

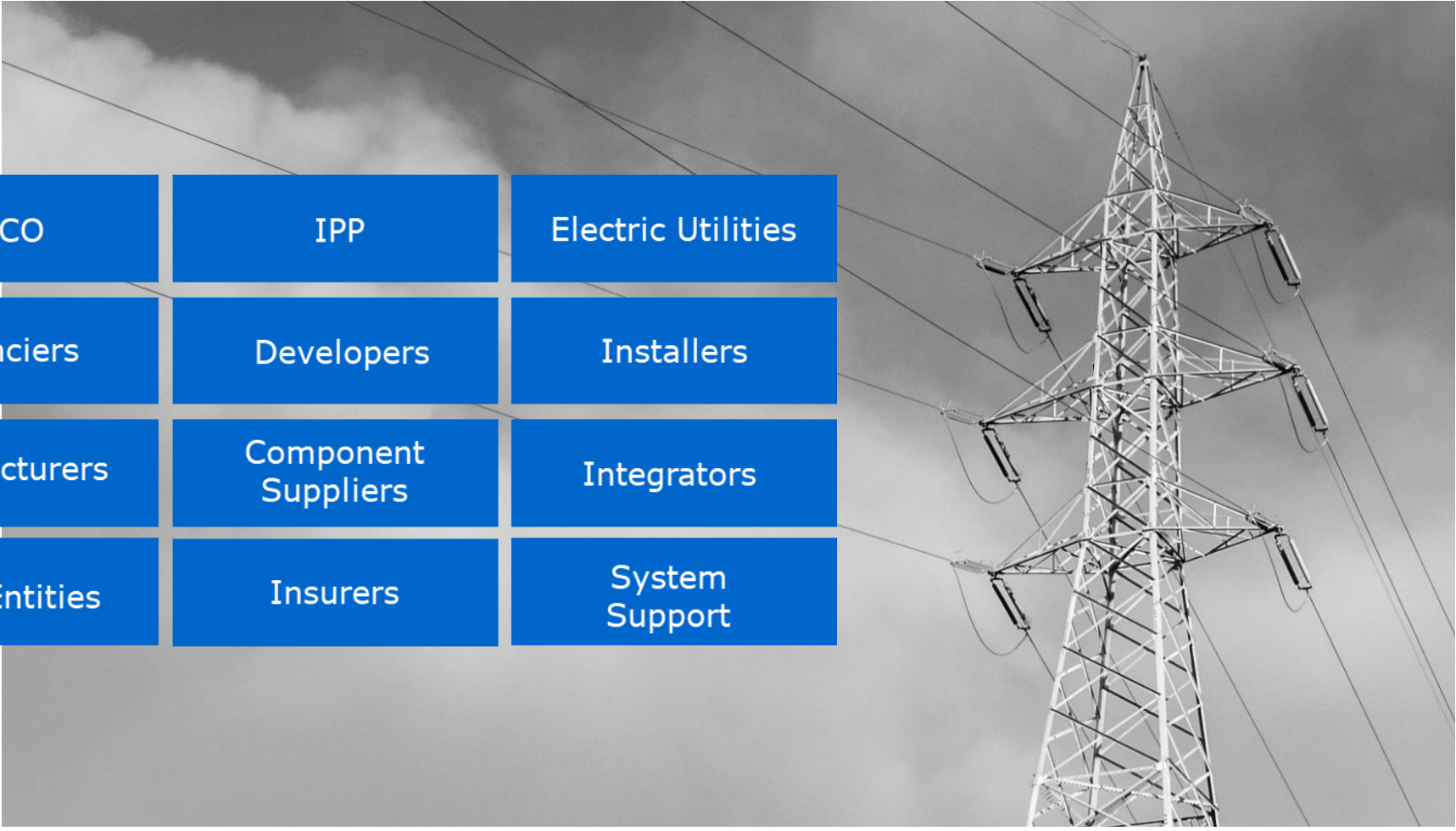


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Policies & Regulations that Influence the Viability of Energy Storage

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State Policy Director
MADRI Meeting, July 18, 2019
www.energystorage.org

About the ESA



ESCO	IPP	Electric Utilities
Financiers	Developers	Installers
Manufacturers	Component Suppliers	Integrators
Legal Entities	Insurers	System Support



Barriers to Energy Storage

- Inaccurate assumptions about **costs** and **applications**
- Not considered in **utility planning** and wholesale markets (distribution, transmission, energy, capacity)
- Unable to provide services and capture revenues for values they are or can provide
- One asset cannot be used for ***multiple applications***
- Lack of **regulatory clarity** (especially around ownership and competition)
- Burdensome interconnection process

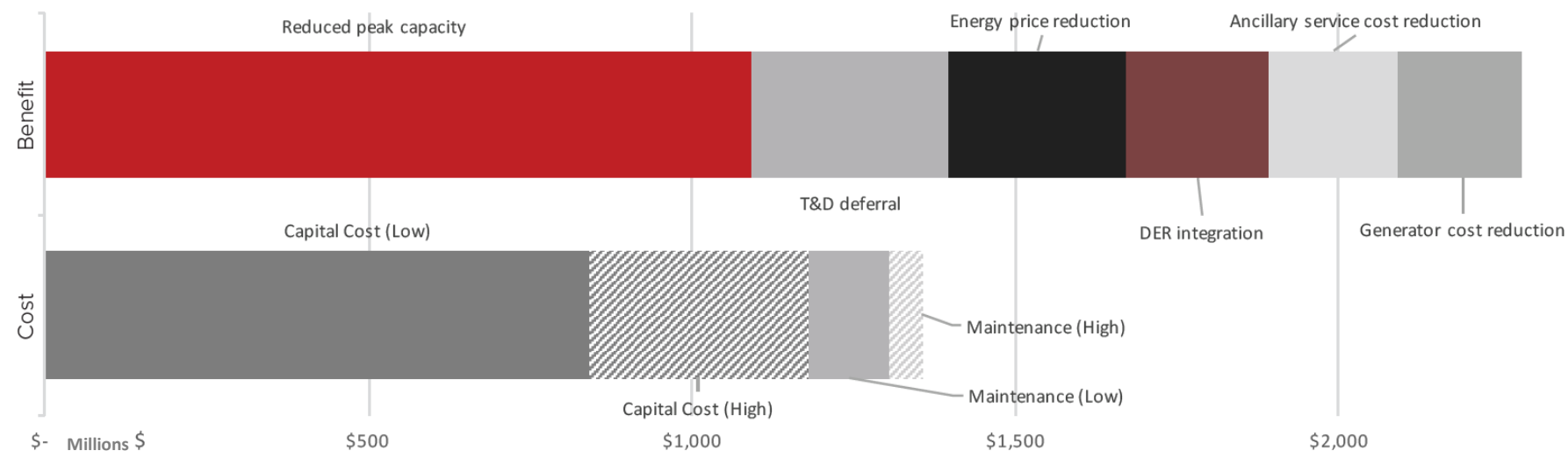


Storage Cost-Benefit Studies

- States are commissioning cost-benefit study to determine the state-specific **value** of various storage deployment scenarios
- Robust **modeling** is key to a successful study
- These studies have supported state action to set storage **targets**

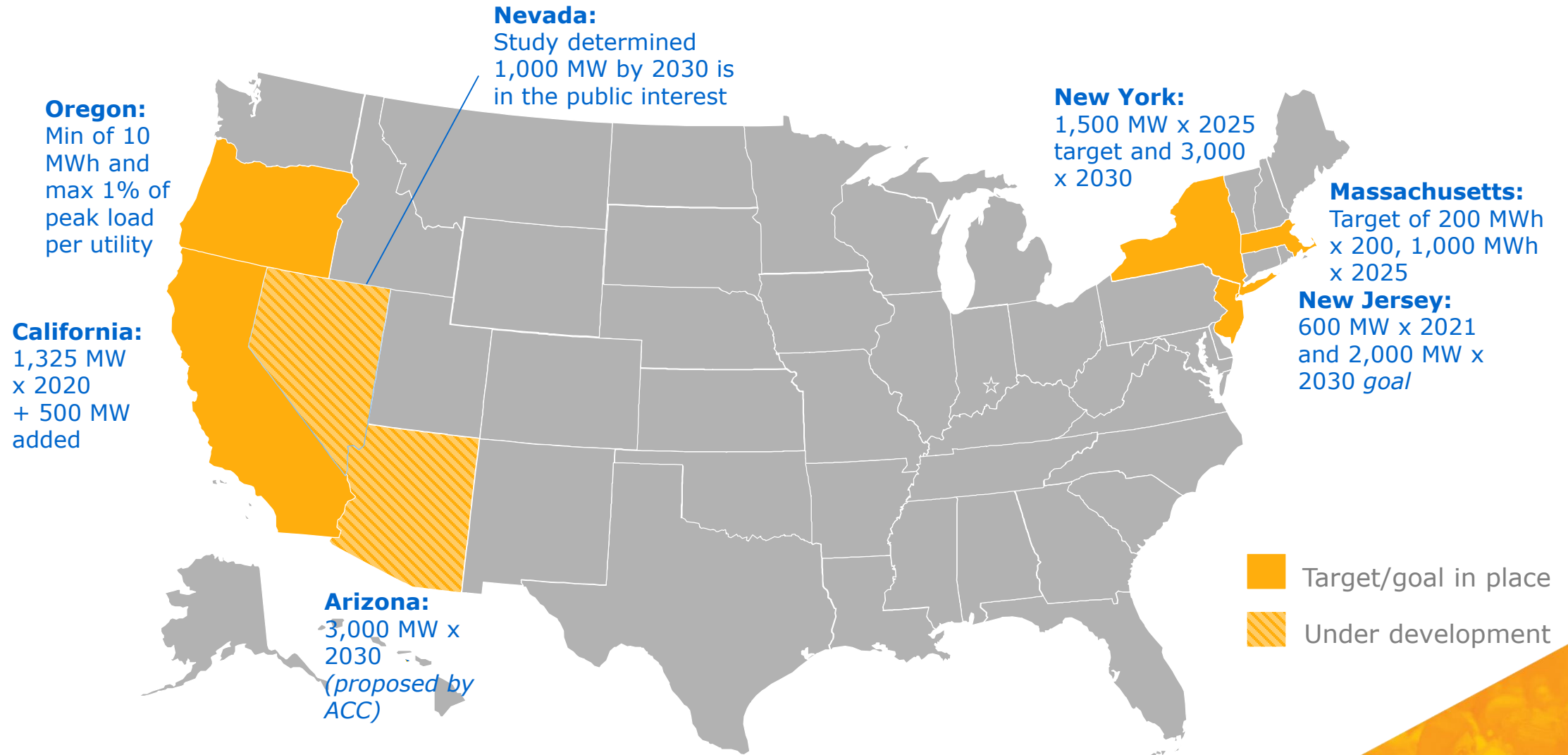
State	Driven By	Funding	Modeling	Year Completed
MA	Governor	\$350,000	Distribution & bulk	2016
NY	Governor	N/A	Distribution & bulk	2018
NV	Legislature	\$250,000	Distribution & bulk	2018
MD	Legislature	\$125,000	No modeling	2018
NC	Legislature	\$220,000 (matching)	Distribution & bulk	2018
VA	Legislature/Governor	\$100,000	Distribution & bulk	2019
NJ	Legislature	\$300,000	Only looks at end uses	2019
CO	Office of Energy	~\$150,000	TBD	Est. 6/2019
MN	Legislation	\$150,000	TBD	Est. 12/2019

What Value Does Storage Provide?



SOURCE: MA DOER *State of Charge* Report, 2016. Note: Graph recreated by IREC from original “State of Charge” report.

Storage Targets/Goals



States + Utilities Incorporate Storage in IRPs

Washington:

Policy Statement and draft regulations call for sub-hourly modeling and mechanism to value flexibility

Colorado:

HB 18-1270/PUC updated all rules to consider storage procurement

Minnesota:

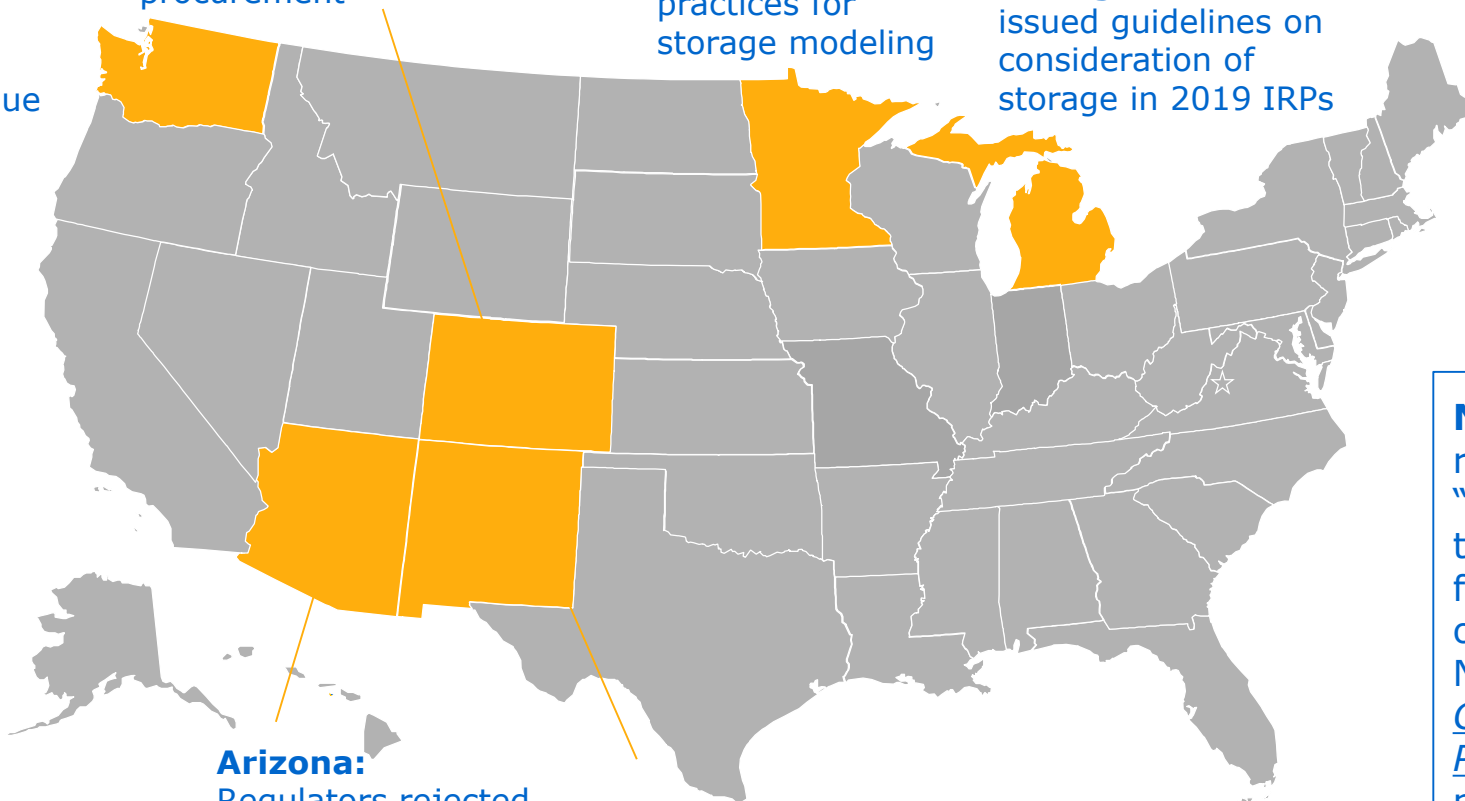
2019 legislation requires IRPs to include best practices for storage modeling

Michigan:

PSC issued guidelines on consideration of storage in 2019 IRPs

IRPs in 32 states

~4,500 MW of storage proposed by utilities in IRPs



Arizona:

Regulators rejected utility IRPs, called for evaluation of storage, gas moratorium

New Mexico:

Revised IRP rules require consideration of energy storage

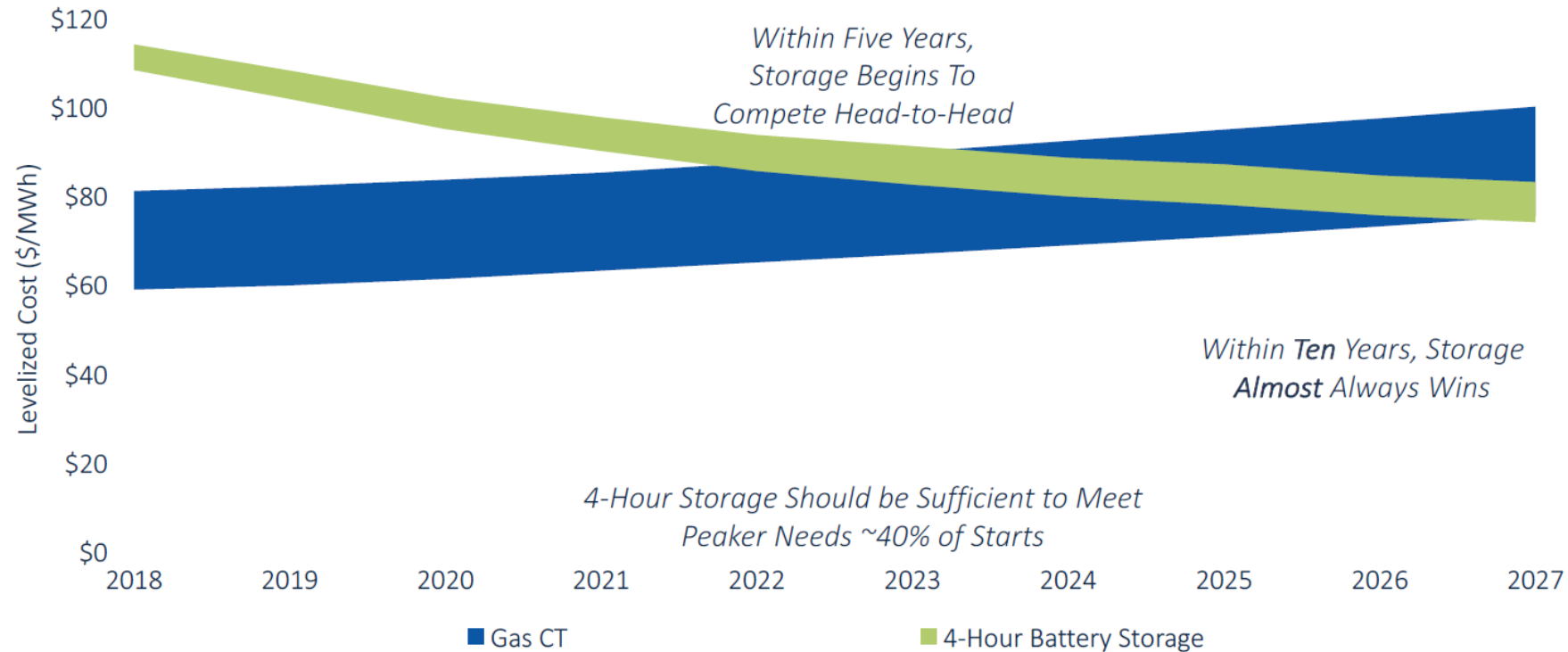
NARUC: A November 2018 resolution calls for modeling “the full spectrum of services that energy storage and flexible resources are capable of providing.” The NARUC/NASEO Task Force for Comprehensive Electricity Planning is a two-year project, working with 16 states.

<https://www.naruc.org/taskforce/>



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Battery Storage vs. Gas Peakers



Source: GTM Research, Wood Mackenzie



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Behind-the-Meter Programs

California:
SGIP program
rebate for BTM
storage; NWA
solicitations

Nevada:
\$10M for systems up
to 1 MW (*terminated*)

New York:
Adder for PV with
storage; rebate
incentive for storage
<5MW; VDER rate
design reform;
NWAs program

**New Hampshire &
Vermont:** Bring Your
Own Device pilots for
GMP and Liberty
customers (*Eversource
proposal pending*)

Massachusetts:
SMART adder for PV
systems with storage;
storage program for 3-
year EE plans

New Jersey:
Renewable Storage
Incentive program
(*terminated*)

Maryland:
Tax incentive
(\$750,000 per year
for five years) for BTM
storage



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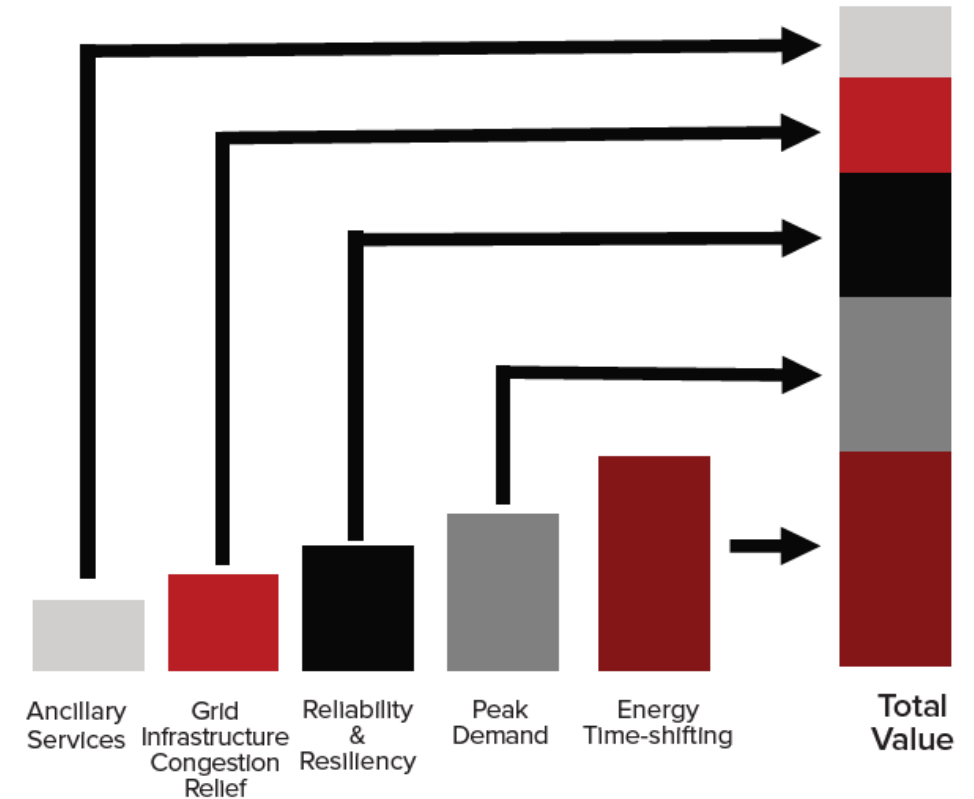
Multiple Use Frameworks

Key for economics and benefit to ratepayers is for the same storage asset to be able to provide multiple applications

- Same asset providing multiple benefits → best bang for the ratepayer buck
- More revenue streams → better economics, more systems

States have begun exploring ways to break down the barriers through multiple use application working groups and pilots

- New York working group
- California working group
- Maryland HB 650 storage pilot



Distribution Interconnection

Why does distribution interconnection matter?

- Even the best storage targets or incentive program won't result in deployment if storage cannot interconnect

Key issues for interconnection of storage

- Capturing realistic behavior profile of the system
 - Otherwise long study timelines and expensive upgrade costs
-
- *Commissions in **California, Hawaii, New York, Nevada and Arizona** have updated their rules to reflect energy storage*
 - ***Maryland, Minnesota, North Carolina, Colorado and Michigan** are considering storage specific modifications*



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