

Solar Energy - Further Information

City of Edmonton Youth Council
September 28, 2016



Previous Committee Action

April 25, 2016



Motion at Community Services
Committee:

That City of Edmonton Youth
Council and Administration
investigate the implementation
of a solar panel array and
citywide solar generation
dashboard at Edmonton City
Hall, and provide a report to
committee

Structural Feasibility Assessment

- Completed Engineering and Lifecycle Planning Feasibility Assessment
 - Installation of rooftop solar panel array would be safe based on weight
 - Current roof (ballasted) structure scheduled for replacement to the type of roof ideal for a solar panel array (membrane-type)
 - Replacement scheduled for Third Quarter of 2017

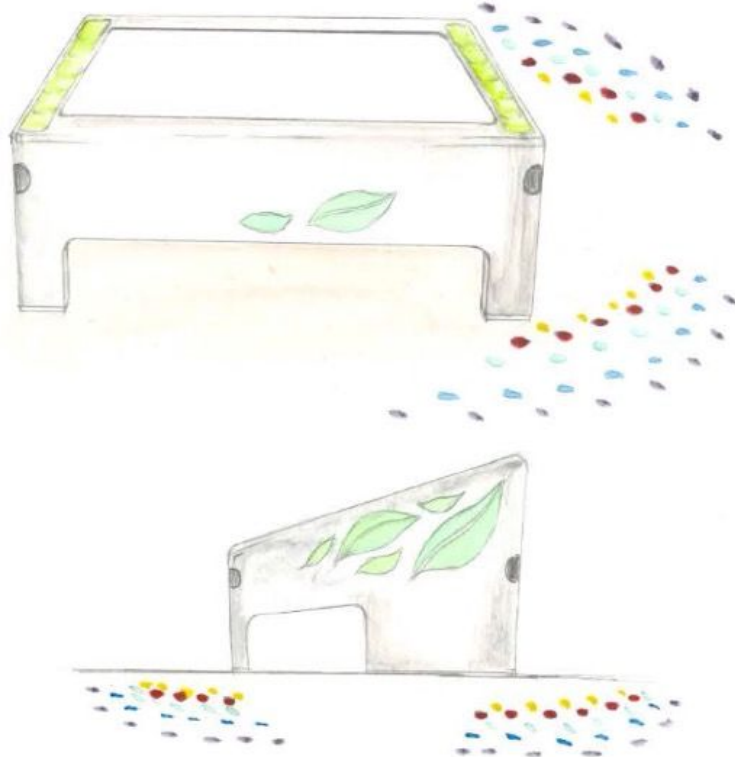
Financial Assessment

- 88kW system proposed for \$486,000 (-10%/+50%)
- Cost per Watt: \$5.52/W
- Return on Investment: ~60-80 years
- Constraint: CCEMC funding not guaranteed anymore (Timing)
- Constraint: Additional equipment for downtown EPCOR regulations
- Financial assessment does not currently include Citizens Energy Dashboard

Citizen Energy Dashboard

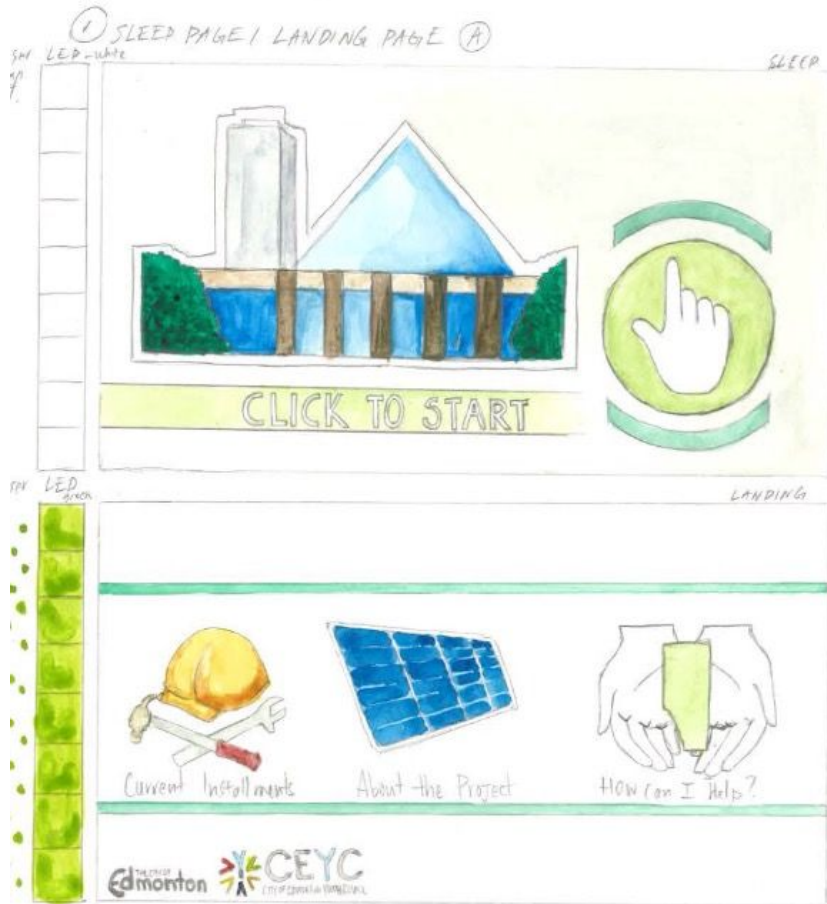
- Way to engage and inform public on city solar projects
- A way to showcase how the city is working toward meeting the goals of the way we green
- In line with current goals for the city's Office of Energy Management
- Informative and beautiful

DASHBOARD MONITOR/KIOSK

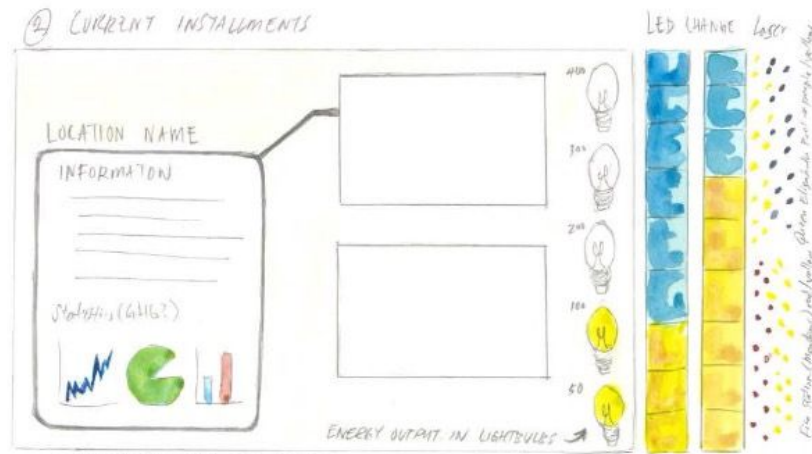


Citizen Energy Dashboard: Potential Renderings

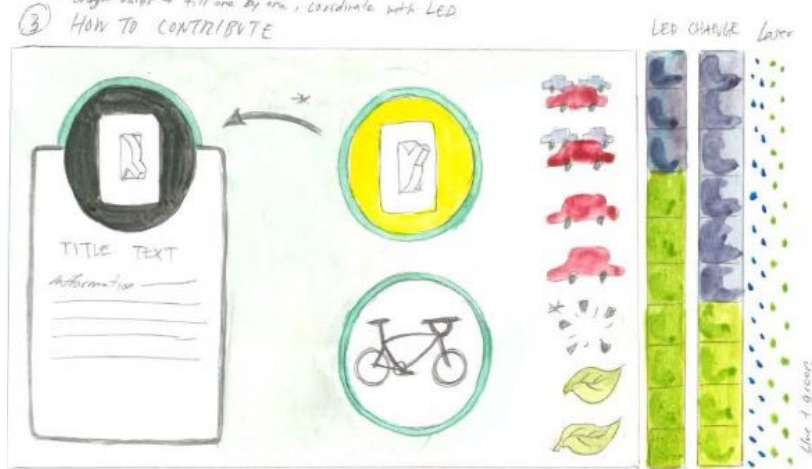
DASHBOARD



Citizen Energy Dashboard: Potential Renderings



- Top location, start image still show
- Create buffer → fill area by area, coordinate with LED



* - animations, not images

Citizen Energy Dashboard: Potential Renderings

Findings About City Hall Energy Consumption

- City Hall uses the energy of around 368 households
- The building could be more efficient with its operations and reduce this number
- Beneficial to further assess energy efficiency audits of City Hall to reduce consumption and save on electricity costs. For example:
 - Assessing heating usage in the parkade and pool
 - Evaluating insulation layers of City Hall glass pyramids
 - Using infrared thermometer to check for window heat leakage
 - Energy metering technologies
 - Motion sensor light switches

Conclusions

- A rooftop solar PV array is not viable at City Hall, and so will not be pursued as a site at this time
- Based on the current financial outlook and with an unclear funding model, the City of Edmonton Youth Council does not recommend installing a solar panel array at City Hall
- City Operations Greenhouse Gas Management Plan aims to achieve a 50 percent reduction in Greenhouse Gas Emissions from City operations by 2020. City Hall is not the most ideal site to meet this defined target

Next Steps

1. Continue to determine **site selection decision matrix**, including financial and structural assessments for future solar array sites
2. Continue to bring forward full assessment including site selection, design, financial model and citizen engagement related to **Citizen Energy Dashboard**
3. Determine the need for conducting an **energy audit of City Hall** and determining possible energy efficiency measures