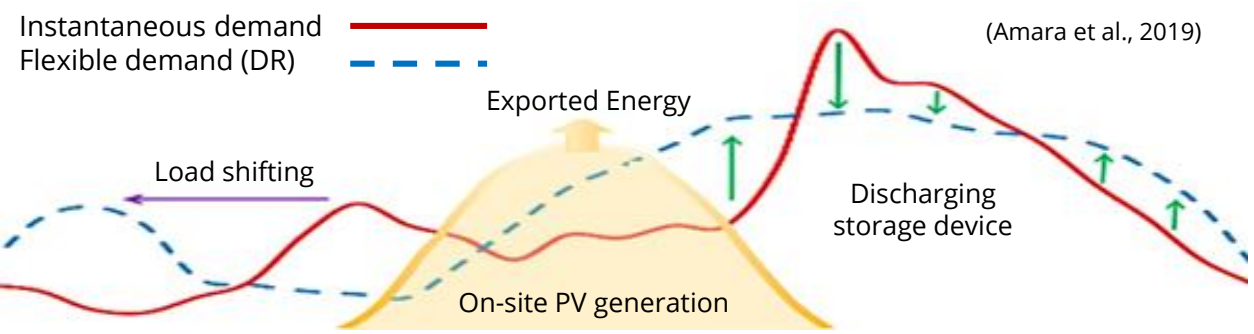

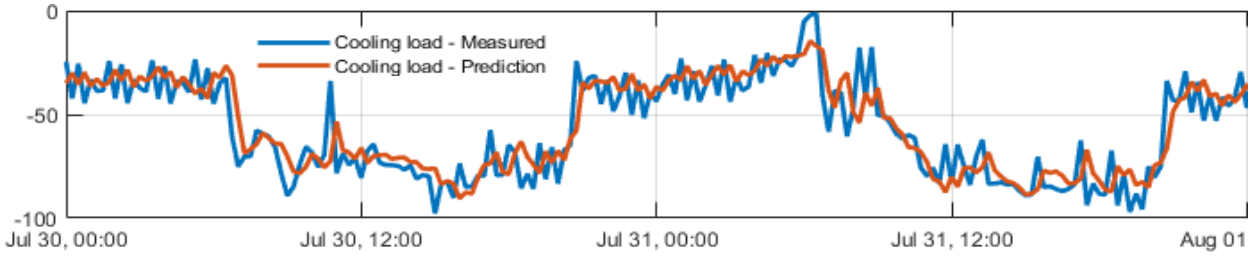

Analyzing Energy Flexibility in Buildings – A Case Study of the Varennes Library

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How it works?

Varennes public library, the first Canadian near net-zero energy institutional building, with 24000 ft^2 area and a 100-kW array of PV is investigated. **Dominant** energy **consumption** and **generation** patterns of the building are found and interpreted. Later, using well-trained models, **energy flexibility** of the building is quantified using two metrics :
1) **self-generation** and 2) **self-consumption**

Outcomes: Prediction of building flexibility potential

Benefits: Providing insights to building owners about the building flexibility and cost savings potential (Stantec.ca)

What is it?

Addresses the issue of high level of energy **consumption** in the building sector through **data analysis** and **machine learning techniques**. The purpose is to help 1) building owners improve the building's performance, and 2) grid operators manage the supply and demand.

What is new and distinctive about your project?

The motivation is bridging the gap in **utilization of data driven models** for **decision making** in buildings. Providing the opportunity for building owners to act based on predicted flexibility measures distinguishes this project.