

The Hill Perspective on Grid Energy Storage



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What is our Overarching Policy Goal?

To optimize and improve the flexibility of the grid in order to meet our energy and climate goals

Adding Energy Storage to the grid:

(1) Allows for increased penetration of intermittent renewable energy generation without major disruption to existing base load generation assets.

(2) Decouples variable demand from constant or intermittent generation for all generation assets.

(3) Increases grid reliability and power quality.

(4) Adds flexibility to the transmission and distribution upgrade process

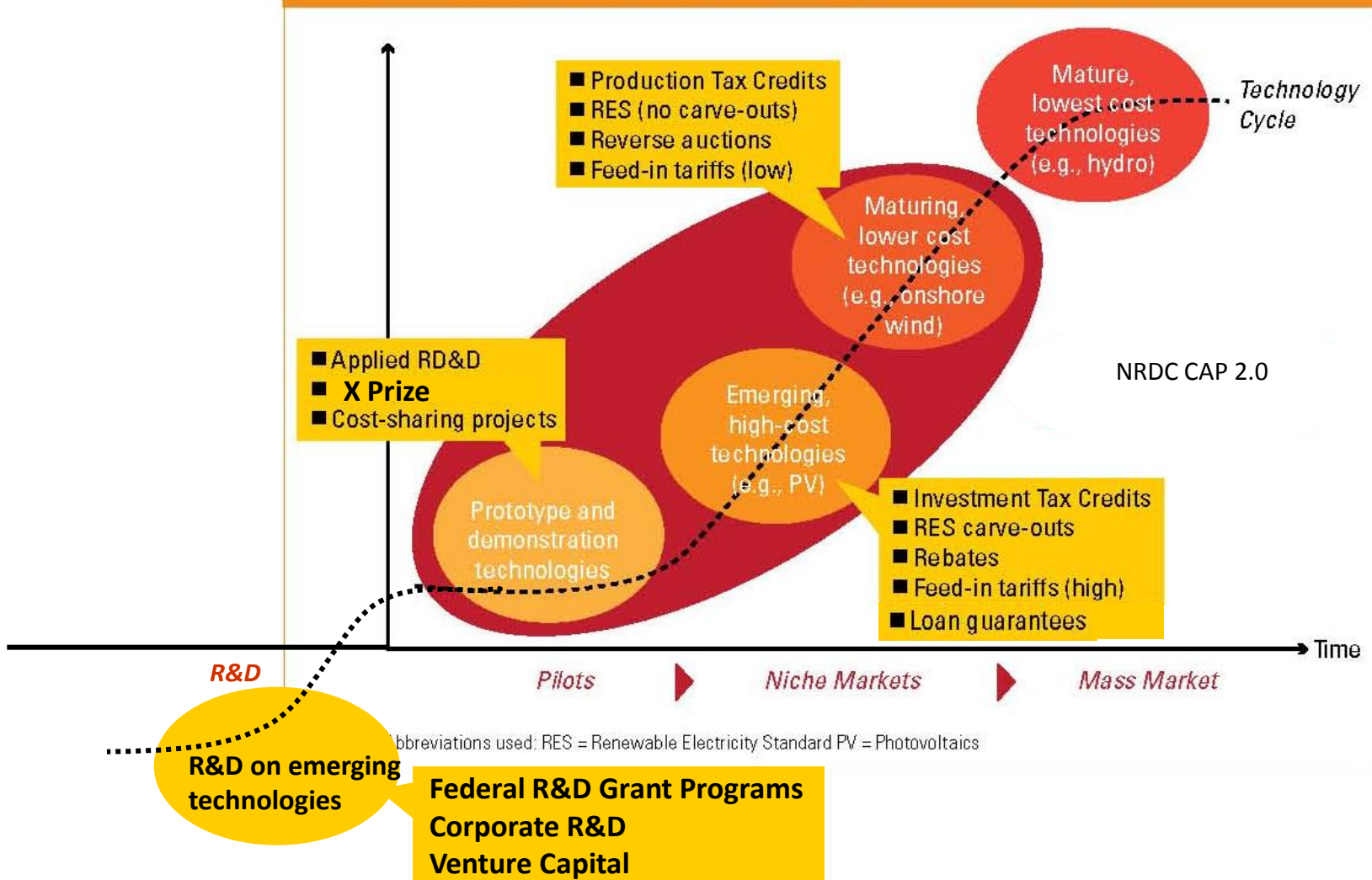
Storage Goal: Reliable Energy Storage Technologies that are Economically Viable for Widespread Deployment

3 Distinct Categories for Federal Policy

1. Technology – Drive Down Costs and improve performance through RD&D
2. Market Development
3. Regulatory Framework: Enable the full capture of value that Storage provides
 1. Transmission
 2. Distribution

Goal: Reliable Energy Storage Technologies that are Economically Viable for Widespread Deployment

Figure 1: Using Deployment Incentives Through the Technology Cycle ¹



Legislative Support to Date for Grid Energy Storage

EPACT 05—energy storage designated as an advanced transmission technology and directed FERC to encourage these new, advanced technologies. (we have seen this happen recently in the western grid storage project which was granted rate incentives).

Direct the Secretary to establish a comprehensive RD&D program to ensure the reliability, efficiency, and environmental integrity of T&D systems, which include ... energy storage technologies.

EISA 2007—Established the Energy Storage Advisory Council (Electricity Advisory Committee) and requires the Council to develop a five- year plan not later than December 18, 2009 (Bottling Electricity: Storage as a Strategic Tool for Managing Variability and Capacity Concerns in the Modern Grid). It evaluates the applications, regulatory implications, and barriers to implement energy storage technologies

Directs DOE conduct a Cost-shared RD&D program to support the ability of the Nation to remain globally competitive in energy storage systems for electric drive vehicles, stationary applications, and electricity transmission and distribution.

ARRA--American Recovery and Reinvestment Act of 2009 added or expanded funding and incentives for electricity storage.

\$300M for ARPA-E (several energy storage projects have been funded), \$4.5 billion to Smart Grid (\$185 M for grid energy storage projects),

\$2.3 Billion for the Clean Energy Manufacturing Tax Credit (Electric grids and storage for renewables—ex: ZBB \$14.7M).

Creates a new Section 1705 to the DOE's Innovative Technology Loan Guarantee Program for certain renewable energy projects and transmission projects.

ACELA (S. 1462)

Peak demand reduction and load shifting goal which would be met through the “widespread implementation” of several demand response technologies including dynamic pricing, smart grid technology, distributed generation, and electricity storage

Establishes a national interstate transmission siting policy-and requires that plans for development and improvement of high-priority national transmission projects take into consideration existing and potential energy storage (among other smart grid investments) as a factor.

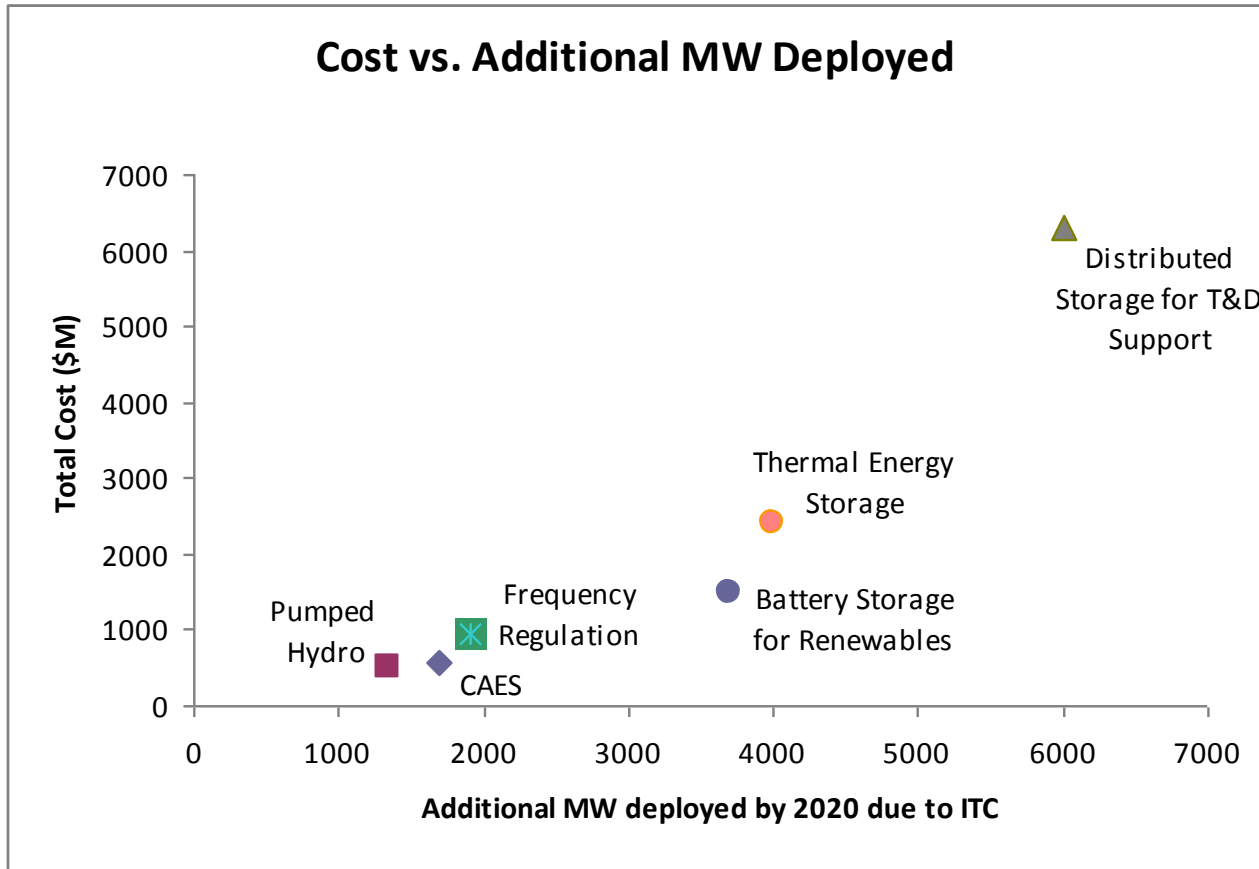
STORAGE Act, S. 1091

“Storage Technology of Renewable and Green Energy Act of 2009”
Introduced by Sen. Wyden and referred to the Finance Committee

The STORAGE Act would amend the tax code to create incentives for energy storage deployment. These incentives include:

- A **20% business investment tax credit for investments in large energy storage systems** which is designed to receive, store, convert and deliver stored power for sale, and have a minimum output capacity of 500kW during a 4hr delivery period.
(Technologies include pumped hydro, CAES, flywheels, and large arrays of fuel cell and batteries)
- A **30% business investment tax credit for investments in energy storage systems located at the consumer site**, and used primarily to store and deliver renewable energy generated onsite which is used to reduce onsite peak power demand. These can be small systems: the minimum required output is 5kW during a 4hr delivery period.
- A **30% residential tax credit for an energy storage system installed in a home**, and used primarily to store and deliver renewable energy generated onsite which is used to reduce onsite peak power demand. No minimum size requirements are specified.

Impact of the STORAGE Act on Deployment



Original Data from DOE and KEMA