Proposal Idea:

Improved Sensors and Automation for running lights, computers, and other electricity consuming elements for the buildings on campus.

Goal Statement:

To reduce the energy footprint of the UVic campus facilities through improved energy monitoring sensors (eg. Photocell sensors, motion sensors, co2 sensors, router management) and improved automated energy management systems (eg. automated computer shutoffs, light controls, heating controls, ventilation controls).

https://www.uvic.ca/facilities/assets/docs/standards/FITS/uvic-facilities-and-infrastructure-technical-standards-july12-2016.pdf

Their Ideas:

Photocell sensors for daytime

Co2 sensors for heating & ventilation

Motion Sensors for lights.

Our ideas:

Turn off most computers in a lab between certain hours if they’re not in use.

Or, if there’s no one in the lab after a certain time, turn off all computers.

Implement tracking on light/computer usage on campus, and combined with the sensors, determine what the worst offenders are for electricity wastage?

Approximate Building usages:

Bob wright: 4.5 million kwh

EDC2: 3.9 million kwh

ELW: 3.5 million kwh

Petch: 2.85 million kwh

Commons: 2.6 million kwh

McPherson: 2.45 million kwh

Clearihue: 2.4 million kwh

CARSA: 1.75 million kwh

Elliott: 1.55 million kwh

SUB: 1.49 million kwh

Between the top 10 energy using buildings on campus, there is a usage of about 27 million kWh per year.

“Maximize the energy efficiency of information systems infrastructure across campus.” - UVic Sustainability Action Plan (2014)

“Reduce campus electricity consumption intensity by 8% by 2019, relative to 2010 as the

baseline year.”

“Review building usage patterns and provide for evening and weekend activities to be consolidated into selected buildings to assist in energy savings.”

Router usage monitoring

**Background details:**

UVic plans to reduce its electricity consumption by 8% by 2019 relative to 2010’s baseline, according to the Sustainability Action Plan. The Plan recommends taking building usage patterns into account and turning off some buildings’ resources on evenings and weekends to conserve energy.

**Need Statement:**

Every year UVic spends $4.0 million on electricity, a large portion of which coming from the approximately 27 million kWh per year used by the top 10 energy consuming buildings on campus. Without adequate modern energy saving measures such as sensors and automated lighting and power controls, most of this wastage is caused unnecessarily.

**Questions:**

How much will the proposed solution inconvenience students and other users?

Does the proposed solution require a campaign to be run alongside it to change students’ behaviours and acclimatize them?

What are the risks to the lab machines (e.g. data integrity)?

How accurately will the survey of lighting and computer usage estimate electricity consumption by those specific utilities?

If the labs have any existing sensors and automated shutoff systems, how well do they perform in terms of the current energy goals?

How do current lab policies indirectly affect buildings’ energy consumption? (E.g. temperature/ventilation, lighting, server rooms, cleaning?)

How long would it take to start seeing returns after installing the system?

How much would installing and maintaining the sensor system cost?

Various types of users could be affected: what do we know about their differing needs?

What are the existing power/operations policies and their rationale?

**Plan of Action**

Investigate the costs and rewards of installing sensors and controls in the Clearihue building to monitor energy use and occupancy.