NASEO-NARUC GEB Working Group Roundtable and Workshop

Workshop Handout: Actions States Can Take

Material Based on NASEO-DOE Webinar - Action Steps for States: Moving Towards a Future with Demand Flexibility, Lisa Schwartz, Lawrence Berkeley National Laboratory, August 13, 2019

This is not a document for publication

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Key Actions States (and Localities) Can Take to Advance Demand Flexibility [condensed]

	Who can take action?							
	Gov. Office	PUC	SEO	Other Agencies*	City/County	Utilities	RTO/ISO	Bldg. owners**
1. Gather Information and Identify Opportunities								
• Consider how demand flexibility can support goals	●	●	●	●	●	●	●	●
• Inventory options and select opportunities for early action	●	●	●	●	●	●	●	●
• Participate in pilot projects and share best practices		●	●	●	●	●		●
2. Develop and Implement Strategies to Integrate Demand Flexibility								
• Develop a roadmap to advance demand flexibility	●	●	●	●	●	●	●	●
• Develop mechanisms to allow building owners, operators and occupants to earn compensation for providing grid services		●	●			●	●	●
• Conduct outreach and education about opportunities and benefits		●	●	●	●	●	●	●
3. Accelerate Adoption								
• Assess and remove barriers to demand flexibility in buildings providing grid services***	●	●	●	●	●	●	●	●
• Update economic valuation methods for DERs as energy assets for utility programs, plans and procurements***		●				●		●
• Establish practices for robust and cost-effective assessments of demand flexibility performance***		●	●	●	●	●	●	●
• Regularly assess and report on progress	●	●	●	●	●	●	●	●

**For example, state departments or agencies responsible for general services, building codes, environment, economic development, transportation, and financing authorities*

***Best opportunities for owners and operators of privately owned buildings to support state and local activities*

****Subject of forthcoming SEE Action reports.*

Source: Derived and modified from Lisa Schwartz, Lawrence Berkeley National Laboratory, NASEO-DOE Webinar - Action Steps for States: Moving Towards a Future with Demand Flexibility, August 13, 2019

Key Actions States (and Localities) Can Take to Advance Demand Flexibility

	Who can take action?							
	Gov. Office	PUC	SEO	Other Agencies*	City/County	Utilities	RTO/ISO	Bldg. owners**
1. Gather Information and Identify Opportunities								
Consider how demand flexibility can support goals								
• Catalog ways demand flexibility can help achieve energy-related goals (e.g., resilience and reliability, energy affordability, emissions, energy efficiency, integrating variable renewable generation, electrification, energy security, grid modernization) and other aims (e.g., economic development, critical infrastructure)	●	●	●	●	●	●	●	●
• Establish team to consider how demand flexibility can contribute to achieving these goals	●	●	●	●	●	●	●	●
Inventory options and select opportunities for early action								
• Catalog existing pilots, standards, programs, procurements, policies and regulations that address demand flexibility		●	●	●	●	●	●	●
• Consider ways to further integrate demand flexibility (e.g., lead by example, building operator training, energy savings performance contracting, benchmarking and transparency, DER incentives, smart cities, performance standards for existing buildings, state building energy codes and appliance standards)	●	●	●	●	●	●	●	●
• Identify planning processes that can address demand flexibility goals (e.g., integrated resource planning, efficiency and other DER planning, planning for distribution systems, transmission expansion, grid modernization, transportation electrification, resilience, energy security) and initial integration steps		●	●	●	●	●		
• Identify DER requirements that may need updating to enable demand flexibility (e.g., revising energy efficiency resource standards to also target peak demand savings, modernizing demand response requirements, requirements for participating in electricity markets)	●	●	●	●	●	●	●	
Participate in pilot projects and share best practices								
• Identify opportunities to collaborate on test beds for individual buildings, campuses, and commercial developments to gain experience, validate demand flexibility performance, and demonstrate value to the utility system and building owners and operators		●	●	●	●	●		●
• Conduct pilots for public buildings and campuses to test demand flexibility technologies and microgrids		●	●	●	●	●		●
• Test approaches for hard to reach audiences, including low-income households and small and medium commercial buildings		●	●	●	●	●		●
• Share results across the jurisdiction and in regional and national forums		●	●	●	●	●		●

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	Gov. Office	PUC	SEO	Other Agencies	City/County	Utilities	RTO/ISO	Bldg. owners
2. Develop and Implement Strategies to Integrate Demand Flexibility								
Develop a roadmap to advance demand flexibility								
• Engage key stakeholders (e.g., third-party program administrators, DER service providers, DER aggregators, contractors, consumer representatives, trade associations for building owners and operators, energy service companies) and use public meetings to discuss strategies	●	●	●	●	●	●	●	●
• Establish principles (e.g., related to cost-effectiveness, consumer and utility system benefits, equity, resilience)	●	●	●	●	●	●		
• Create a comprehensive and collaborative approach with steps to advance demand flexibility through programs, planning processes, standards, policies and regulations (e.g., through a Governor's executive order, MOU across agencies, multistate partnership)	●	●	●	●	●	●	●	
• Estimate benefits and costs to determine cost-effective achievable potential of demand flexibility for residential and commercial buildings and best opportunities for action		●	●	●	●	●	●	●
• Make a public commitment toward achieving this potential with specific multiyear targets	●	●	●	●	●	●		
• Develop interim and long-term metrics for measuring progress	●	●	●	●	●	●	●	
• Update roadmap on a regular schedule (e.g., every three years)	●	●	●	●	●	●	●	●
Develop mechanisms to allow building owners, operators and occupants to earn compensation for providing grid services								
• Establish multiyear funding assurances for utility programs. Establish payment methods for DER aggregators and customers		●				●		●
• Consider performance-based incentives for utilities to encourage use of buildings as energy assets toward meeting generation and delivery needs		●				●		●
• Review retail electric rates for embedded incentives and disincentives for demand flexibility in residential and commercial buildings		●				●		●
• Work across states to encourage wholesale electricity markets to enable buildings to provide a broader suite of grid services by updating participation requirements and compensation methods		●	●				●	●
Conduct outreach and education about opportunities and benefits								
• Partner with utilities, utility consumer groups, energy services companies, DER aggregators, building owner and management organizations, trade associations, and other stakeholders to develop and disseminate educational materials		●	●	●	●	●	●	●
• Create user-friendly, online resources such as how-to guides and establish online forums that answer common questions			●	●	●	●	●	●
• Organize webinars and in-person trainings with utilities and stakeholder groups			●	●	●	●	●	●

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3. Accelerate Adoption								
Assess and remove barriers to demand flexibility in buildings providing grid services*								
• Identify technical barriers (e.g., requisite building technologies and utility systems, cybersecurity, lack of integrated design and system approaches)		●	●	●	●	●	●	●
• Identify financial barriers (e.g., cost-effectiveness, inadequate compensation through utilities or markets, upfront cost)	●	●	●	●	●	●	●	●
• Identify regulatory, market and other institutional barriers (e.g., restrictions on DER aggregation and participation, lack of compensation mechanisms, data access provisions and data privacy concerns, siloed DER programs, procurement provisions)	●	●	●	●	●	●	●	●
• Identify other barriers (e.g., split incentives for building owners and tenants, lack of motivation and energy focus for building operators, workforce training needs)	●	●	●	●	●	●	●	●
• Determine which barriers are critical to address and prioritize / develop strategies to overcome them	●	●	●	●	●	●	●	●
Update economic valuation methods for DERs								
• Update economic valuation methods for DERs (e.g., as energy assets, providing grid services, reducing capacity needs) in utility programs, plans and procurements*		●				●		●
Establish practices for assessments of performance								
• Establish practices for robust and cost-effective assessments of demand flexibility performance*		●	●	●	●	●	●	●
Assess and report on progress								
• Regularly assess and report on progress	●	●	●	●	●	●	●	●
• Track and report to stakeholders annually on metrics identified in the roadmap		●	●	●	●	●	●	
• Identify new opportunities to improve demand flexibility implementation and performance and update the roadmap		●	●	●	●	●	●	●
• Use a variety of channels to share information, such as presentations at established events, social media, and online dashboards and maps		●	●	●	●	●	●	●
• Provide recognition for building owners and operators, government agencies, utilities and regional grid operators for outstanding projects and programs that advance demand flexibility	●	●	●	●	●	●	●	●

**For example, state departments or agencies responsible for general services, building codes, environment, economic development, transportation, and financing authorities*

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Potential Demand Flexibility Barriers

Technical, economic, achievable potential not characterized (e.g., by market sector, operating mode, grid services provided)
Consumer value proposition not well-known
Rate design, program incentives, market compensation mechanisms may not be aligned for demand flexibility (e.g., inadequate inclusion of time and locational value)
Disincentives, lack of financial motivation for utilities to use buildings as energy assets
Building energy rating, labeling, targets, performance policies and programs, etc. based on total energy and/or energy use intensity (EUI), not on demand flexibility
Insufficient metrics, tools to evaluate building demand flexibility performance
Benefit-cost analysis methods for grid modernization investments (e.g., AMI, advanced distribution management systems, DER management systems) inadequate
Insufficient integration of demand flexibility programs in utility, state, jurisdiction (e.g., EE, DR, RE, storage programs uncoordinated)
Lack of coordination between utilities and RTOs/ISOs (e.g., double-counting potential and conflicting rules, roles and responsibilities)
Constraints on third-party aggregation of DERs
Enhancements needed to economic valuation methods for planning and analysis
Data access provisions and data privacy concerns
Interoperability hurdles for software and equipment
Barriers to entry for DERs to compete in organized wholesale markets for energy, capacity and ancillary services, even if DERs can meet grid service requirements
Demand flexibility poorly or not recognized in distribution system planning, resource planning, transmission planning, energy efficiency, and other utility planning processes
DER-specific issues:
Storage – Unmonetized value streams; may not be recognized as offering multiple grid services; utility ownership restrictions; market v. rate-based service; duration and cycling requirements
Distributed generation – Interconnection standards and procedures; standby rates; compensation; treatment in state resource standards and organized wholesale markets; facility owner unfamiliarity
Demand response – Lack of defined need; valuation and pricing; dispatchability; AMI not deployed
Energy efficiency – split incentives (e.g., landlord-tenant, builder-owner); upfront costs; payback period and owner tenure; information gaps; savings calculation methodologies

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Some Opportunities to Overcome Barriers

- **Studies** — e.g., consumer preferences, cost-effective achievable potential
- **Pilots** — e.g., test new rate and program designs, develop performance data
- **Enhanced analytical methods and practices** — e.g., for valuation, performance assessment, labelling/ratings
- **State and public facilities** – e.g., lead-by-example building standards and procurement, resiliency and public purpose microgrids valuation and integration
- **Model standards** — e.g., for data access and privacy; interoperability
- **Programs for residential and commercial buildings** — e.g., programs and incentives to pilot or implement grid-interactive functionality; incentives for grid-interactive building management systems
- **Financial incentives for utilities** — e.g., performance incentive mechanisms; shared savings; multiyear rate plans (performance-based regulation)
- **Energy and electricity system planning** – e.g., include demand flexibility, flexibility in distribution system planning; integrate distribution, resource, and transmission planning; include demand flexibility in state energy plans
- **Building energy codes** – e.g., "GEB-ready," time dependent valuation in cost-effectiveness, load management provisions
- **Appliance standards** – e.g., grid-interactive features, time dependent valuation of cost-effectiveness
- **Zoning** – e.g., land use incentives and concessions for grid-interactive developments to reduce distribution system stresses and investment needs
- **Voluntary programs, certifications, and labels** — e.g., building and products certifications and labels (LEED, ENERGY STAR, etc.) consideration of grid-interactive features and functionality
- **Governor's executive orders** — e.g., start new programs, coordinate across state agencies, set targets
- **PUC proceedings** — e.g., rate design updates, utility financial incentives, grid-service markets, regulatory "sandboxes", funds for innovation and pilot projects
- **State legislative action** — e.g., remove barriers to third-party aggregation while preserving consumer protection, mandate data access for consumers and their designated third parties, establish electricity system and environmental policies (such as "clean peaks"), authorize supportive State Energy Office and PUC actions

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