



Stantec

What we've learned on
campus:

Existing buildings, district
energy, and planning for an
efficient future

RMA WCUPPA 2019



Agenda

15 minutes: Brief Presentation

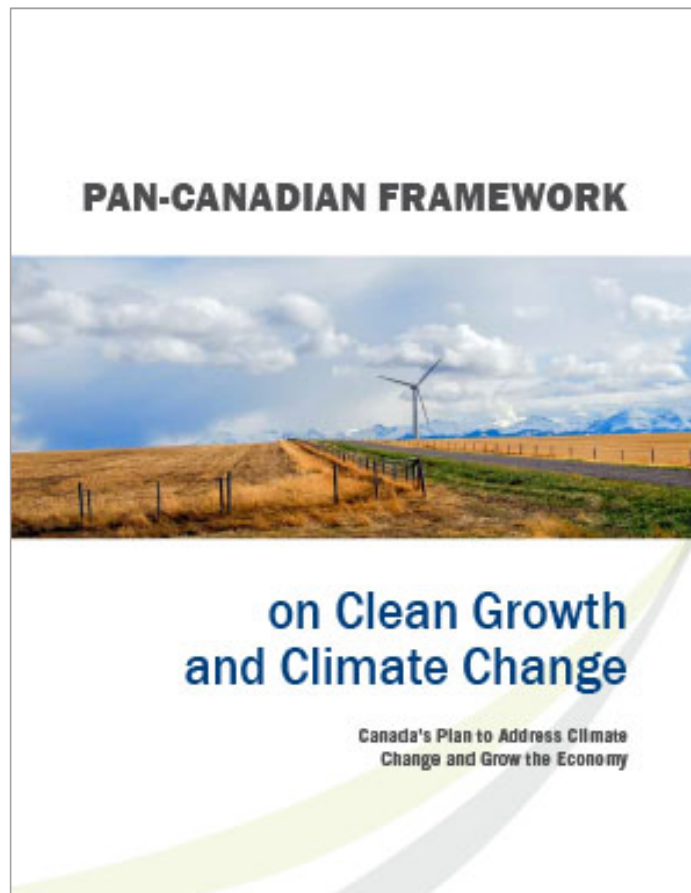
30 minutes: Panel discussion

10 minutes: Questions



Energy Management on Campus: Driving Factors

External Factors



On-Campus Factors

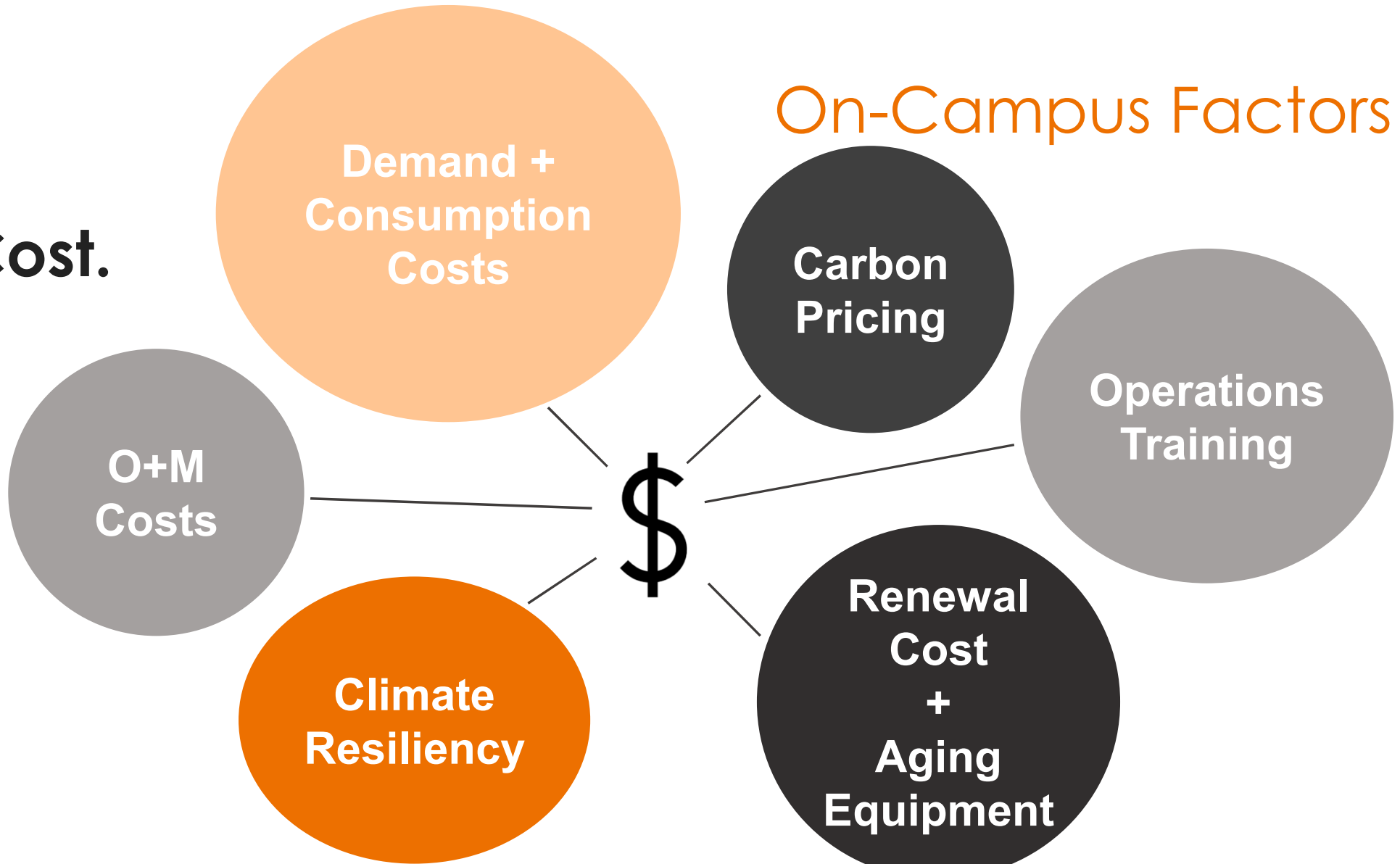
Leadership.



iStock, http://images2.minutemediacdn.com/image/upload/c_fit,f_auto,fl_lossy,q_auto,w_728/v1555915285/shape/mentalfloss/reindeer_0.jpg

Cost.

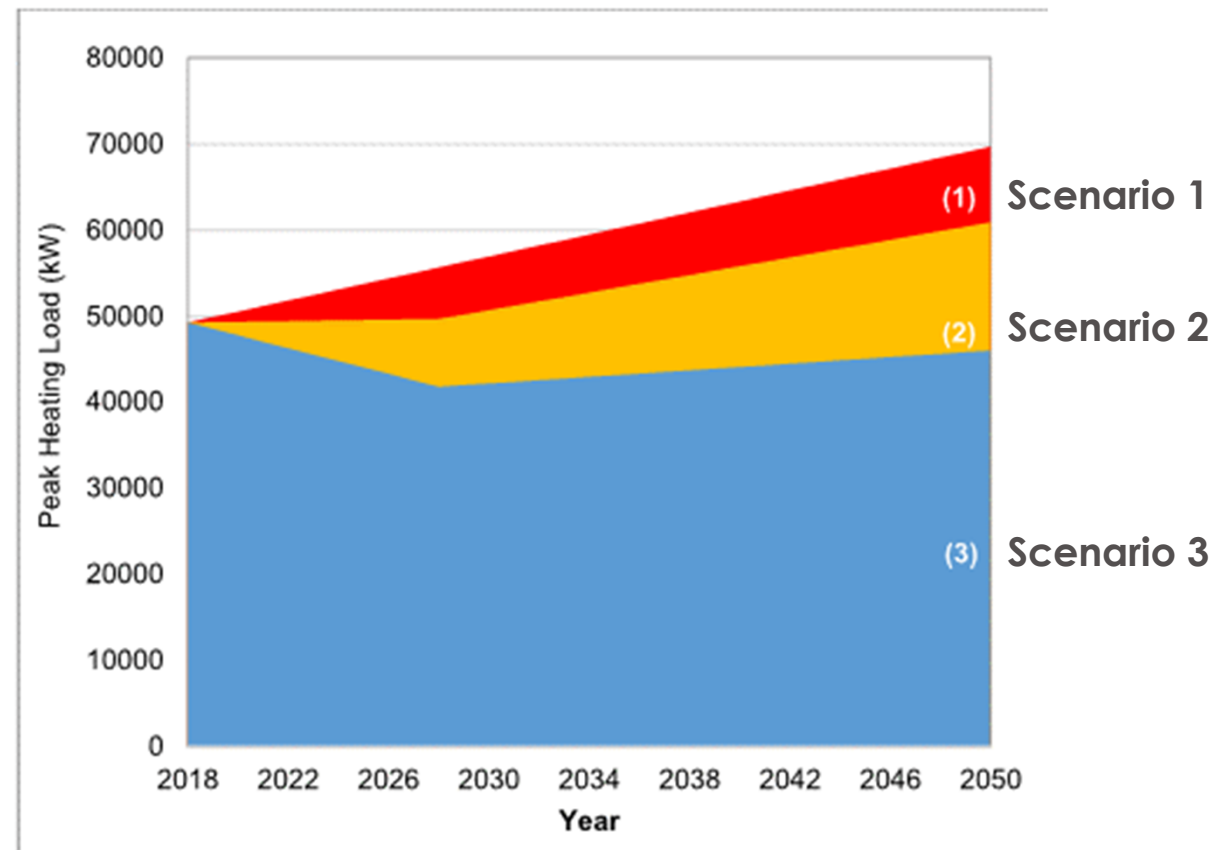
On-Campus Factors



On-Campus Factors

Capacity Needs.

Figure E-1 – Heating Load Forecasting – 2015-2050



Students.

On-Campus Factors



Ohio State University, Mario Science and Engineering Building

On-Campus Factors

Students.

11,000 teens and parents surveyed:

63% overall said having information about a college's commitment to the environment would influence their decision to apply to or attend the school.

- 2018 Princeton Review



Energy Management on Campus: Challenges

On-Campus Factors

Past Decisions.



Reliability.

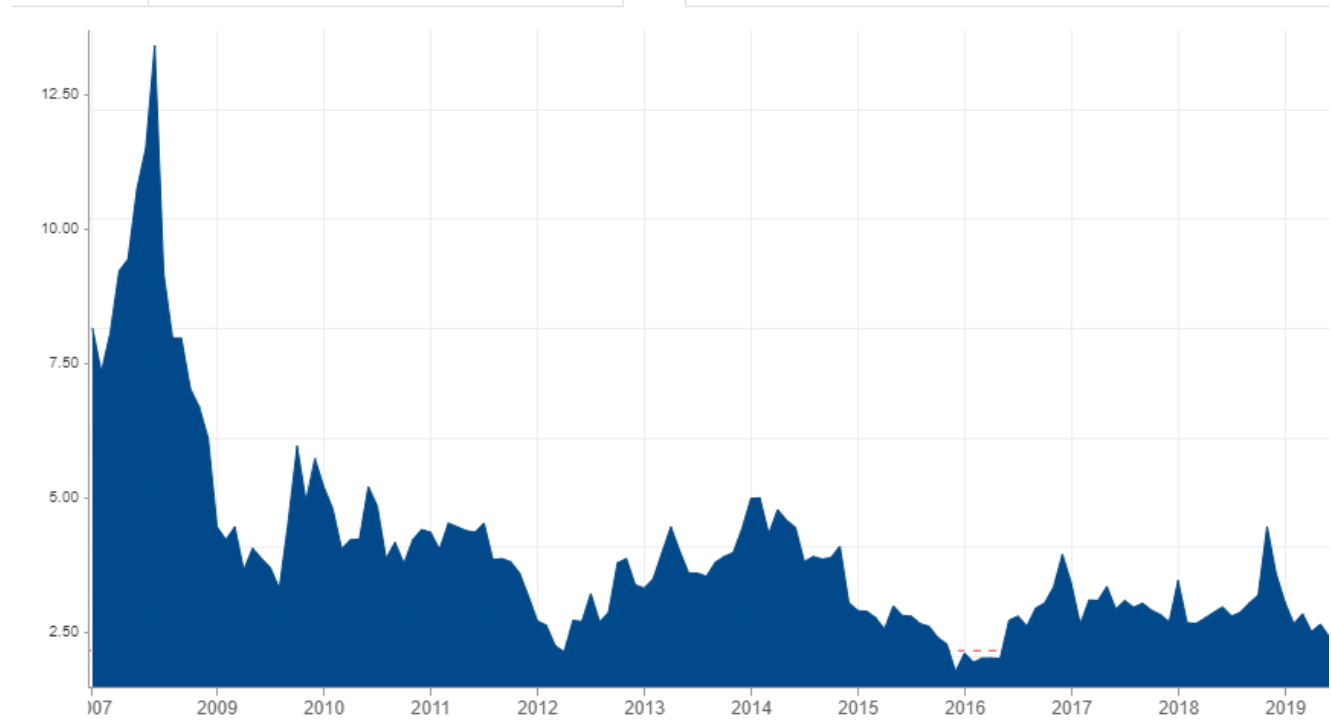
On-Campus Factors



NAIT Central Heating and Cooling Plant Modernization

Economics.

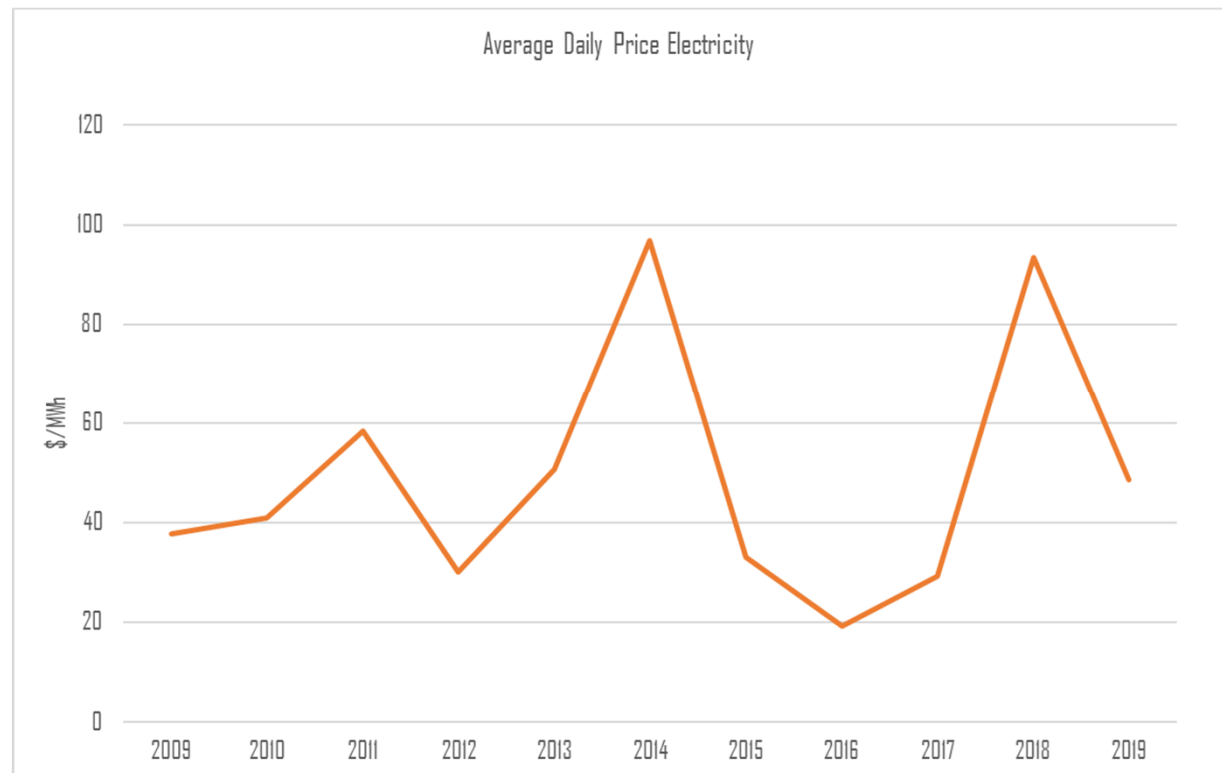
On-Campus Factors



Commodity price of natural gas, businessinsider.com

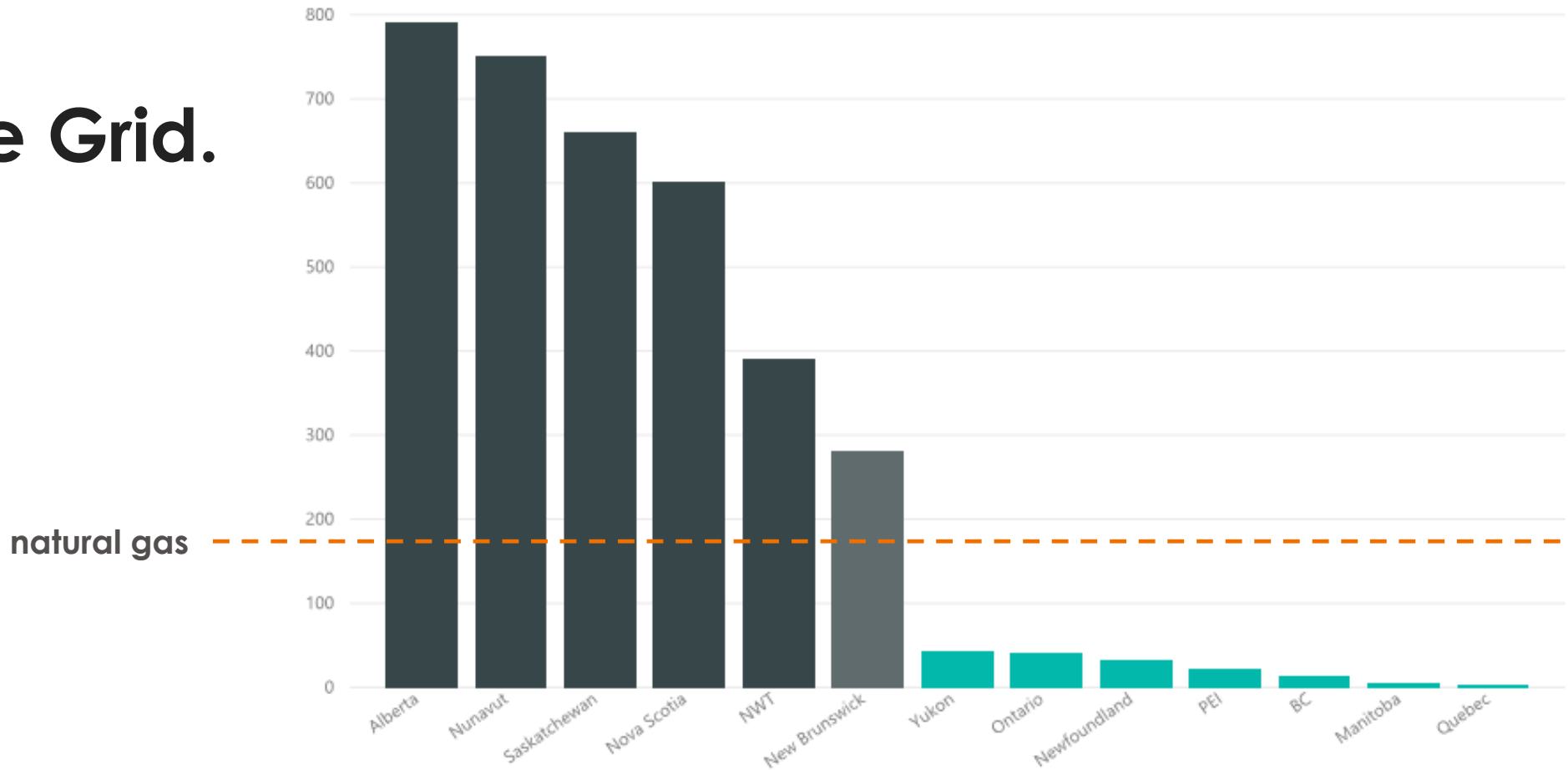
Economics.

On-Campus Factors



The Grid.

On-Campus Factors



Data from National Inventory Report

On-Campus Factors

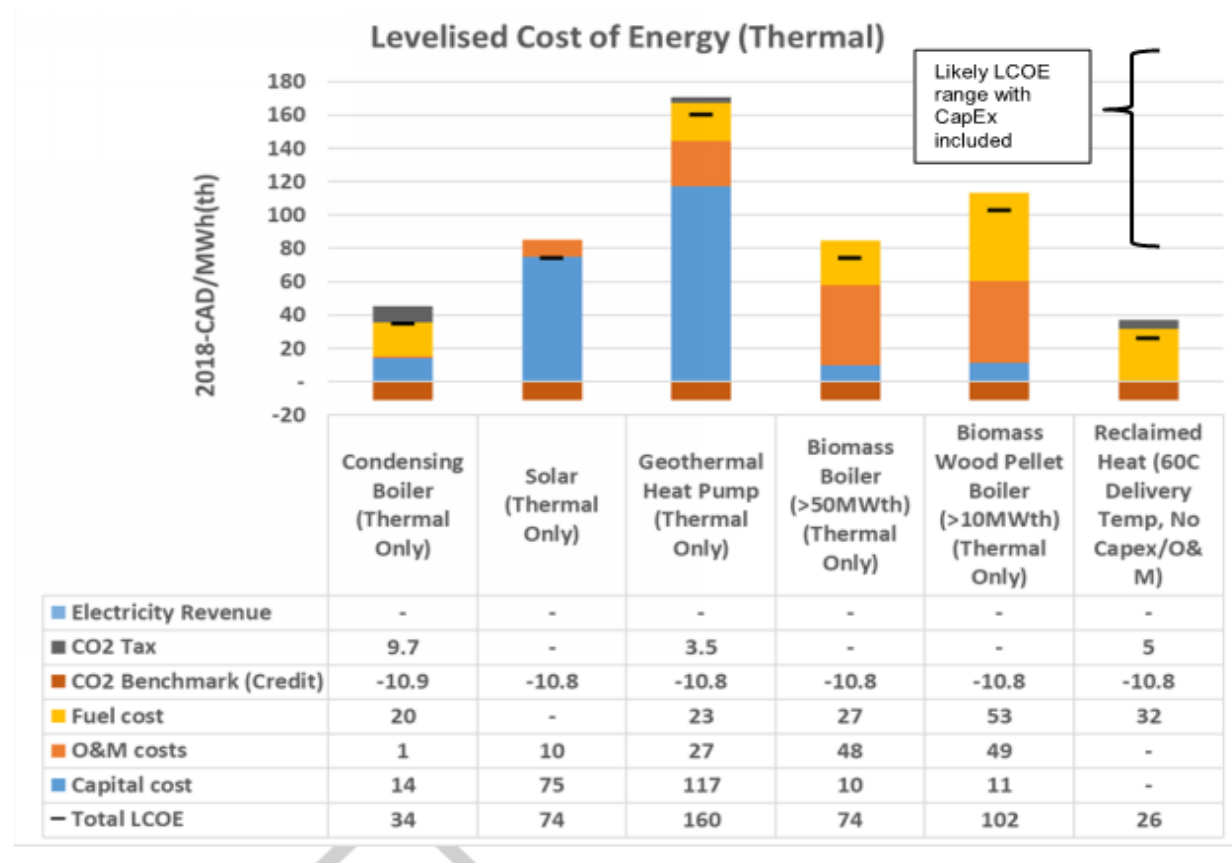
Regulatory.



Energy Management on Campus: Solutions

Master Planning.

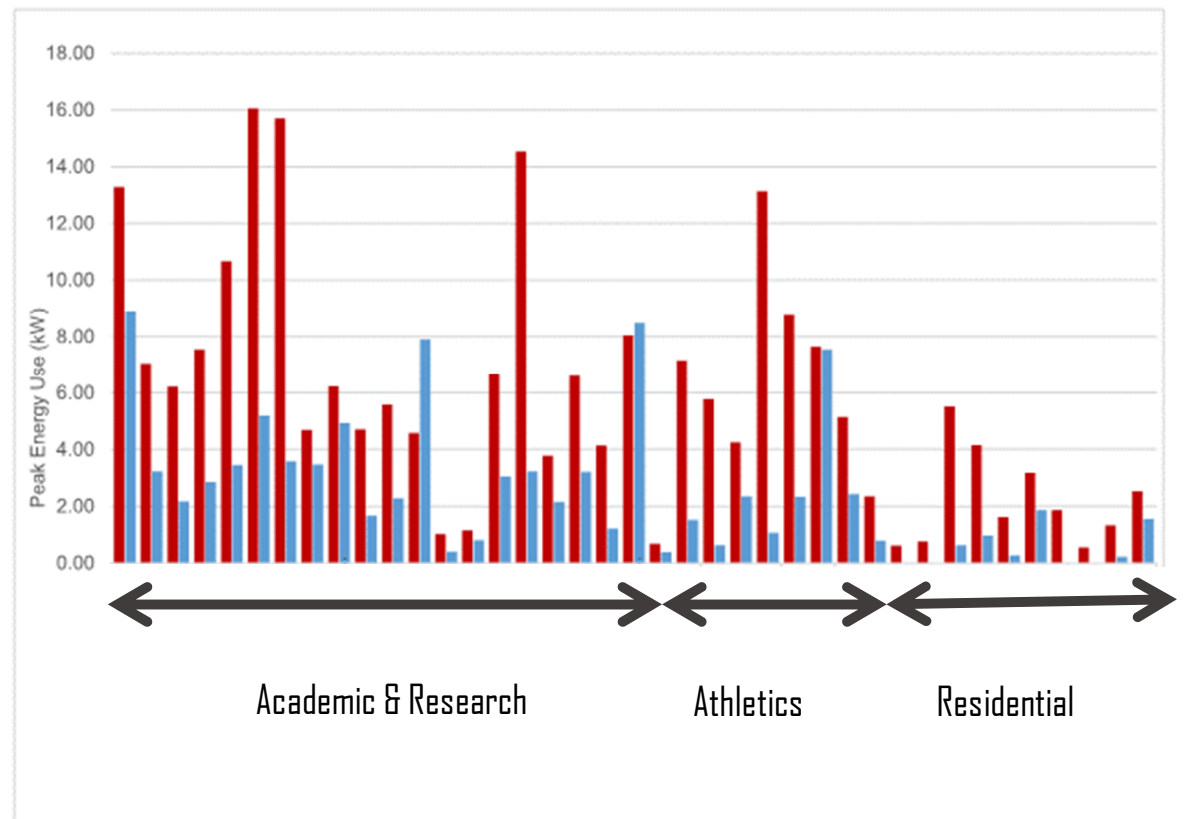
On-Campus Factors



Master Planning.

On-Campus Factors

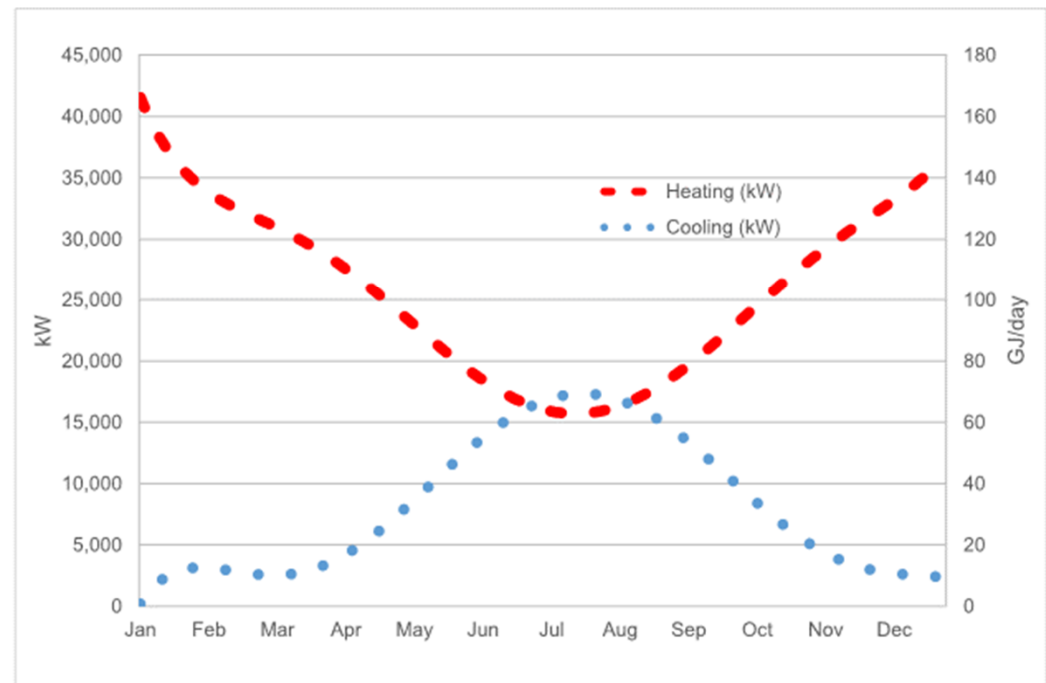
Peak Heating and Cooling Loads by Building



On-Campus Factors

Master Planning.

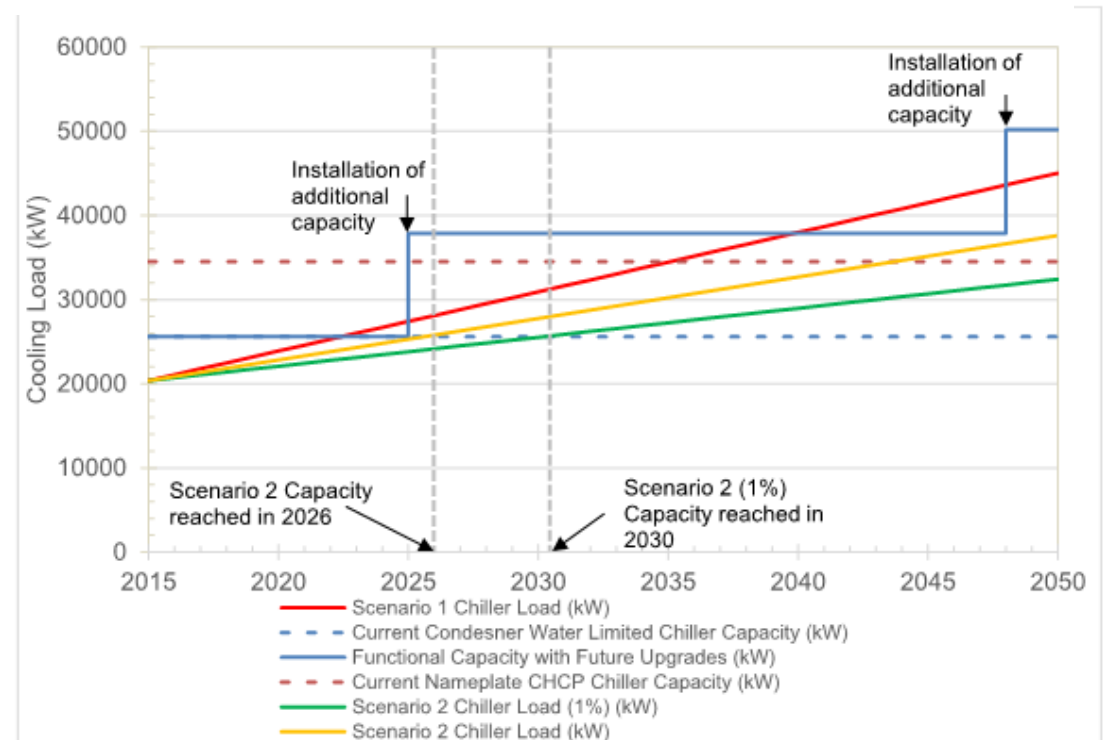
Heating Load vs. Recoverable Heat Rejected from Chillers



On-Campus Factors

Master Planning.

CHW Chiller Capacity & Projected Peak Load



New Buildings.

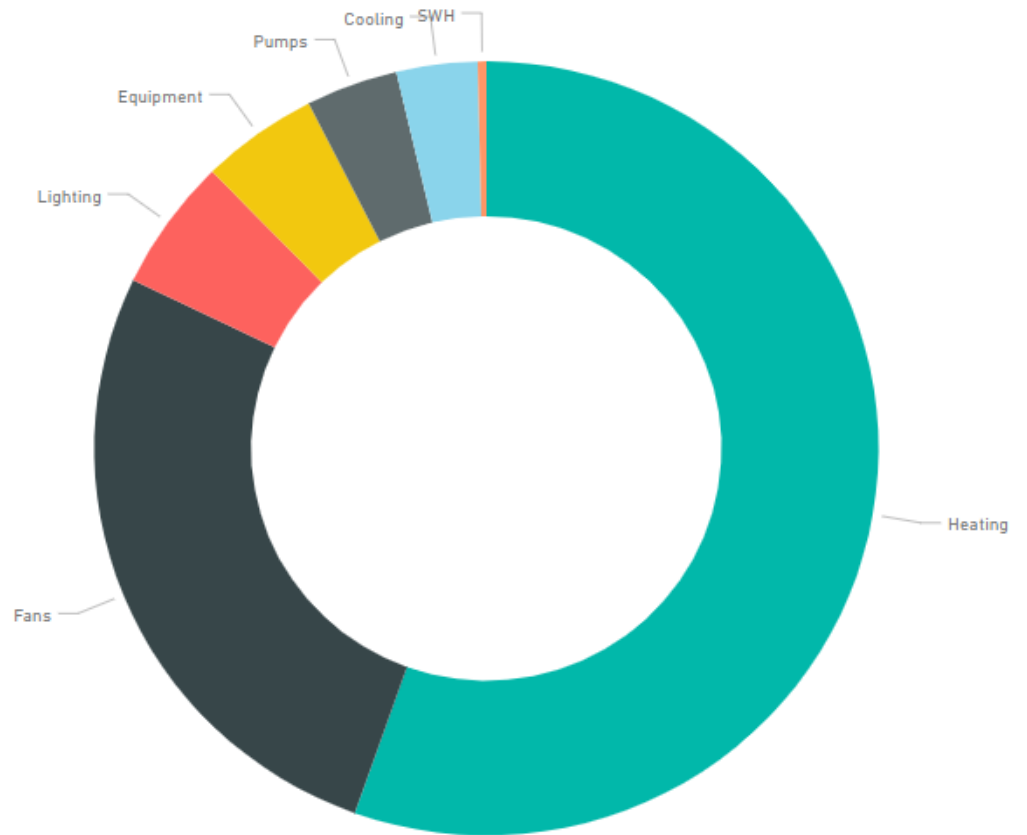
On-Campus Factors



UBC Okanagan Fitness/Wellness Centre, Concept Design

Existing Buildings.

On-Campus Factors



District Energy.

On-Campus Factors



University of Calgary, Cogeneration Plant

Meet the Panelists

Stantec



Léo Lejeune

Principal, Architecture Sector
Lead



Jeff Rent

Principal, Mechanical
Engineering

NAIT



Robert Akkerman

Director, Facilities Management

Moderator



Sam Lane

Building Performance
Engineer, Stantec

Thank you!

Jeff Rent

Principal, Mechanical Engineering
(604) 696-8099

Jeff.Rent@Stantec.com

Léo Lejeune

Senior Principal, Architectural Sector Lead
(403) 605-4121

Leo.Lejeune@Stantec.com

Robert Akkerman

Director, Facilities Management
(780) 471 7858

rakkerma@nait.ca

Sam Lane

Associate, Building Performance Engineer
(403) 781-5488

Samantha.Lane@Stantec.com

