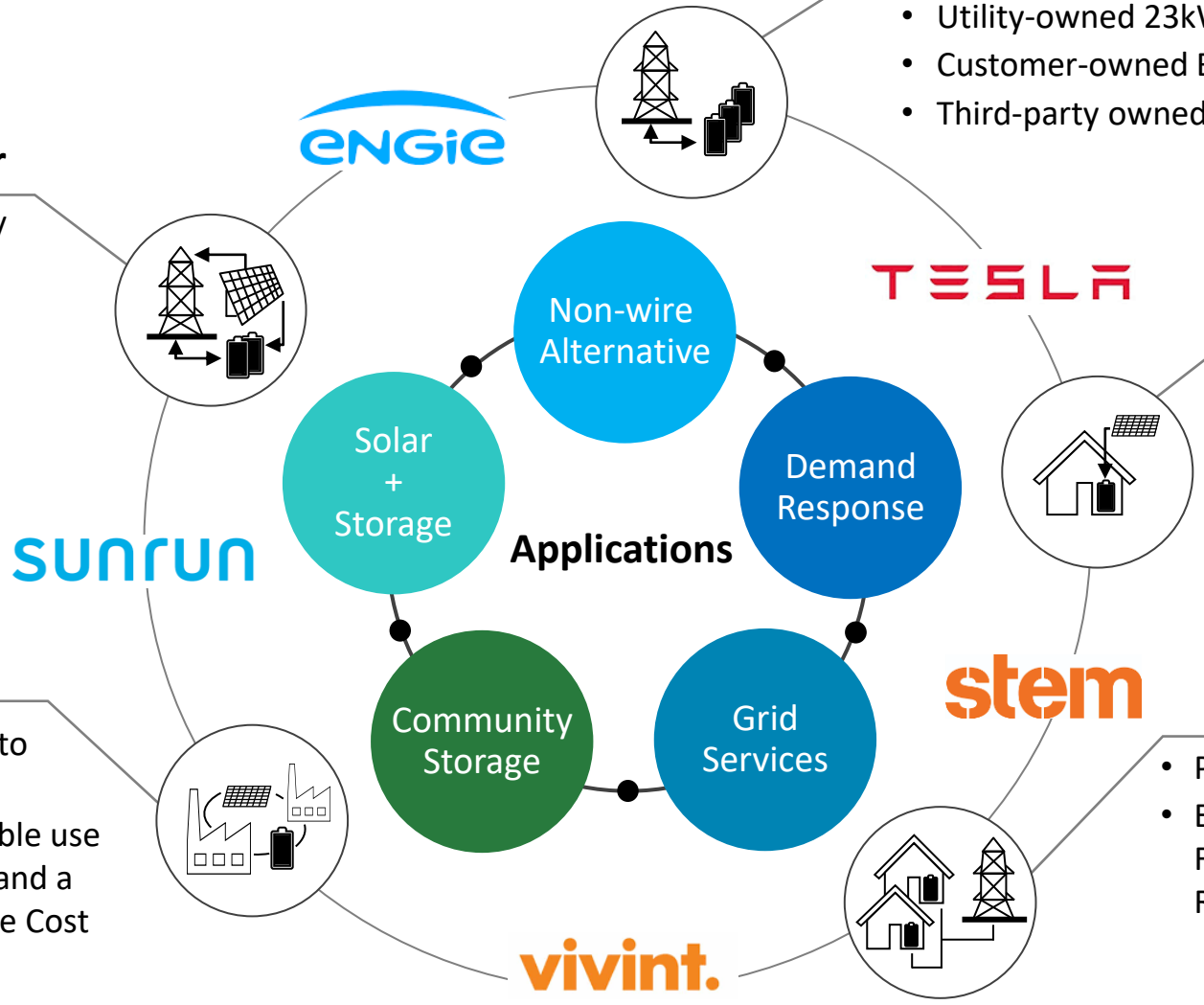
- DR program w/ BYOD energy storage
- Reduction of peak generation requirements through bill incentives

SMUD

- Customer & SMUD partner to decrease C&I customer bills
- Decoupled ES provides flexible use enhancing locational value and a reduction of Demand Charge Cost

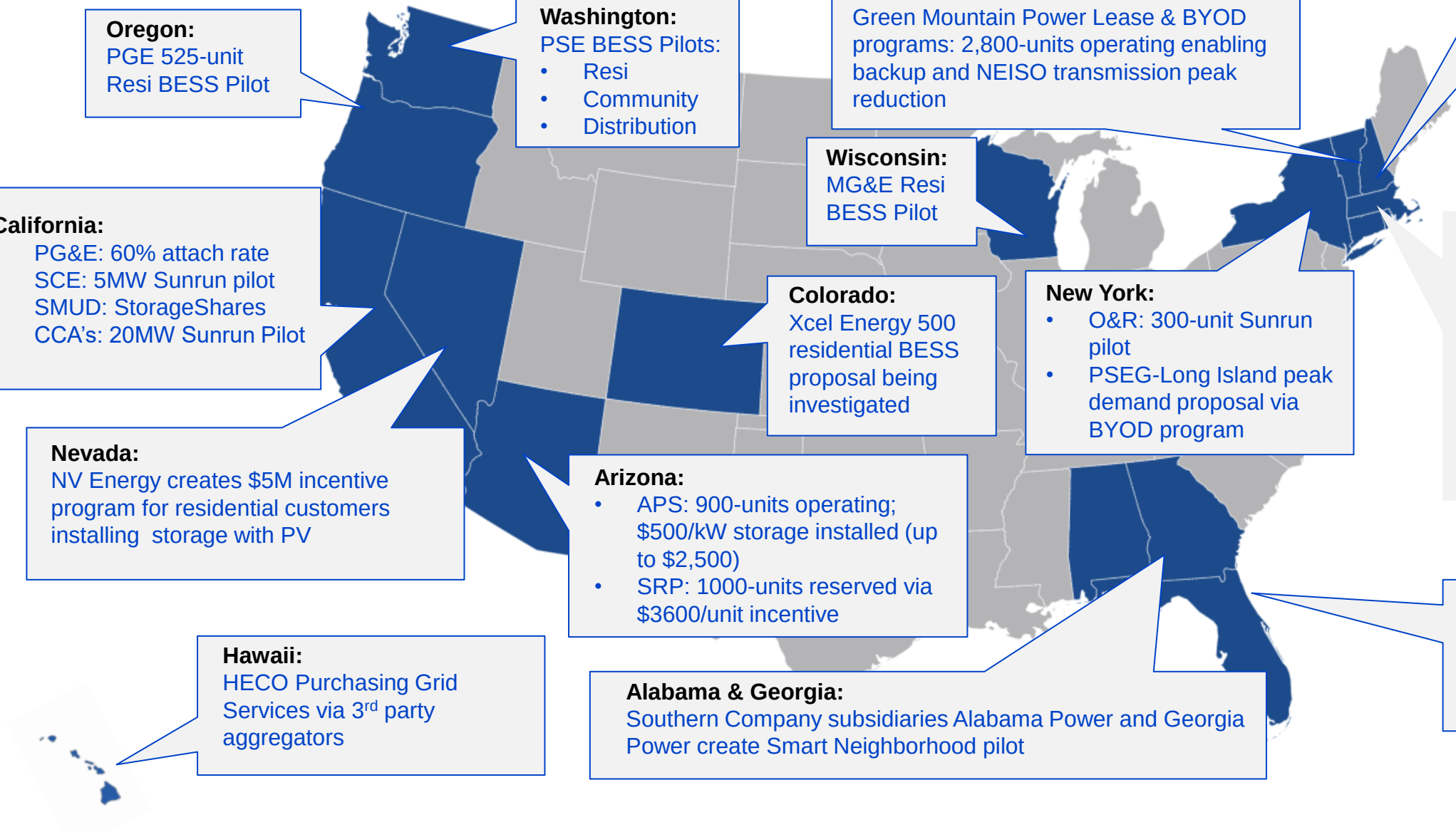
Hawaiian Electric

- Purchasing Grid Services through VPP
- Enabling the Management of Load and Frequency with an Energy Storage Revenue Stream



Confluence of Third-Party and Utility Deployments

Utility Customer-Sited *Pilots & Programs* by State



Oregon:
PGE 525-unit Resi BESS Pilot

Washington:
PSE BESS Pilots:
- Resi
- Community
- Distribution

Vermont:
Green Mountain Power Lease & BYOD programs: 2,800-units operating enabling backup and NEISO transmission peak reduction

New Hampshire:
- Liberty Utilities Lease @ $50/mth or $4860 to reduce system peak
- Eversource joins ConnectedSolutions $225/kW incentive for BYOB program

Wisconsin:
MG&E Resi BESS Pilot

California:
- PG&E: 60% attach rate
- SCE: 5MW Sunrun pilot
- SMUD: StorageShares
- CCA's: 20MW Sunrun Pilot

Colorado:
Xcel Energy 500 residential BESS proposal being investigated

New York:
- O&R: 300-unit Sunrun pilot
- PSEG-Long Island peak demand proposal via BYOD program

Massachusetts, Connecticut, Rhode Island:
- National Grid and Eversource ConnectedSolutions Program: $225 per kW performed per summer
- Sunrun/Sunpower to provide 31MW of Capacity to ISO-NE

Nevada:
NV Energy creates $5M incentive program for residential customers installing storage with PV

Arizona:
- APS: 900-units operating; $500/kW storage installed (up to $2,500)
- SRP: 1000-units reserved via $3600/unit incentive

Florida:
Jacksonville Electric Authority providing up to $4k per residential BESS system

Hawaii:
HECO Purchasing Grid Services via 3rd party aggregators

Alabama & Georgia:
Southern Company subsidiaries Alabama Power and Georgia Power create Smart Neighborhood pilot

Three DERs Optimized for Three Primary Value Streams

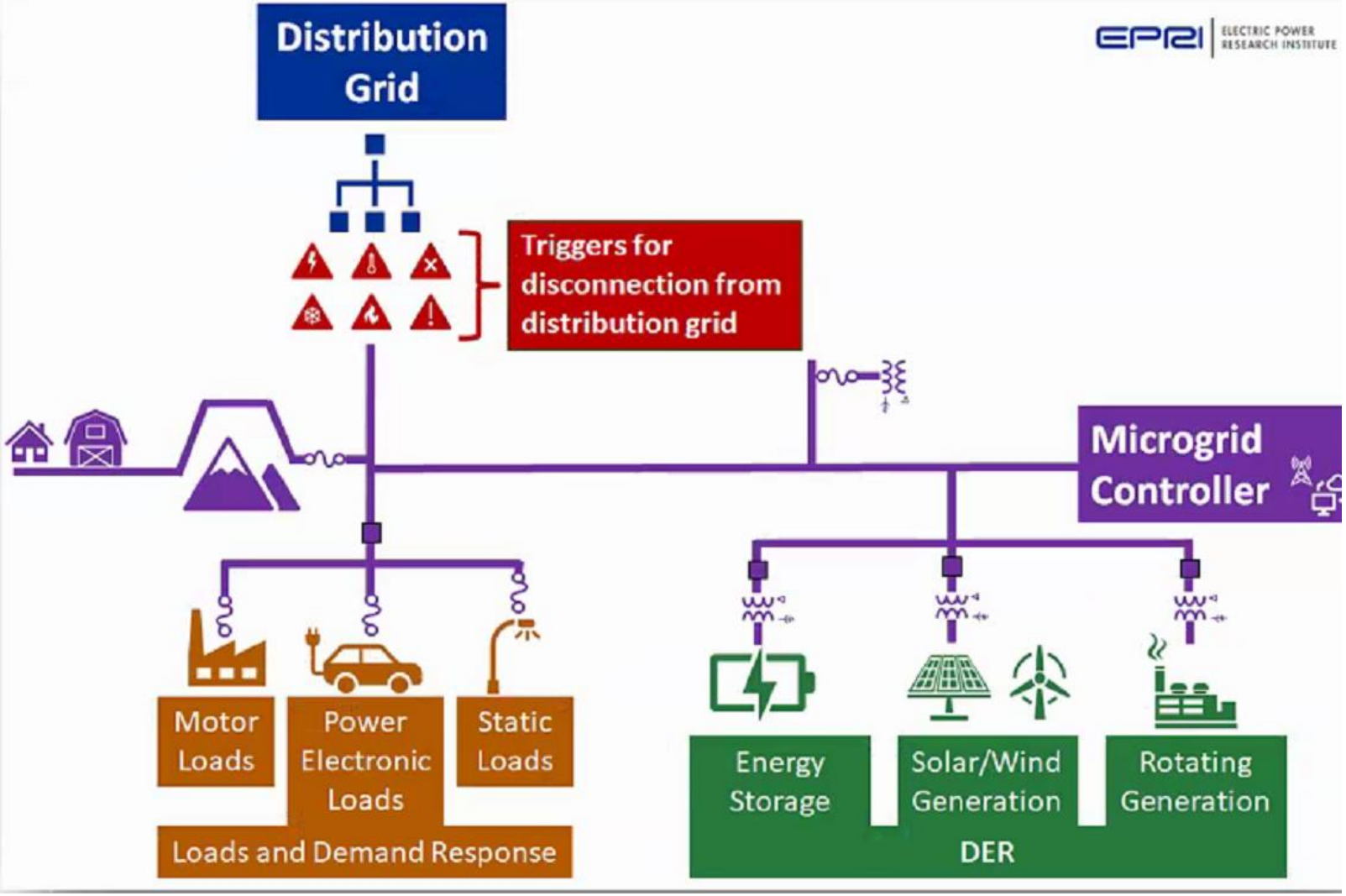
PV Integration

Battery Energy Storage

EV Bus Fleet (QTY: 15)

Customer Resilience, Distribution Capacity, Market Participation

Gaps to Close



- **Configuration:** BTM for backup power; however, FTM more efficient path to market participation
- **Tariff:** Multiple rates required due to separate EV charging, PV, and storage. Primary service with multiple meters is required
- **Cost:** Interconnection process, islanding and protection equipment
- **O&M Contract:** Onsite improvements to be constructed, owned, and maintained by the customer

Pathways to Grid Decarbonization

Barriers:

- Market participation: customer, distribution, transmission
- Safety, permitting, interconnection and tariff compliance
- Grid integration and coordination (VPP/aggregation)

Opportunities:

- Customer Choice: Resilience, bill savings, self-consumption
- Grid Services: Reliability, capacity, FR, decarbonization, DR, NWA
- Demand Response Event Coordination: Customers benefit from providing capacity services

Distributed Energy Resource Standardization and Coordination

Together…Shaping the Future of Electricity

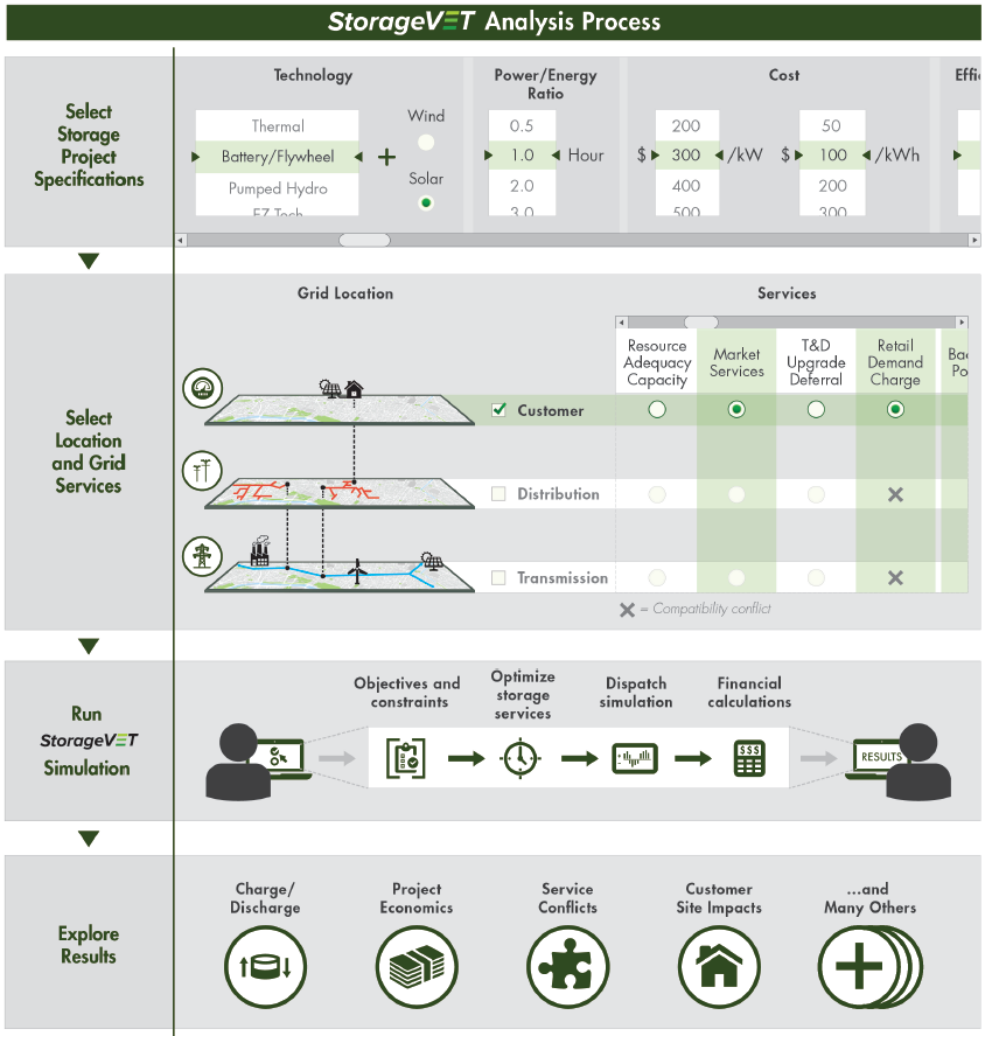
Contact:

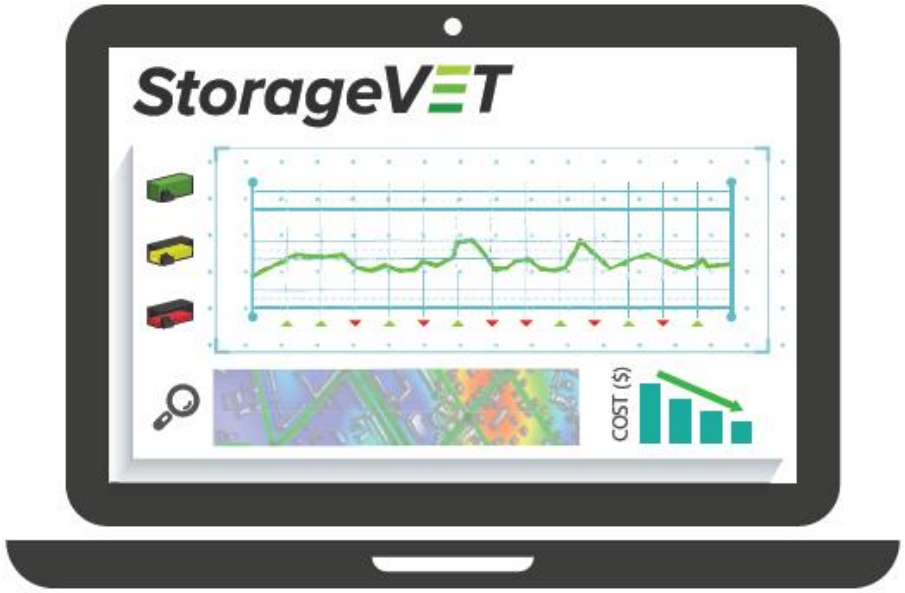
Nicholas Tumilowicz

ntumilowicz@epri.com

Valuation Tool: Free, Open. . . StorageVET ®

StorageVET® is a free, open source energy storage project valuation tool informing decision-makers across the electric grid

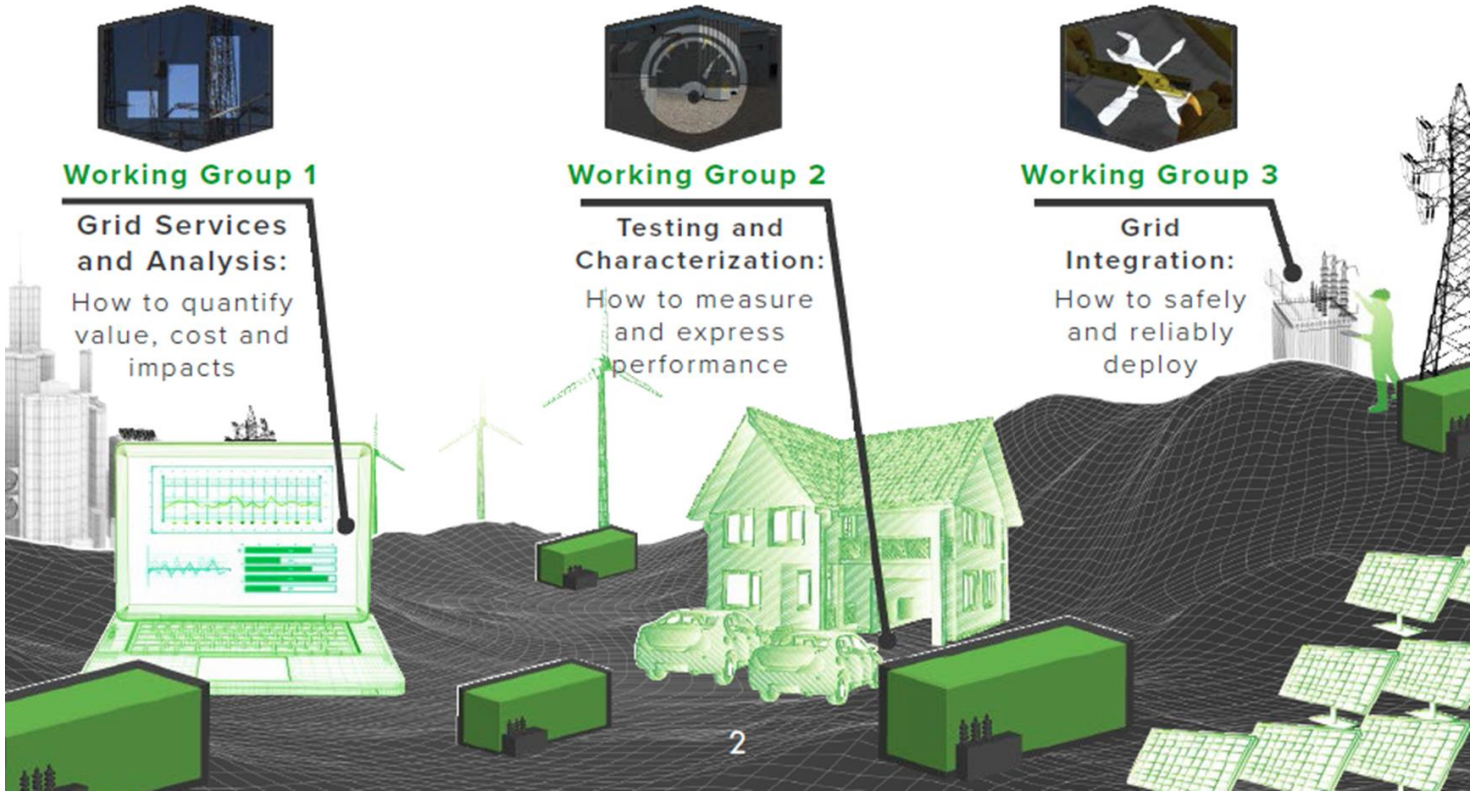




Customer Bill Savings | Peaker Substitution | T&D Deferral | Solar + Storage | ...and many others

Get started at storagevet.com

Industry Collaboration: Standardized Guidelines and Tools



ESIC
ENERGY STORAGE INTEGRATION COUNCIL

Connect to the Industry via:
esic@epri.com

Utility Approach to New Technologies & Business Models

Brian Hartmann
Executive Director
Corporate Strategy
Consumers Energy

Joyce Leslie
Director
Business Planning & Development
DTE Energy

Subin Mathew
Director
Reliability & Grid Modernization
Indiana Michigan Power

Consumers Energy
MPSC New Technologies and Business Models Workgroup

Brian Hartmann

January 27, 2021

Consumers Energy
Count on Us®

Through close collaboration with regulators and stakeholders, we have made great progress in creating innovative, win/win solutions for Michigan

People, Planet and Prosperity – Triple Bottom Line Solutions

Energy Efficiency

Demand Response

Electric Vehicles

Our strategy today is to build the best energy plan for Michigan given the evolving industry drivers

Drivers of our strategy

- Empowered customers

- Increasing demand for low carbon energy (electricity and gas)

- Aging infrastructure

- New digital technologies

How our strategy is realized for Michigan

Our belief is that the best plan for Michigan will optimize clean energy supply, both utility scale and distributed generation, with customer-side demand management over a modernized distribution network; we have started working towards this outcome

- Growing our demand side programs to 1,250MW of demand response and 1,130MW of energy efficiency by 2030 as part of our clean energy plan
- Investing to modernize the grid for more distributed energy resources and improved reliability

Optimal deployment of DERs requires an evolved approach to the traditional utility business model

From traditional thinking…	…to new opportunities for optimization
▪ Focus on technology deployment	▪ Focus on customers problems then ask what technologies can solve the problems and what business models create the right incentives
▪ Narrow focus on a few large scale, long lifetime infrastructure investments	▪ Large infrastructure investments when needed combined with many smaller investments with shorter lifetimes (e.g., smart thermostats, EV chargers, etc.)
▪ Simple business model built on rate base investments plus a return	▪ Rate base business model when it makes sense, supplemented by new business models aligned with how customer value is created
▪ Relatively simple value creation from asset investment	▪ Added complexity of stacking value within individual technologies (e.g., storage) and across multiple technologies (e.g., DER aggregation)

Technology should solve customer problems in the most cost-effective way; business models should be aligned to this philosophy

Providing customers with affordable, reliable, clean energy in a safe way remains our objective

Customer

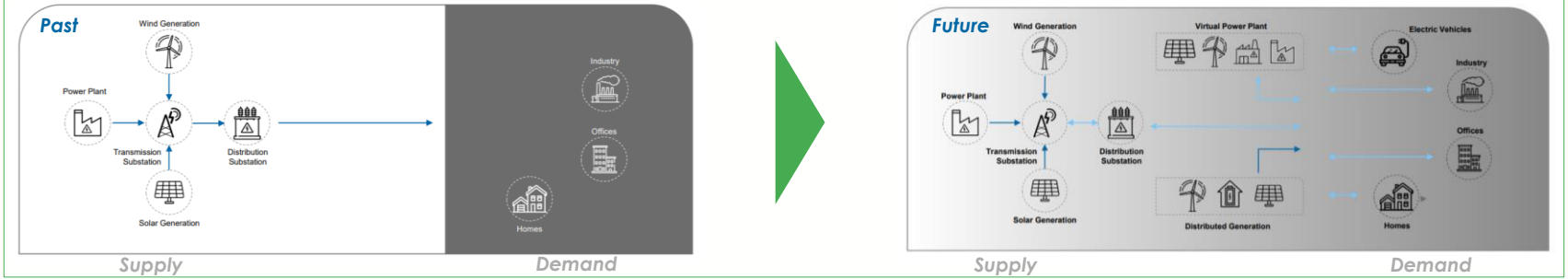
Preferences:

- Customers want affordable, reliable energy
- Customers have become aware of the difference between clean and dirty energy; they want clean energy as long as it is cost competitive

"While environmental and sustainability considerations are critical, equally critical are the savings associated with renewable energy" – Corporate Purchasers Roundtable

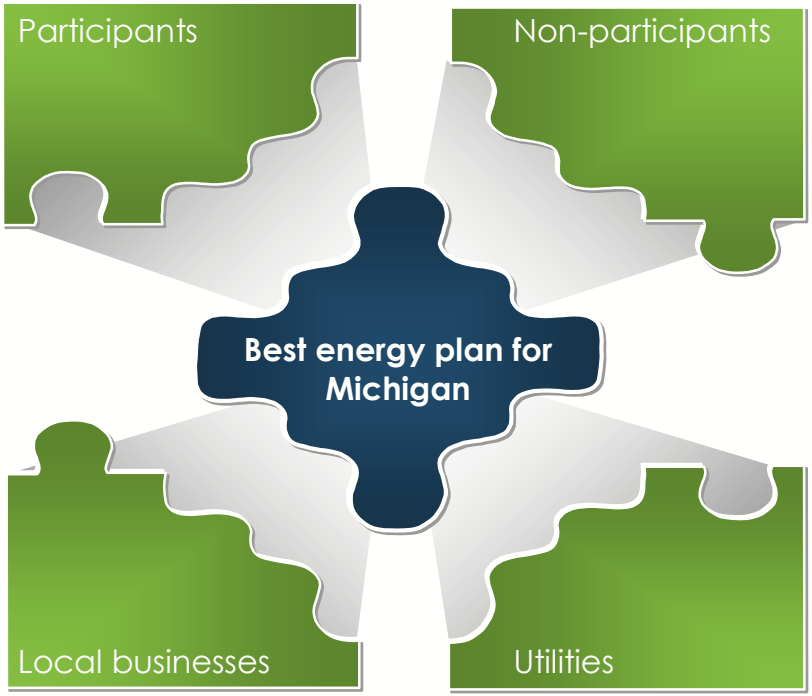
Industry

- What is changing are the ways we can provide clean, affordable, reliable energy



Source: Accenture

We believe the right business models will create wins for all parties involved and focus on solving problems



We want to avoid zero-sum arguments and focus on the best plan for Michigan

Removing regulatory barriers enables us to deliver on what customers truly value

A number of regulatory barriers exist that slow down deployment…

- We need to pilot and demonstrate ideas at the speed of new technologies and changing customer preferences so that we can bring the right products to market at scale
- We need to be more modular and agile with our pricing to support customers that want to pay for what they value
- We need to be able to shift our business models based on what customers truly value so that the value being captured is directly related to the value being created

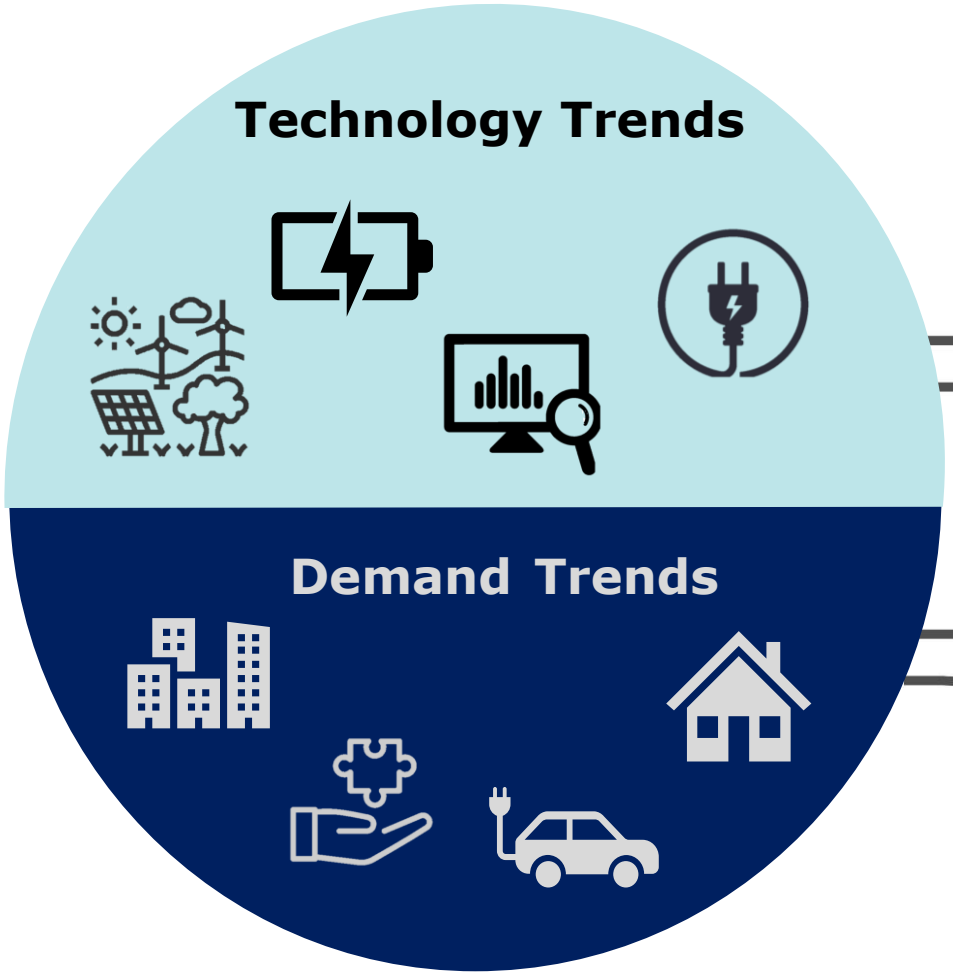
We believe in the best energy plan for Michigan and need your support to bring it to our customers quickly

MPSC New Technologies and Business Models Collaborative

DTE Energy

January 27, 2021

Technology and demand trends are two key drivers for a cleaner, decarbonized energy future



Technology trends

Enablers:

- Established renewable technologies
- Emerging carbon-free technologies
- Declining technology costs
- Advancements in electrification
- An intelligent grid with advanced technology
- Advanced data analytics

Demand trends

Demands:

- Interest from homeowners to power their house with cleaner energy and manage their energy usage
- Increased demand for electric vehicles
- Communities and Corporations supporting clean energy resources and clean energy goals
- States and utilities setting clean energy goals

DTE is committed to providing safe, reliable, clean and affordable power to Michigan customers

DTE

Assessments of a new or emerging technology or business model should start with three key considerations

1. **CUSTOMER FOCUS**

2. **RELIABILITY & RESILIENCY**

3. **AFFORDABILITY**

The assessment could then include a pilot implementation to robustly determine the extent of the impacts to the customer, system, and affordability

Pilot Types Across DTE

New and Emerging Technologies

Business Models

Common to both are uncertain expected outcomes, and pilots can be a useful step in determining a range of likely outcomes and improvements that may be made

DTE Pilots' General Process

1. Pilot needs identification
2. General pilot design
3. Implementation plan
4. Pilot implementation
5. Pilot evaluation (qualitative and quantitative)
6. Final assessment

Using this approach, DTE has been able to establish various programs and pilots to support the continued adoption of new and emerging technologies

Electric Vehicles (EV)

Charging Forward Phase I
- Launched in 2019 with three primary components:
  - Customer Education & Outreach
  - Residential Smart Charger Support
  - Charging Infrastructure Enablement
- Expanded to included additional components with stakeholder support:
  - EV-Grid Impact Study
  - Bring Your Own Charger Pilot
  - EV-Ready Builder Rebate Pilot
  - Other new technology EV Pilots including battery-powered DCFCs[1], extreme fast charging, etc.

Charging Forward Phase II
- Filed ex parte December 2020 to expand on Phase I and focus on electric fleets:
  - Customer Education & Outreach
  - Fleet Advisory Services
  - Charging Infrastructure Enablement

Storage

O' Shea Solar Energy Storage
- Expected construction completion in 2021
- Understand power quality improvements and renewable integration
- Develop best practices for interconnection
- Develop standards and safety policies for future projects

Mobile Battery Trailer
- Expected completion in 2021
- Multiple use cases including emergency restoration, peak shaving, distribution loading relief

Other Pilots

DTE Smart Charge
- Launched in 2019; expanding pilot February - December 2021
- Collaboration with EPRI and auto companies
- Using Open Vehicle-Grid Integration Platform based concept to integrate EV charging with grid objectives through demand response

Heat Pumps:
- Launched February 2020- November 2021

1. All Electric Home:
- Build new homes w/highly efficient building envelopes and cold climate air source heat pumps as primary heating/cooling source

2. Income Qualified:
- Install whole-home mini-split cold climate heat pumps as the primary heating source and the existing electric heating system will be an auxiliary heat source

DTE is looking forward to discussing potential new business models that may better support the adoption of new and emerging technologies while supporting the overall goals of providing safe, reliable, clean and affordable energy

1. Direct current fast charger

Questions

INDIANA MICHIGAN POWER

An AEP Company

BOUNDLESS ENERGY℠

MPSC New Technology & Business Models Workshop

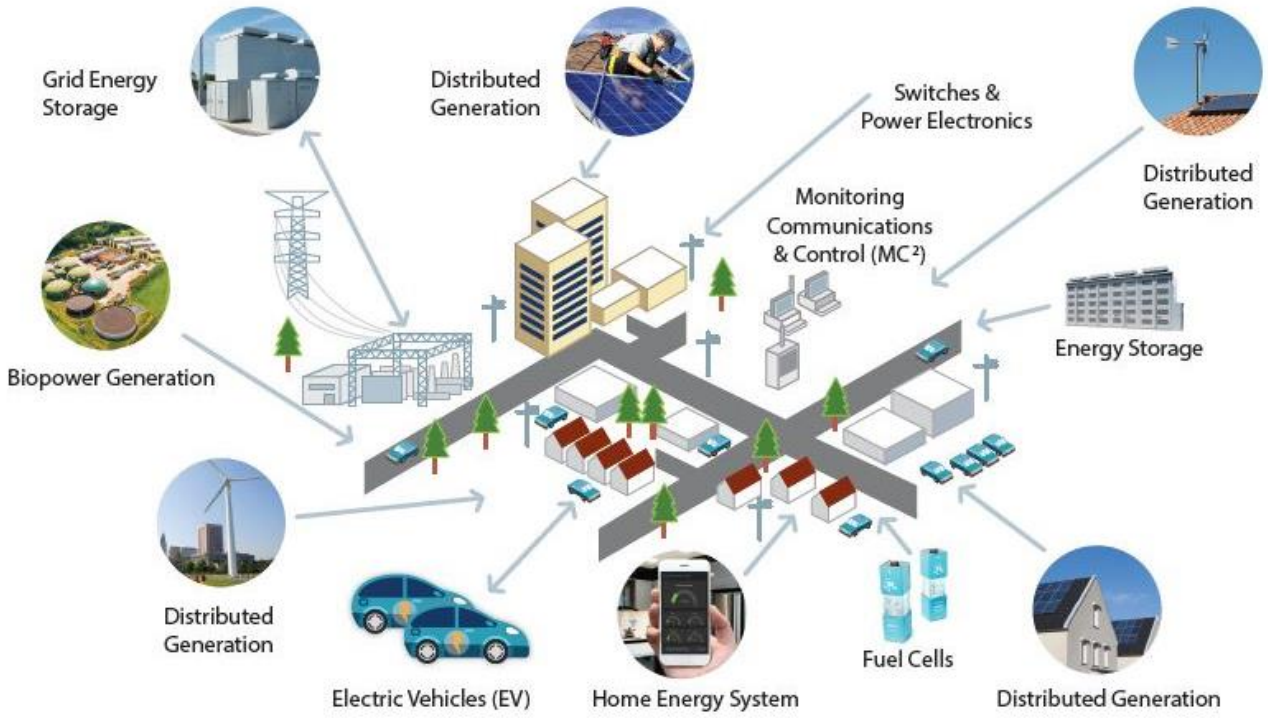
Kick Off – 01.27.21

Presentation by I&M

BOUNDLESS ENERGY℠

INDIANA MICHIGAN POWER
An AEP Company
BOUNDLESS ENERGY

What could the future look like?



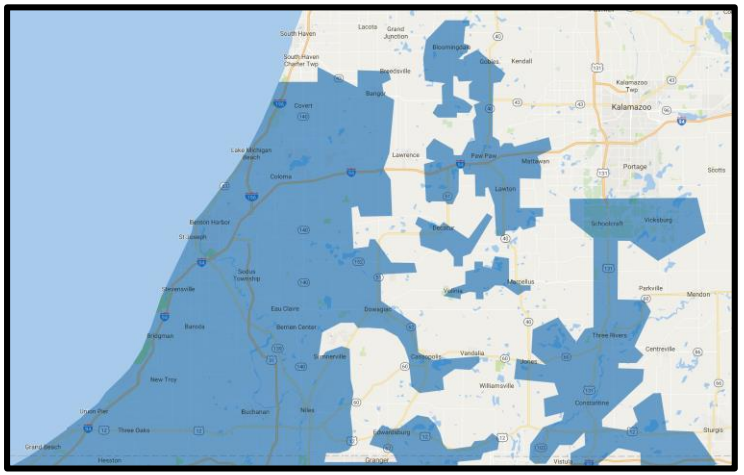
Decarbonization Digitalization Decentralization

INDIANA MICHIGAN POWER
An AEP Company
BOUNDLESS ENERGY™

What are the primary objectives for distribution?

- Maintain and improve safety
- Address reliability, resiliency, & aging infrastructure
- Create an enabling platform
- Maintain flexibility
- Improve data availability and use
- Enhance the customer experience

Our Service Territory



Southwest Michigan

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Grid Modernization Examples

- Advanced Metering
- Distribution Automation
- Data Analytics

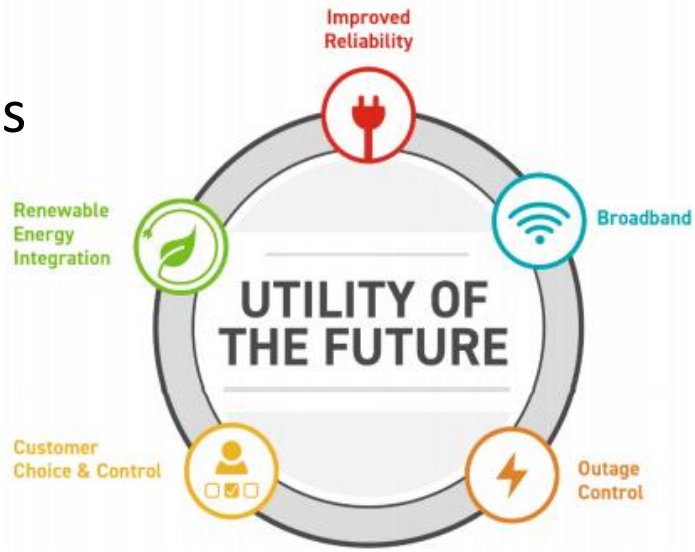
We also support pilots such as:

- EV Charging Program

INDIANA MICHIGAN POWER
An AEP Company
BOUNDLESS ENERGY™

Enabling the Grid of the Future

- Continue our focus on safety and reliability as we incorporate newer technologies to benefit our customers.
- Leverage technologies & concepts such as energy storage and microgrids as they become effective options.
- Make prudent investments to enable a data driven and customer engaged future focused specifically on the customers we serve.
- Leverage new business models & opportunities to benefit our customers



Community Experience & Interest Panel

Moderator

Dr. Sarah Mills
Senior Project Manager
Graham Sustainability Institute
University of Michigan

Melissa Davis
Managing Director
New Power Tour, Inc

Mindy Miner
Committee Member
City of Rockford
Sustainability Committee

Missy Stults
Sustainability and
Innovations Manager
City of Ann Arbor

MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models

Break: 4:17 – 4:22 PM

Stakeholder Meeting 1

January 27, 2021

MPSC

Michigan Public Service Commission

Utility Business Model Reform: Incentive Alignment for Clean DER Expansion

Cory Felder

Senior Associate

Electricity Team

Rocky Mountain Institute

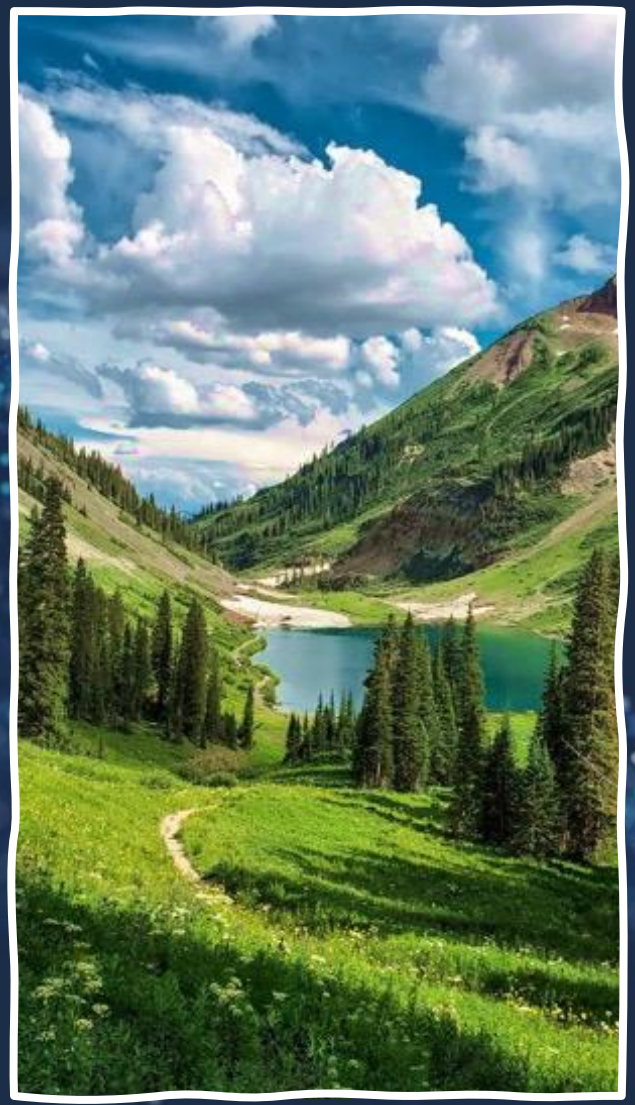
JANUARY 27, 2021

Utility Business Model Reform:
Incentive Alignment for Clean DER Expansion

Cory Felder, Senior Associate

Outline

- **Context:** Michigan policy goals and the clean energy transition
- **Challenge:** COS regulation in Michigan poses challenges to clean DER expansion
- **Solution:** PBR and modernization of utility service models can reduce barriers to DER expansion and emissions reductions



New Technologies and Business Models Working Group problem statement…

- “There are regulatory and business model barriers to the deployment and full utilization of clean, distributed energy resources in Michigan”
- “[T]here is the need to adapt the regulatory framework to allow for different applications of DER and to define the appropriate roles of utilities and other entities in supporting a more decentralized energy system that is clean, affordable, reliable, and accessible.”

Utilities are core to the unfolding energy transition

Current Trends

- Falling clean-energy prices
- More renewables & DERs
- Smart metering & appliances
- New business models (e.g., 3rd-party demand aggregation)

Future Needs

- Energy system will be vastly different
  - Decarbonized, including across economic sectors
  - Increased electricity demand
  - Dynamic resource management and integration of renewables
- Attention to equitable outcomes
- **Huge expenditures needed**

Michigan Policy and Regulatory Context

Renewable Portfolio Standard

- 15% by 2021

EO 2020-10 and 2020-182

- Economy-wide carbon neutrality by 2050
- All existing state-owned/operated buildings and facilities reduce their energy use 40% by 2040.
- Council on Climate Solutions to advise on MI Healthy Climate Plan implementation

Federal Policy

- FERC Order 2222 implementation

Cost-of-Service Regulation poses barriers to clean DER expansion in Michigan

What is COSR?

- Traditional regulatory approach
- Earnings tied to investment
- More sales means more revenues
- Information asymmetry addressed through detailed regulatory oversight

Barriers

- Misalignment of utility incentives
  - Throughput incentive
  - Capital bias
  - Environmental externalities
- Backward looking
- Discourages innovation

Michigan's regulatory transition is already under way…

Existing Regulatory Mechanisms

- EWR Shared Savings
- Financial Compensation Mechanism
- Utility EV Rebate Pilots

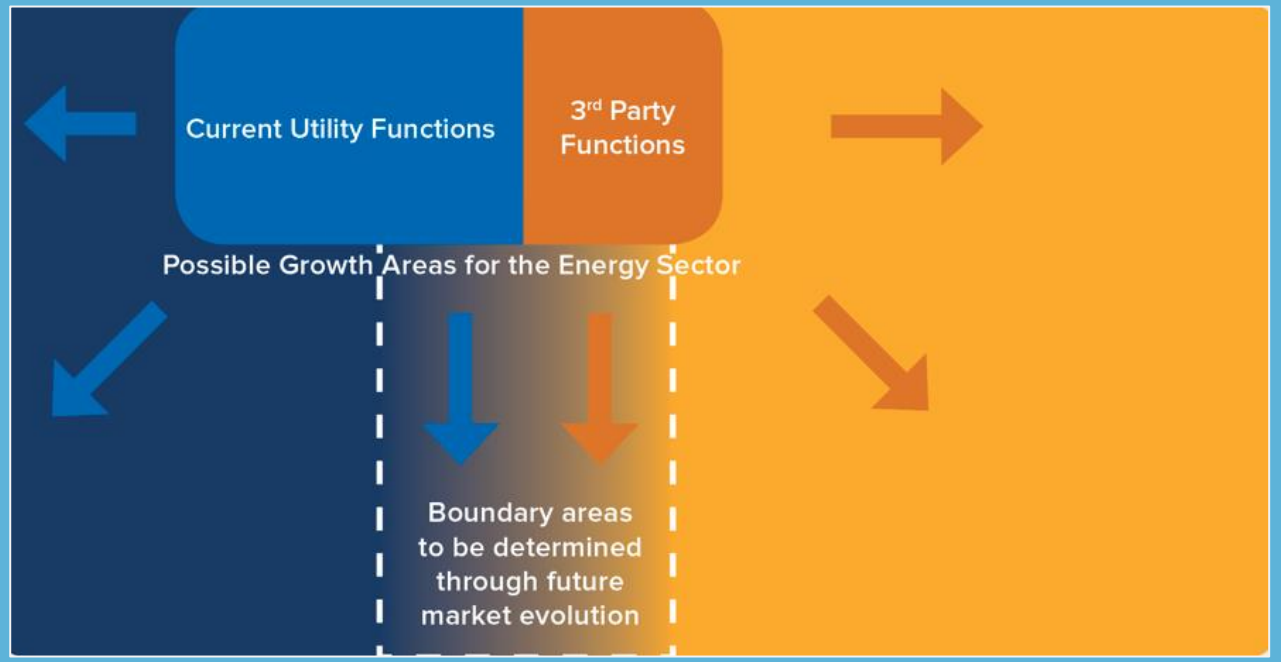
Upcoming Touch Points

- Working Group Report
- Financial Incentives/Disincentives WG
- Utility rate cases
- PBR proposals in utility distribution system plan filings

…but clarity is still needed on key questions to reduce barriers to clean DER growth

Key Considerations

- Does the existing incentive structure encourage DER use and expansion?
- Under what conditions is it appropriate for the utility (vs. third parties) to own DERs?
- Should the utility be allowed to facilitate customers' application of BTM solar and own the equipment as a rate-based asset?



Performance-Based Regulation

What is PBR?

- Collection of newer approaches
- Earnings tied to performance
- Link between sales & revenues can be weakened or broken
- Information asymmetry addressed by realigning utility incentives
- Can be limited in scope or comprehensive

Common PBR Tools

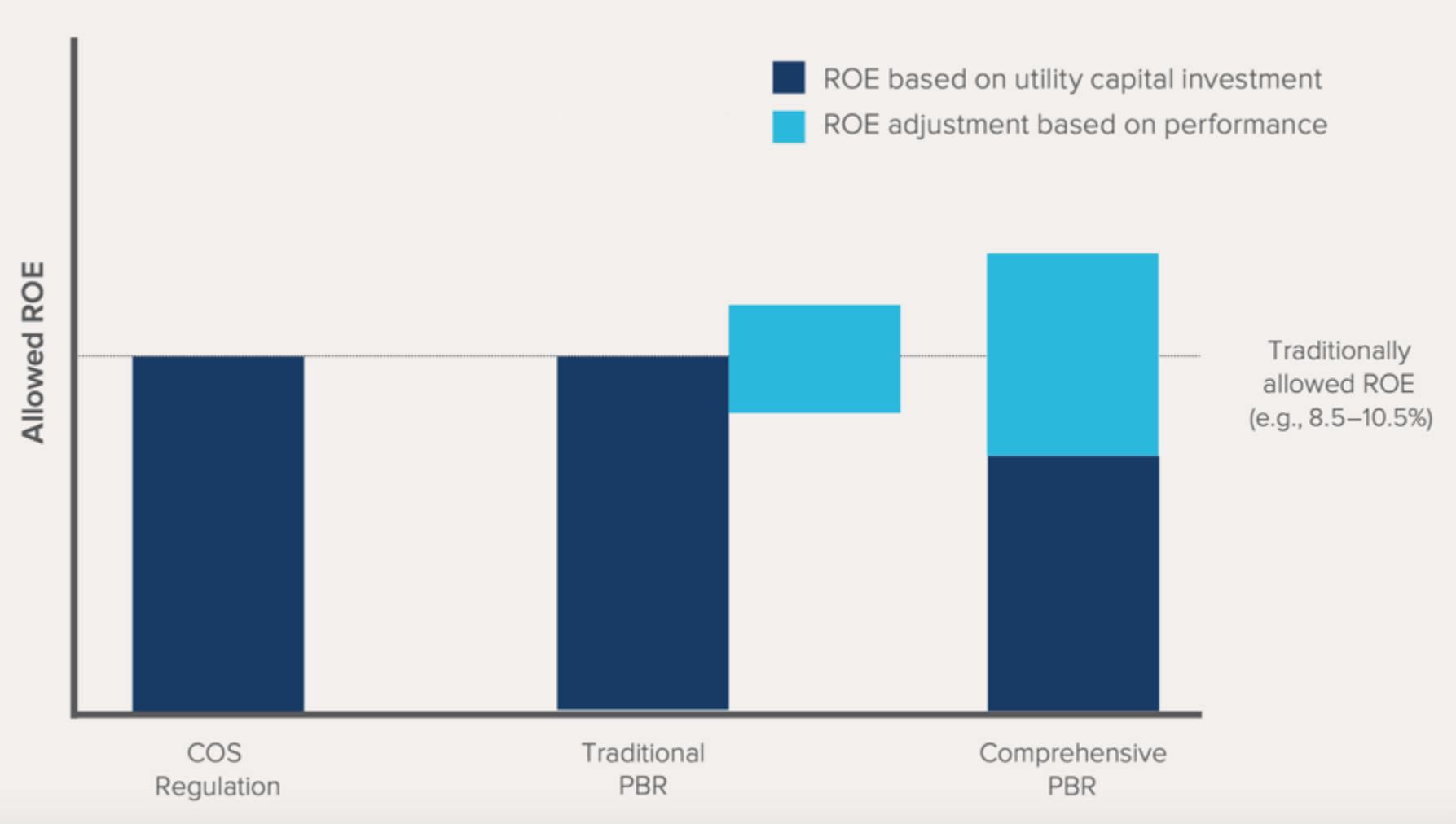
- Multi-year rate plans (MRP)
  - Indexed revenue adjustments
  - Earnings sharing
- Revenue decoupling
- Performance incentive mechanisms (PIMs)
  - Shared savings mechanisms (SSMs)
  - Metrics & scorecards
- Capex-opex equalization mechanisms

PBR can shift utility revenues from expenditures to be more outcome based…

Regulatory Approach	Illustrative Revenue Formula
Cost-of-Service Regulation	Allowed Revenues = Operating Expenses + (ROR * Rate Base)
Incremental PBR	Allowed Revenues = Operating Expenses + (ROR * Rate Base) ± Performance Revenue
Comprehensive PBR	Allowed Revenues = (Target Revenue ± Performance Revenue) ± Earnings Sharing

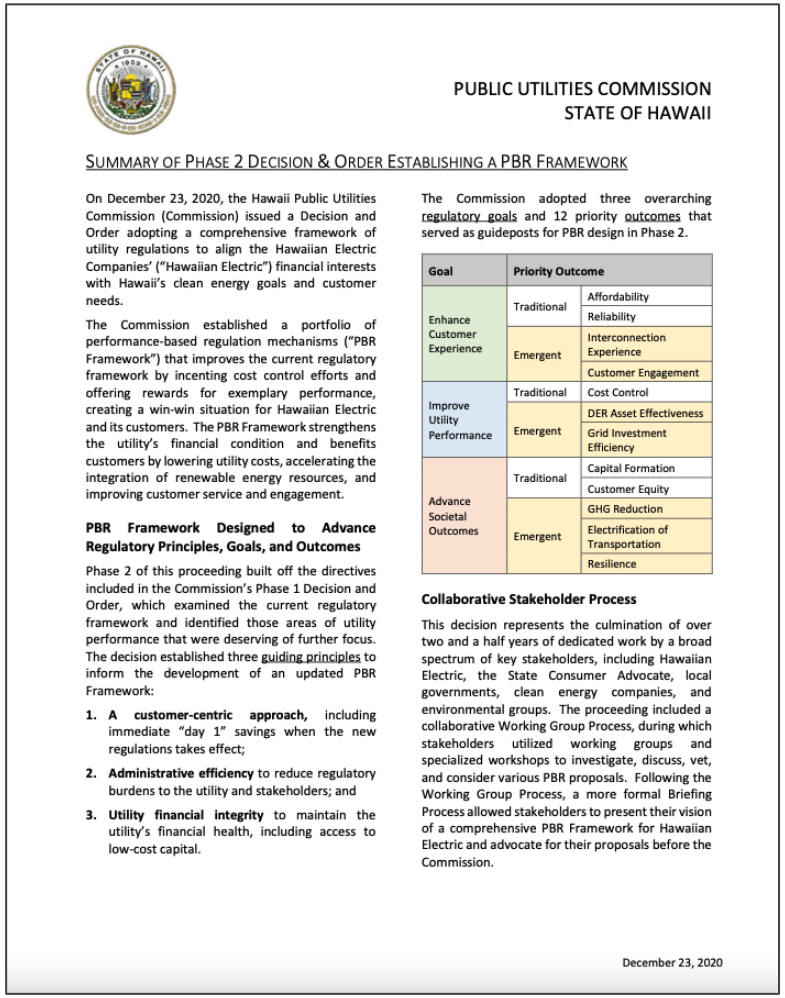
From *PIMs for Progress*, RMI (2020).

…and earnings *opportunity* can likewise track to performance.



From *PIMs for Progress*, RMI (2020).

Hawaii Has Adopted a Comprehensive PBR Framework That Includes Several DER-focused Mechanisms



PUBLIC UTILITIES COMMISSION
STATE OF HAWAII

SUMMARY OF PHASE 2 DECISION & ORDER ESTABLISHING A PBR FRAMEWORK

On December 23, 2020, the Hawaii Public Utilities Commission (Commission) issued a Decision and Order adopting a comprehensive framework of utility regulations to align the Hawaiian Electric Companies' ("Hawaiian Electric") financial interests with Hawaii's clean energy goals and customer needs.

The Commission established a portfolio of performance-based regulation mechanisms ("PBR Framework") that improves the current regulatory framework by incenting cost control efforts and offering rewards for exemplary performance, creating a win-win situation for Hawaiian Electric and its customers. The PBR Framework strengthens the utility's financial condition and benefits customers by lowering utility costs, accelerating the integration of renewable energy resources, and improving customer service and engagement.

PBR Framework Designed to Advance Regulatory Principles, Goals, and Outcomes

Phase 2 of this proceeding built off the directives included in the Commission's Phase 1 Decision and Order, which examined the current regulatory framework and identified those areas of utility performance that were deserving of further focus. The decision established three guiding principles to inform the development of an updated PBR Framework:

1. **A customer-centric approach,** including immediate "day 1" savings when the new regulations takes effect;
2. **Administrative efficiency** to reduce regulatory burdens to the utility and stakeholders; and
3. **Utility financial integrity** to maintain the utility's financial health, including access to low-cost capital.

The Commission adopted three overarching regulatory goals and 12 priority outcomes that served as guideposts for PBR design in Phase 2.

Goal	Priority Outcome	
Enhance Customer Experience	Traditional	Affordability
		Reliability
	Emergent	Interconnection Experience
		Customer Engagement
Improve Utility Performance	Traditional	Cost Control
	Emergent	DER Asset Effectiveness
		Grid Investment Efficiency
Advance Societal Outcomes	Traditional	Capital Formation
		Customer Equity
	Emergent	GHG Reduction
		Electrification of Transportation
		Resilience

Collaborative Stakeholder Process

This decision represents the culmination of over two and a half years of dedicated work by a broad spectrum of key stakeholders, including Hawaiian Electric, the State Consumer Advocate, local governments, clean energy companies, and environmental groups. The proceeding included a collaborative Working Group Process, during which stakeholders utilized working groups and specialized workshops to investigate, discuss, vet, and consider various PBR proposals. Following the Working Group Process, a more formal Briefing Process allowed stakeholders to present their vision of a comprehensive PBR Framework for Hawaiian Electric and advocate for their proposals before the Commission.

December 23, 2020

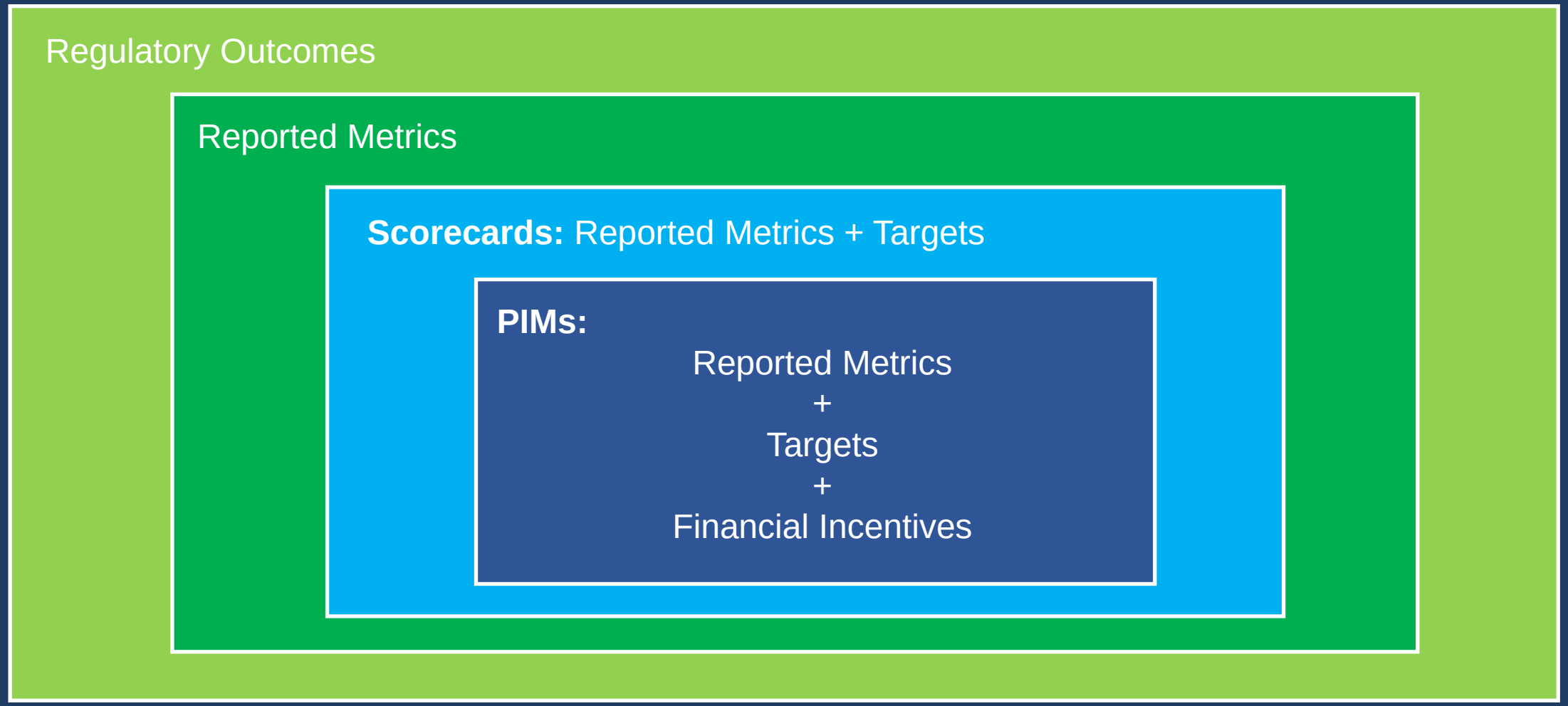
In December, the Hawaii PUC approved a comprehensive set of PBR mechanisms for Hawaii's IOU.

The order establishes:

- A 5-year multi-year rate plan, adjusted annually according to an externally indexed revenue adjustment mechanism
- Five new PIMs (focused on DER interconnection experience, customer engagement, DER asset effectiveness, and accelerated achievement of the state's RPS)
- Project or program-specific shared savings mechanisms, and
- A framework for conducting expedited review for pilot projects to encourage development of innovative programs and projects

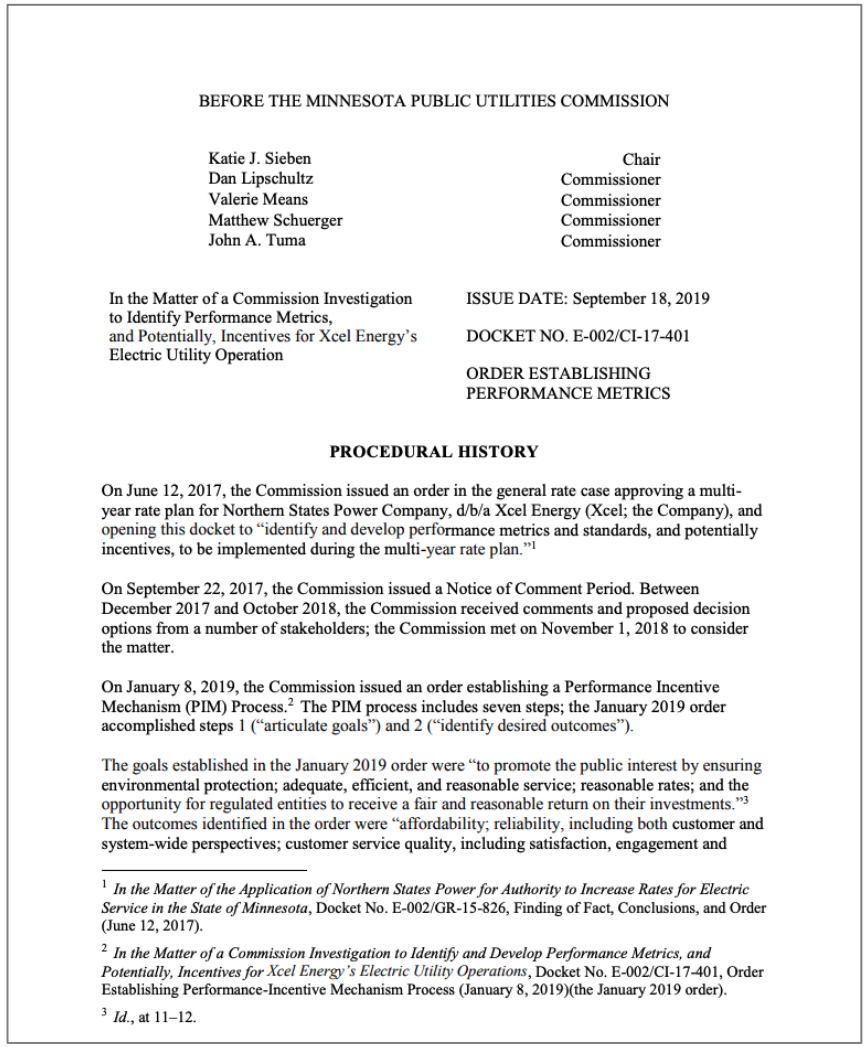
Source: Hawaii PUC Phase 2 Decision & Order, Docket 2018-0088 (December 23, 2020)

Performance measurement and PIMs allow for clarity and alignment on priority outcomes



From *PIMs for Progress*, RMI (2020).

Minnesota Has Set the Stage for Broader Reform with Performance Metrics



BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Dan Lipschultz	Commissioner
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
John A. Tuma	Commissioner

In the Matter of a Commission Investigation to Identify Performance Metrics, and Potentially, Incentives for Xcel Energy's Electric Utility Operation

ISSUE DATE: September 18, 2019

DOCKET NO. E-002/CI-17-401

ORDER ESTABLISHING PERFORMANCE METRICS

PROCEDURAL HISTORY

On June 12, 2017, the Commission issued an order in the general rate case approving a multi-year rate plan for Northern States Power Company, d/b/a Xcel Energy (Xcel; the Company), and opening this docket to "identify and develop performance metrics and standards, and potentially incentives, to be implemented during the multi-year rate plan."[1]

On September 22, 2017, the Commission issued a Notice of Comment Period. Between December 2017 and October 2018, the Commission received comments and proposed decision options from a number of stakeholders; the Commission met on November 1, 2018 to consider the matter.

On January 8, 2019, the Commission issued an order establishing a Performance Incentive Mechanism (PIM) Process.[2] The PIM process includes seven steps; the January 2019 order accomplished steps 1 ("articulate goals") and 2 ("identify desired outcomes").

The goals established in the January 2019 order were "to promote the public interest by ensuring environmental protection; adequate, efficient, and reasonable service; reasonable rates; and the opportunity for regulated entities to receive a fair and reasonable return on their investments."[3] The outcomes identified in the order were "affordability; reliability, including both customer and system-wide perspectives; customer service quality, including satisfaction, engagement and

[1] *In the Matter of the Application of Northern States Power for Authority to Increase Rates for Electric Service in the State of Minnesota*, Docket No. E-002/GR-15-826, Finding of Fact, Conclusions, and Order (June 12, 2017).

[2] *In the Matter of a Commission Investigation to Identify and Develop Performance Metrics, and Potentially, Incentives for Xcel Energy's Electric Utility Operations*, Docket No. E-002/CI-17-401, Order Establishing Performance-Incentive Mechanism Process (January 8, 2019)(the January 2019 order).

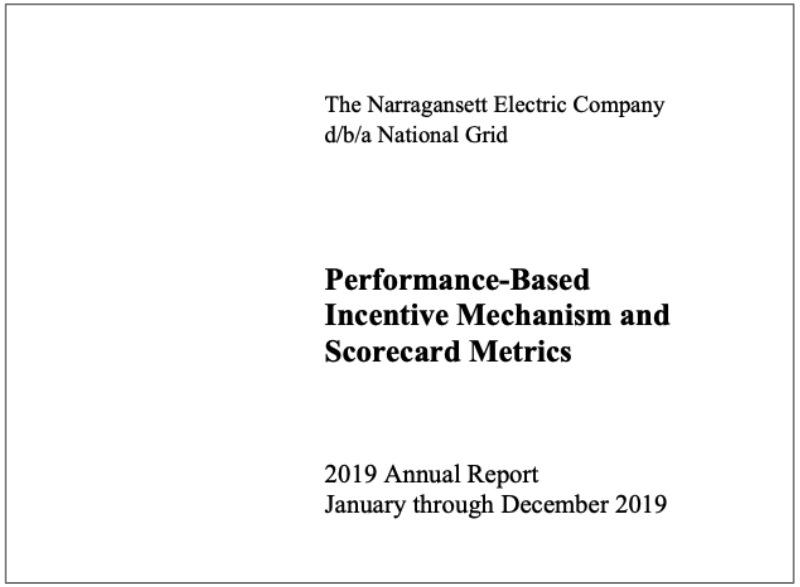
[3] *Id.*, at 11–12.

The Minnesota PUC established performance metrics for Xcel Energy to be implemented in its multi-year rate plan

- Demand response capacity available (MWh)
- Demand response capacity called (MW / MWh per year)
- Integration of customer loads with utility supply:
  - Amount of DR that shapes customer load profiles (through price response, time-varying rates, behavior campaigns)
  - Amount of DR that shifts energy consumption from times of high demand to times when there is a surplus of renewable generation.
  - Amount of DR that sheds load that can be curtailed to provide peak capacity and supports the system in contingency events

Source: Minnesota PUC Order Establishing Performance Metrics, Docket No. 17-401 (September 2019)

Rhode Island has adopted incentives for System Efficiency and metrics for GHG emissions reduction from EVs



The Narragansett Electric Company
d/b/a National Grid

Performance-Based Incentive Mechanism and Scorecard Metrics

2019 Annual Report
January through December 2019

System Efficiency: Annual MW Capacity Savings Results (2019)

Resource Type	Capacity Curtailment (MW)
Residential Thermostat Demand Response (DR)	1.80
Residential Battery	0.08
Commercial & Industrial DR	31.50
Total	33.38

System Efficiency: Annual MW Capacity Savings Targets and Maximum Earnings Opportunity

	2019	2020	2021
Minimum (MW)	14	17	21
Target (MW)	17	21	24
Maximum (MW)	20	25	29
Earnings at Maximum	$362,085	$622,370	$944,141

System Efficiency PIM for National Grid

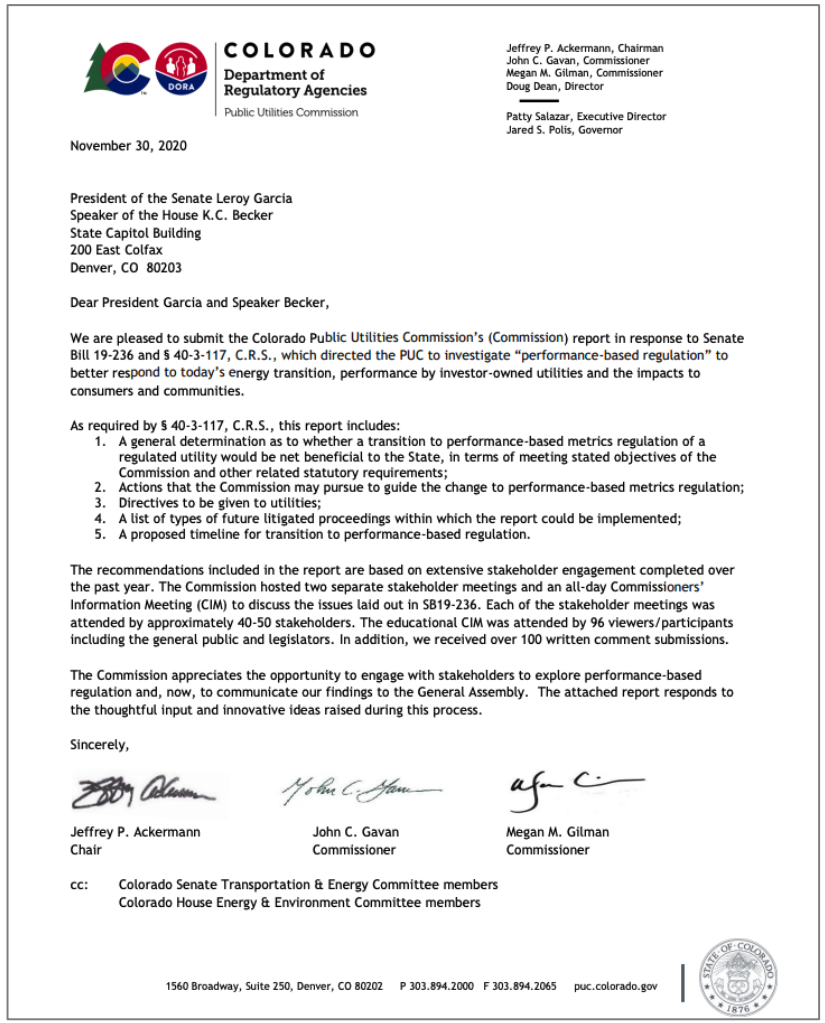
- Annual Megawatt Capacity Savings

Scorecard Metrics

- Carbon Dioxide: Consumer Electric Vehicles
- Light Duty Government and Commercial Fleet Electrification
- Activated Apartment Building and Disadvantaged Community Electric Vehicle Supply Equipment Sites
- Distributed Generation Interconnections
- Installed Energy Storage Capacity
- Distributed Generation Interconnection – Time to Interconnection Service Agreement

Source: National Grid 2019 Annual Report, Docket No. 4770 (February 2020)

Colorado Considered Whether PBR is "Net Beneficial" for Policy Goals Including DER Expansion and Emissions Reduction



COLORADO
Department of Regulatory Agencies
Public Utilities Commission

Jeffrey P. Ackermann, Chairman
John C. Gavan, Commissioner
Megan M. Gilman, Commissioner
Doug Dean, Director

Patty Salazar, Executive Director
Jared S. Polis, Governor

November 30, 2020

President of the Senate Leroy Garcia
Speaker of the House K.C. Becker
State Capitol Building
200 East Colfax
Denver, CO 80203

Dear President Garcia and Speaker Becker,

We are pleased to submit the Colorado Public Utilities Commission's (Commission) report in response to Senate Bill 19-236 and § 40-3-117, C.R.S., which directed the PUC to investigate "performance-based regulation" to better respond to today's energy transition, performance by investor-owned utilities and the impacts to consumers and communities.

As required by § 40-3-117, C.R.S., this report includes:

1. A general determination as to whether a transition to performance-based metrics regulation of a regulated utility would be net beneficial to the State, in terms of meeting stated objectives of the Commission and other related statutory requirements;
2. Actions that the Commission may pursue to guide the change to performance-based metrics regulation;
3. Directives to be given to utilities;
4. A list of types of future litigated proceedings within which the report could be implemented;
5. A proposed timeline for transition to performance-based regulation.

The recommendations included in the report are based on extensive stakeholder engagement completed over the past year. The Commission hosted two separate stakeholder meetings and an all-day Commissioners' Information Meeting (CIM) to discuss the issues laid out in SB19-236. Each of the stakeholder meetings was attended by approximately 40-50 stakeholders. The educational CIM was attended by 96 viewers/participants including the general public and legislators. In addition, we received over 100 written comment submissions.

The Commission appreciates the opportunity to engage with stakeholders to explore performance-based regulation and, now, to communicate our findings to the General Assembly. The attached report responds to the thoughtful input and innovative ideas raised during this process.

Sincerely,

Jeffrey P. Ackermann, Chair
John C. Gavan, Commissioner
Megan M. Gilman, Commissioner

cc: Colorado Senate Transportation & Energy Committee members
Colorado House Energy & Environment Committee members

1560 Broadway, Suite 250, Denver, CO 80202 P 303.894.2000 F 303.894.2065 puc.colorado.gov

The Colorado PUC's 2020 PBR investigation recommended continued expansion of performance-based mechanisms in the state

The report recommended consideration of PIMs including for:

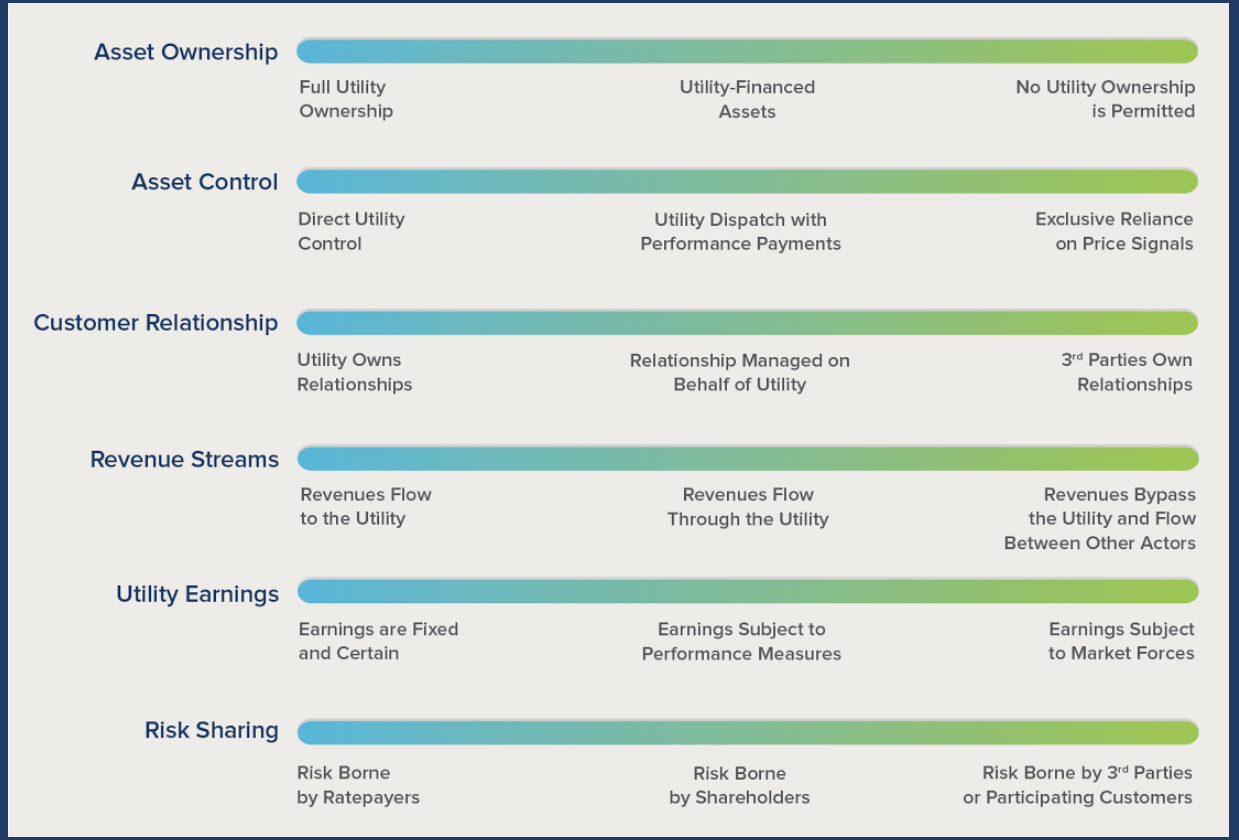
- GHG emissions, possibly exceeding reductions required by law
- Reducing/eliminating the impact of a decrease in kWh sales
- Encouraging exploration of less-capital intensive methods for addressing transmission constraints

Source: [Colorado PUC Report to the Legislature, Docket No 19M-0661EG (November 11, 2020)]

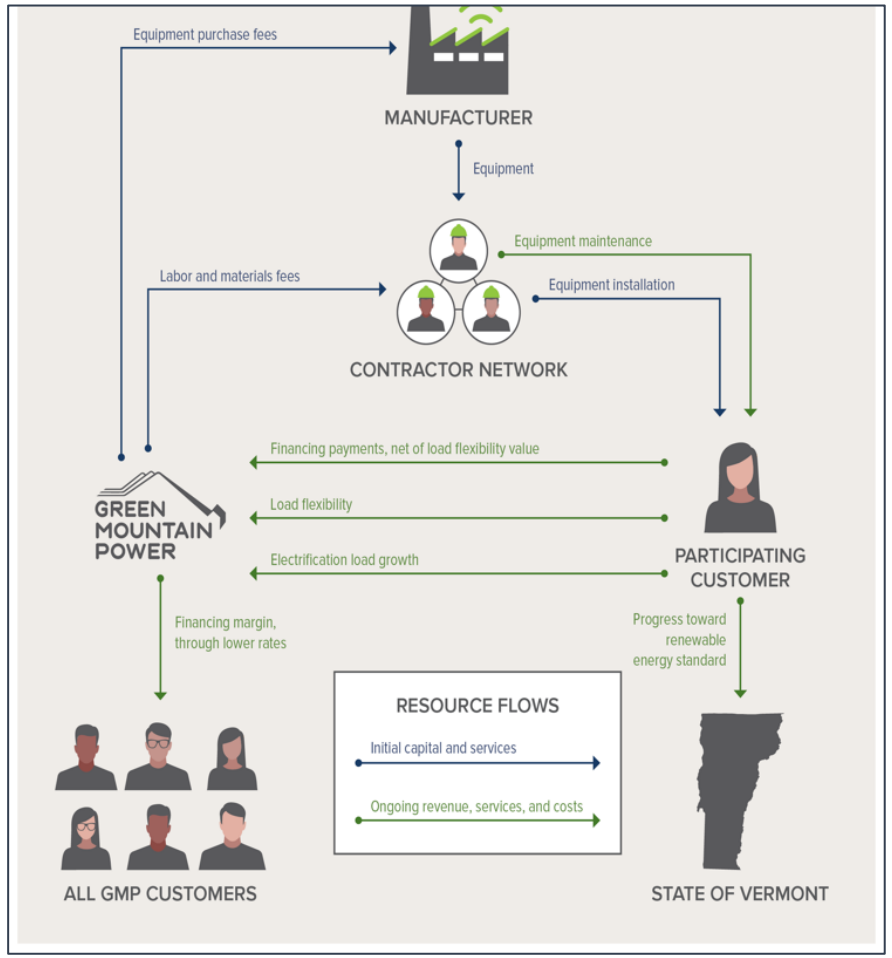
Alternative Utility Service Models

Why Modernize Utility Services?

- Energy transition requires rethinking of utility functions and service models
- Utility relationship to DERs has many dimensions beyond just ownership
- There is no single recipe for program structure; experimentation may be needed



Green Mountain Power Bring-Your-Own-Device (BYOD) Program

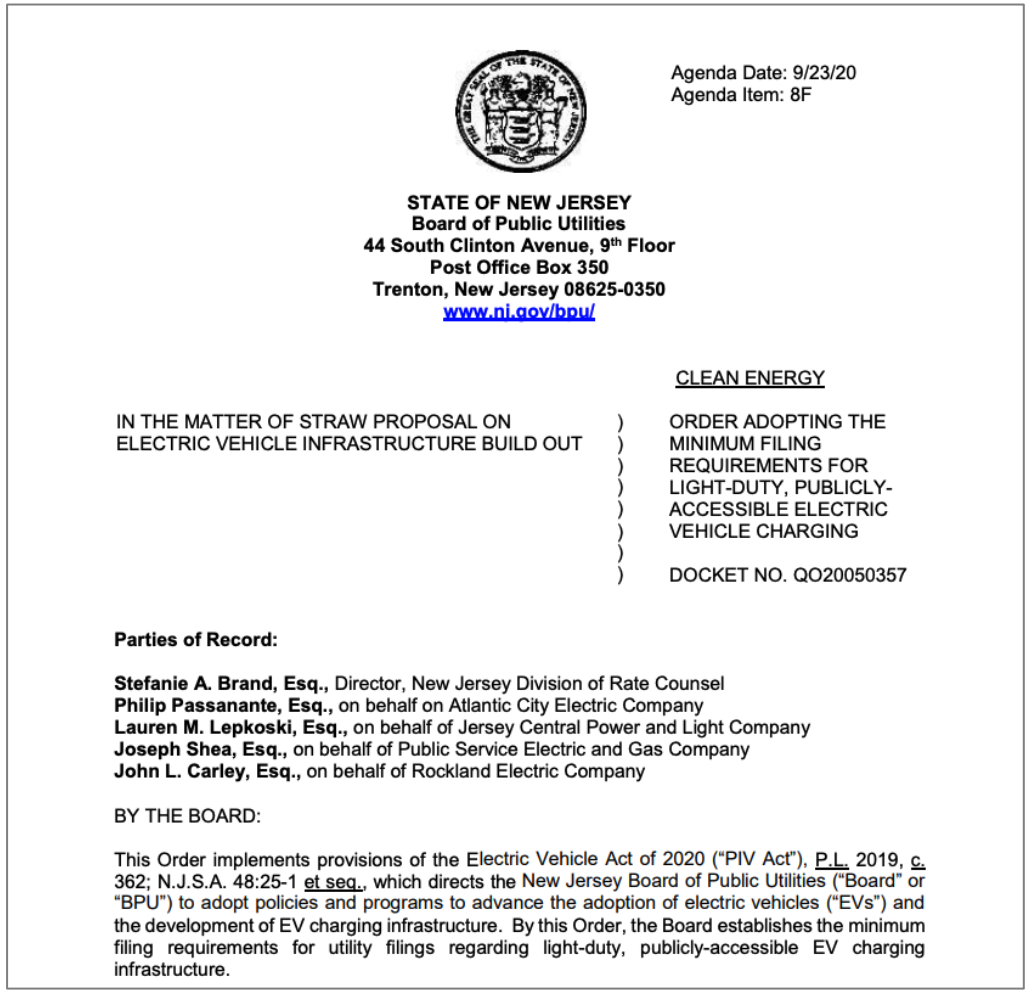


Business Model Features

- GMP procures heat pumps, using local contractors for installation, and leases equipment to participants
- *Up-front cost* of heat pump captured in GMP rate base
- *Financing payments:* from participants return to customers by offsetting some of GMP's annual revenue requirement, and are structure to return a net benefit to all customers
- *Electrification:* Equipment replaces fossil fuel systems, generating new electricity sales, which spreads fixed costs of grid, improving bill affordability
- *Load flexibility:* devices managed to shift load to most beneficial times of day can help keep bills affordable

Source: [Green Mountain Power, Bring Your Own Device Program]

New Jersey "Shared Responsibility" Model for Public EV Charging



Agenda Date: 9/23/20
Agenda Item: 8F

STATE OF NEW JERSEY
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton, New Jersey 08625-0350
www.nj.gov/bpu/

CLEAN ENERGY

IN THE MATTER OF STRAW PROPOSAL ON ELECTRIC VEHICLE INFRASTRUCTURE BUILD OUT

ORDER ADOPTING THE MINIMUM FILING REQUIREMENTS FOR LIGHT-DUTY, PUBLICLY-ACCESSIBLE ELECTRIC VEHICLE CHARGING

DOCKET NO. QO20050357

Parties of Record:

Stefanie A. Brand, Esq., Director, New Jersey Division of Rate Counsel
Philip Passanante, Esq., on behalf on Atlantic City Electric Company
Lauren M. Lepkoski, Esq., on behalf of Jersey Central Power and Light Company
Joseph Shea, Esq., on behalf of Public Service Electric and Gas Company
John L. Carley, Esq., on behalf of Rockland Electric Company

BY THE BOARD:

This Order implements provisions of the Electric Vehicle Act of 2020 ("PIV Act"), P.L. 2019, c. 362; N.J.S.A. 48:25-1 et seq., which directs the New Jersey Board of Public Utilities ("Board" or "BPU") to adopt policies and programs to advance the adoption of electric vehicles ("EVs") and the development of EV charging infrastructure. By this Order, the Board establishes the minimum filing requirements for utility filings regarding light-duty, publicly-accessible EV charging infrastructure.

Guidelines for publicly accessible, light-duty EV charging stations build-out

- Private investors responsible for installing, owning, operating, and marketing publicly accessible EV charging stations using private capital.
- Electric utilities responsible for supplying the backbone infrastructure of EV charging stations, facilitating ready-made sites, and for providing associated distribution upgrades in front of the meter
- Utilities may recover costs for making sites "charger-ready," but must demonstrate its investments were prudent.
- Utilities may apply to own and operate charging stations in "last resort" areas

Source: Order Adopting the Minimum Requirements for Light-Duty, Publicly-Accessible EV Charging, Docket No. QO20050357, (September 2020)

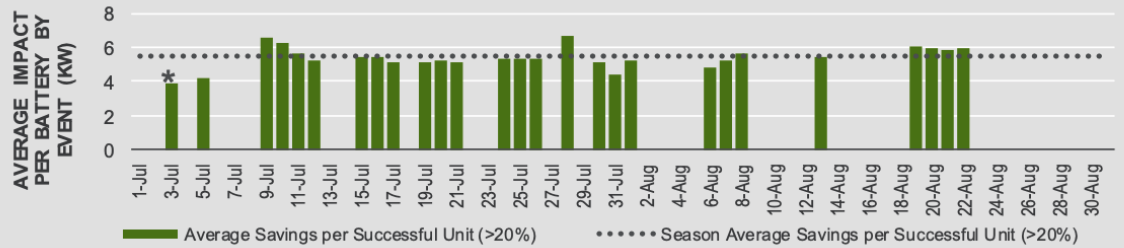
Massachusetts "ConnectedSolutions" Program Encourages Residential Storage

Demonstration Attributes		National Grid
Participants	Customer Segment	Residential
	Participating Customers, as of August 31	50[4]
	Battery Ownership	Participant owned (BYOB)
Incentives	Enrollment Incentive	No enrollment incentive
	Participation Incentive	$225/kW in summer
Summer Event Criteria	Season	July 1 to September 30
	Event Days	Non-holidays
	Event Window	2 p.m. to 7 p.m.
	Event Dispatch Criteria	Most days
	Event Duration	Max of 3 hours
	Battery Control Logic	Battery discharges evenly throughout event duration
	Battery Reserve Requirement	None or 20% (differs by manufacturer[6])

Key Components

- Program initially allowed customers to enroll pre-approved smart thermostats to provide demand response during summer peaks
- Program update rewards customers to pre-enroll batteries on a pay-for-performance basis for the average kW curtailed during summer ($225/kW) and winter dispatch ($50/kW) events.
- National Grid aims to enroll 30,000 customers in this by 2021

The program saved **139 kW** per event on average, including **126 kW** during the 2019 ISO-NE Peak Hour. Batteries that successfully participated in 2-hour events saved an average of **5.5 kW/unit**.



Source: [Navigant, 2019 Residential Energy Storage DR Demonstration Evaluation, February 10, 2020]

Conclusions

- PBR and modernized utility service models can help reduce regulatory disincentives to DER expansion and use
- Utility innovation is happening where regulators and utilities are willing to experiment
- Thinking holistically helps best balance benefits, cost, and risks
- Incremental ≠ Insubstantial
- What bold ideas will this group develop?

Questions?

MI POWER GRID

Making the Most of Michigan's Energy Future

New Technologies and Business Models
Closing Comments

Stakeholder Meeting 1

January 27, 2021

MPSC

Michigan Public Service Commission

Thank You and Please Stay Engaged!

- Thank you for your participation.
- Please stay engaged.
  - Sign up for the listserv if you have not already
    - Go to MI Power Grid New Technologies and Business Models workgroup page
    - Scroll to bottom to add email
  - Attend future meetings
    - Next Meeting on February 10 from 1 – 5 PM
    - Topic: Electric Vehicles
  - Speak at a future meeting
    - Limited slots available for stakeholder input/experiences
    - If interested, email: Joy Wang at WangJ3@Michigan.gov.

Thank you!