Ryerson University

Centre for Urban Energy

Research case study > energy storage

Energy storage capacity market development

Version 1 (updated May 25, 2017)

Context: Energy storage (ES) is becoming a vital component of a modern electricity system. It has the ability to smooth the integration of renewables, increase grid flexibility and resilience in a changing climate.

Problem: As ES is an emerging technology there is uncertainty from the perspective of investors regarding the different types of technology and associated costs. This has slowed development and adoption of ES into the grid.

Solution: The introduction of a Capacity Market (CM), which is optimized for Ontario, would provide price stability and supply reliability for the energy storage market ensuring investment flow to update electrical infrastructure.

Impact: The CM model developed will promote economic efficiency, reduce investment risk, and increase transparency of capacity procurement. It will also create equal opportunity for all technologies and develop market participation.

CUE's role: Researchers investigated case studies of ES implementation in Ontario to review application and comparison of technologies. They also created CM with a CM auction models, a mathematical model to select size and location of ES.

Partners:
IESO, NSERC

Timeline:
April 2014-October 2017

Research team:
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Key stats

$600bn Energy storage market value (10 years)