What is Energy Storage?

Energy storage enables us to capture energy when it’s abundant, store it, and put it back into the power grid when it’s needed.

- Battery (electrochemical)
- Pumped-Hydro
- Thermal
- Other Mechanical
- Power to Hydrogen
Since 2010 over 90% of annual additions of large-scale battery storage in the U.S. power sector have been lithium-ion.
Rapid Growth in the Energy Storage Industry

Energy Storage Deployments Increased 1,263% between 2016 and 2021

Source: ACP 2021 Market Report
Where is Battery Energy Storage Deployed?

Source: ACP 2021 Market Report

<table>
<thead>
<tr>
<th>Ranking</th>
<th>State</th>
<th>Battery Storage (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>California</td>
<td>2,277</td>
</tr>
<tr>
<td>2</td>
<td>Texas</td>
<td>832</td>
</tr>
<tr>
<td>3</td>
<td>Florida</td>
<td>453</td>
</tr>
<tr>
<td>4</td>
<td>Massachusetts</td>
<td>149</td>
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<tr>
<td>5</td>
<td>Illinois</td>
<td>134</td>
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<td>6</td>
<td>Arizona</td>
<td>107</td>
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<tr>
<td>7</td>
<td>Alaska</td>
<td>92</td>
</tr>
<tr>
<td>8</td>
<td>Hawaii</td>
<td>79</td>
</tr>
<tr>
<td>9</td>
<td>West Virginia</td>
<td>67</td>
</tr>
<tr>
<td>10</td>
<td>New York</td>
<td>66</td>
</tr>
<tr>
<td>11</td>
<td>Maine</td>
<td>64</td>
</tr>
<tr>
<td>12</td>
<td>New Jersey</td>
<td>62</td>
</tr>
<tr>
<td>13</td>
<td>Georgia</td>
<td>42</td>
</tr>
<tr>
<td>14</td>
<td>Indiana</td>
<td>38</td>
</tr>
<tr>
<td>15</td>
<td>Nevada</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Rest of U.S.</td>
<td>239</td>
</tr>
</tbody>
</table>

Source: ACP 2021 Market Report
BENEFITS OF ENERGY STORAGE

Enhancing reliability, reducing costs, and increasing grid resilience.

- Minimizing Power Outages
- Reducing Consumer Costs
- Enabling a More Flexible, Resilient Grid
- Accelerating Decarbonization
- Boosting Local Economies
What can Legislators do to Support Energy Storage?

1. Deployment Targets
2. Incentives
3. System Planning Reform
4. Permitting Reform
DEPLOYMENT TARGETS

- **California**: 1,325 MW x 2020
- **Oregon**: Min of 10 MWh and max 1% of peak load
- **Nevada**: 1,000 MW x 2030
- **New York**: 1,500 MW x 2025; 6,000 MW x 2030 (3 GW on books)
- **Maine**: 300 MW x 2025; 400 MW x 2030
- **Massachusetts**: 200 MWh x 2020; 1,000 MWh x 2025
- **Connecticut**: 1,000 MW x 2030
- **New Jersey**: 600 MW x 2021; 2,000 MW x 2030
- **Virginia**: 3,100 MW x 2035

[Diagram showing deployment targets across the United States]
INCENTIVE PROGRAMS

Oregon: $2MM solar+storage program

California: Self-Generation Incentive Program ($800MM)

Nevada: $10MM solar+storage program

New York: Bridge Incentive Program ($280MM) + NY-Sun program ($40MM)

Current Federal: Storage paired with solar eligible for investment tax credit

Massachusetts: Clean Peak Standard; SMART incentive program for solar+storage

Connecticut: Storage grid services program

Maryland: Onsite storage tax credit ($3MM)

AMERICAN CLEAN POWER
SYSTEM PLANNING REFORM

**Washington:** Policy Statement and draft regs call for sub-hourly modeling and mechanism to value flexibility
Docket U-161024

**Colorado:** PUC updated all planning rules to consider storage procurement
Docket 18R-0623E, Decision C18-1124

**Minnesota:** Legislation requires IRPs to include storage modeling best practices
HF 2

**Michigan:** PSC issued guidelines considering storage in 2019 IRPs
Cases U-15896, 18461, 18418

32 states have planning requirements
Over 22,000 MW selected to date

**Arizona:** Regulators rejected utility IRPs, called for evaluation of storage, gas moratorium
Case E-00000V-15-0094, Decision 76632

**New Mexico:** Revised IRP rules require consideration of energy storage
Case 17-00022-UT

NARUC & NASEO
Resolution (2018, EL-4/ERE-1) calls for modeling “the full spectrum of services that energy storage and flexible resources are capable of providing.”

State with target + IRP requirement
PERMITTING REFORM

1. Streamline energy storage permitting at existing generation facilities

2. Expedite permitting on brownfield sites

3. Create more certainty by including storage in statewide siting standards
What can Legislators do to Support Energy Storage?

1. Deployment Targets
2. Incentives
3. System Planning Reform
4. Permitting Reform
Thank you.

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