



KEMA Summary of ESA Storage Jobs Report



Prepared by: KEMA, Inc.

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Executive Summary

Project Summary:

The Electricity Storage Association (www.electricitystorage.org) engaged energy consulting firm KEMA Inc. (www.kema.com) to evaluate and develop potential job creation estimates associated with energy storage legislation pending in Congress. The analysis first quantified the market size of key energy storage application areas and created an energy storage penetration model to examine the yearly megawatt (MW) market size based on the economic payback period. The analysis then assessed how the proposed incentives would increase market penetration for each application area. Incremental job creation was estimated based on the increased market penetration and associated sales revenue generated by the incentives.

Key Points of KEMA Analysis:

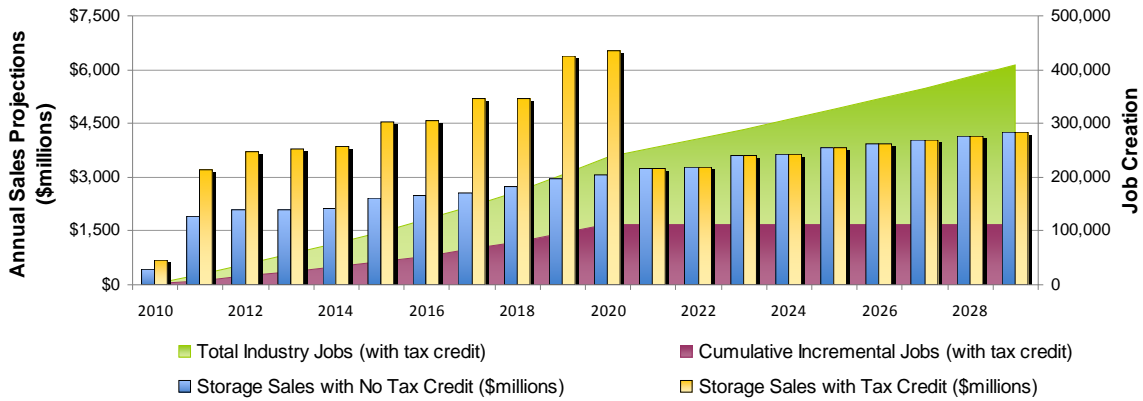
114,000 Incremental Jobs Created by 2020. KEMA's analysis projected approximately 114,000 incremental jobs would be created by 2020, a ten-year period, if investors received the proposed investment tax credit currently being debated in Congress. This analysis investigated the incentives from the STORAGE Act of 2009 (S. 1091), which includes a 20% energy investment credit for grid-connected energy storage and a 30% energy investment credit for onsite energy storage through 2020. The analysis predicted only the number of direct jobs created by the incentive and not the number of jobs created in the supply chain.

Figure 1 shows the projected annual storage sales revenue with and without a tax incentive along with the total and incremental jobs created by the incentive over a 20-year time horizon. For the duration of the tax incentive, the penetration of storage increases, which drives the increase in sales revenues and incremental job creation. Though energy storage is expected to be an integral component of our future electricity system, the legislation accelerates penetration and thus the creation of jobs that will accompany the development of the energy storage industry in the United States.

In the study, storage markets were broken down into five major areas defined as:

- (a) Ancillary Services or Frequency Regulation / Spinning Reserve,
- (b) Renewable Energy Integration,
- (c) Community Energy Storage (CES), for High & Medium potential cases,
- (d) Onsite Storage Application for the Commercial & Industrial Sectors, and
- (e) Onsite Storage Application for the Residential Sector

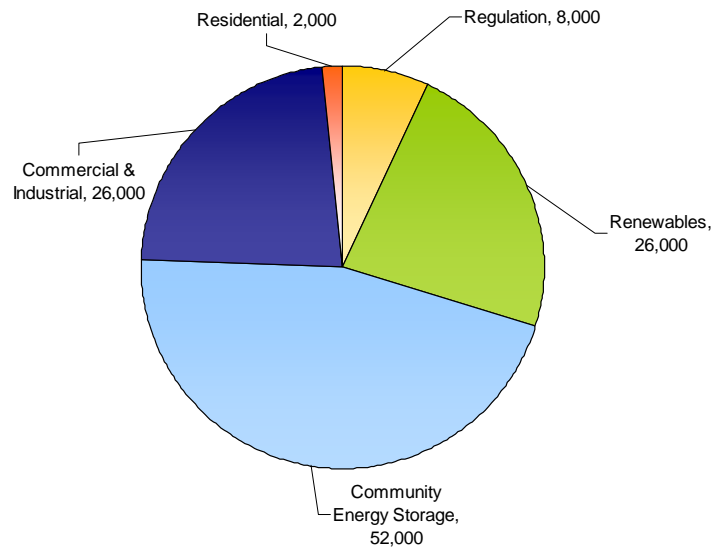
Figure 1: Summary of expected job creation due to the STORAGE Act of 2009



The application areas focus on stationary applications of storage that are currently being targeted, demonstrated or have demonstration programs in process. Though there is a great deal of potential with the electric vehicle (EVs) market, and some of the energy storage technologies assessed in this study can be utilized for EVs, the focus of this analysis is only on stationary applications.

Figure 2 shows the estimated number of jobs created in five major areas of energy storage application area (described in the report methodology section) over the legislation time horizon. Jobs that would have been created in the absence of the tax incentive are not included in this figure.

Figure 2: Job creation estimates by storage application



Additional Benefit Areas:

The benefits of increasing penetration of advanced energy storage is not just limited to the direct impact of green jobs creation; additional benefits can also be expected to be captured from the incentives listed in the proposed Senate Bill. Some of these benefits are listed below:

Accelerate energy storage penetration to mitigate climate change: An incentive of this size would accelerate adoption of existing energy storage technologies and result in societal, economic and environmental benefits. Notably, eligible storage technologies directly impact greenhouse gas emission savings. Energy storage technology is considered a key component for high levels of renewable energy penetration and is an essential tool for future smart electricity grids.

Acts as Tool for Demand Response: When storage is used by end users for applications such as back-up generation or uninterruptible power systems, the device is essentially acting as a clean generation source. Often the traditional technologies, such as diesel back-up generators, cannot meet the emissions requirements necessary to participate in demand response programs. In contrast, if a C&I facility is using an energy storage device for back-up generation, the energy storage device, which generates no emissions of its own, could also act as an instantaneous demand response tool.

Additional Insights:

Incremental Job Creation by Alternative Tax Incentive Scenarios: This analysis provided some key insight into the current incentives provided by the STORAGE Act of 2009. Table 1 shows that increased job creation benefits are observed when the tax credit is increased during the 10 year duration of the tax incentive. Conversely, if the investment tax credit is reduced to 10%, the job creation benefit is disproportionately small because a 10% reduction offset is not sufficient to drive the payback period low enough to have a significant impact on the market penetration curves of storage technologies used in this study.

Table 1: Summary of alternative tax incentive scenarios

Scenario	Grid-Connected Storage	Onsite Storage	Duration of Incentive	Incremental Job Estimate
Storage Act of 2009	20%	30%	2010 to 2020	114,000
Tax Credit Increase	30%	40%	2010 to 2020	250,000
Tax Credit Decrease	10%	20%	2010 to 2020	44,000



Conclusion

KEMA's modeling shows that job creation can occur from the STORAGE Act of 2009 incentive structure. The Act accelerates the adoption of the technology and thus creates jobs earlier than if the incentive did not exist. By accelerating the market adoption of advanced energy storage technologies, the energy storage legislation will create jobs and will move us closer to the realization of the smart electricity grid of the future, characterized by the full integration of renewable energy, better reliability, and more demand response and emissions control capabilities.