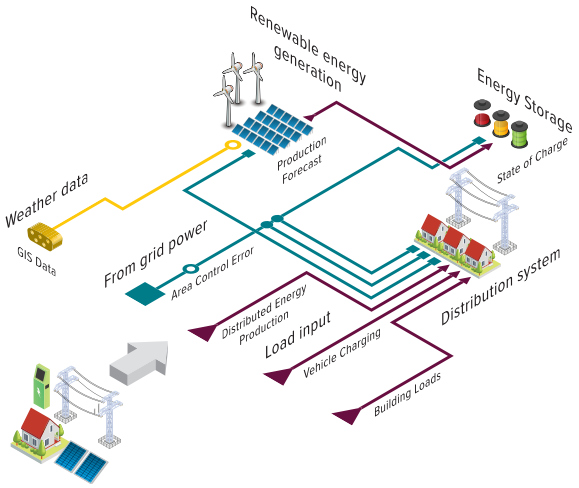
NRC·CNRC

ENERGY STORAGE MODEL DEVELOPMENT

With IEA ECES Annex 32



The NRC's research staff consists of senior researchers who apply their deep expertise in electrochemical, multi-physics modeling, and engineering to models across a variety of chemistries. The team has also partnered with leading academic experts across Canada to expand the development to include thermal ES models and analyses.

GLOBAL COLLABORATION ON OPEN SOURCE MODELS

The International Energy Agency (IEA) is an autonomous intergovernmental organization that acts as a policy adviser to broaden the focus of energy security, economic development, and environmental protection, and promote alternate energy sources, energy policies and multinational energy technology cooperation. As the Canadian representative in the IEA Energy Conservation and Energy Storage Technical Collaboration Programme, the NRC works with other stakeholders to make significant contributions to the IEA's Annex 32 by delivering key components of the work plan developed by the international group of Annex participants. The NRC's work spans the three Annex sub-tasks of data collection, modeling, and validation with a focus on electrical energy storage systems. Other partners both in Canada and around the world will also bring their effort to the project, including strong collaboration with Carleton University in the area of thermal energy storage (ES) systems.

OUR APPROACH

This project involves the development of standardized, scientifically proven datasets/test cases and open-source models for energy storage systems. These models will then be validated with detailed test results from both laboratory and field testing to ensure consistency throughout the research, development, and deployment effort. Project outputs will include publicly available publications and tools for model development, methodology and validation results, and standardized datasets and test cases for each model. Additional information on the open source models themselves, and their subsequent use in specific Canadian applications or use cases will also be made publicly available.

Together these activities are intended to help optimize ES system configurations and technology matching for specific applications throughout research, demonstration and deployment phases, while also ensuring that fair and consistent assessments of ES systems can be made. In the longer term, intended outcomes include increasingly reliable energy storage systems being deployed in Canadian applications, and better informed energy system planning and policy, ultimately leading to improved electric system efficiencies and reduced GHG emissions.

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