

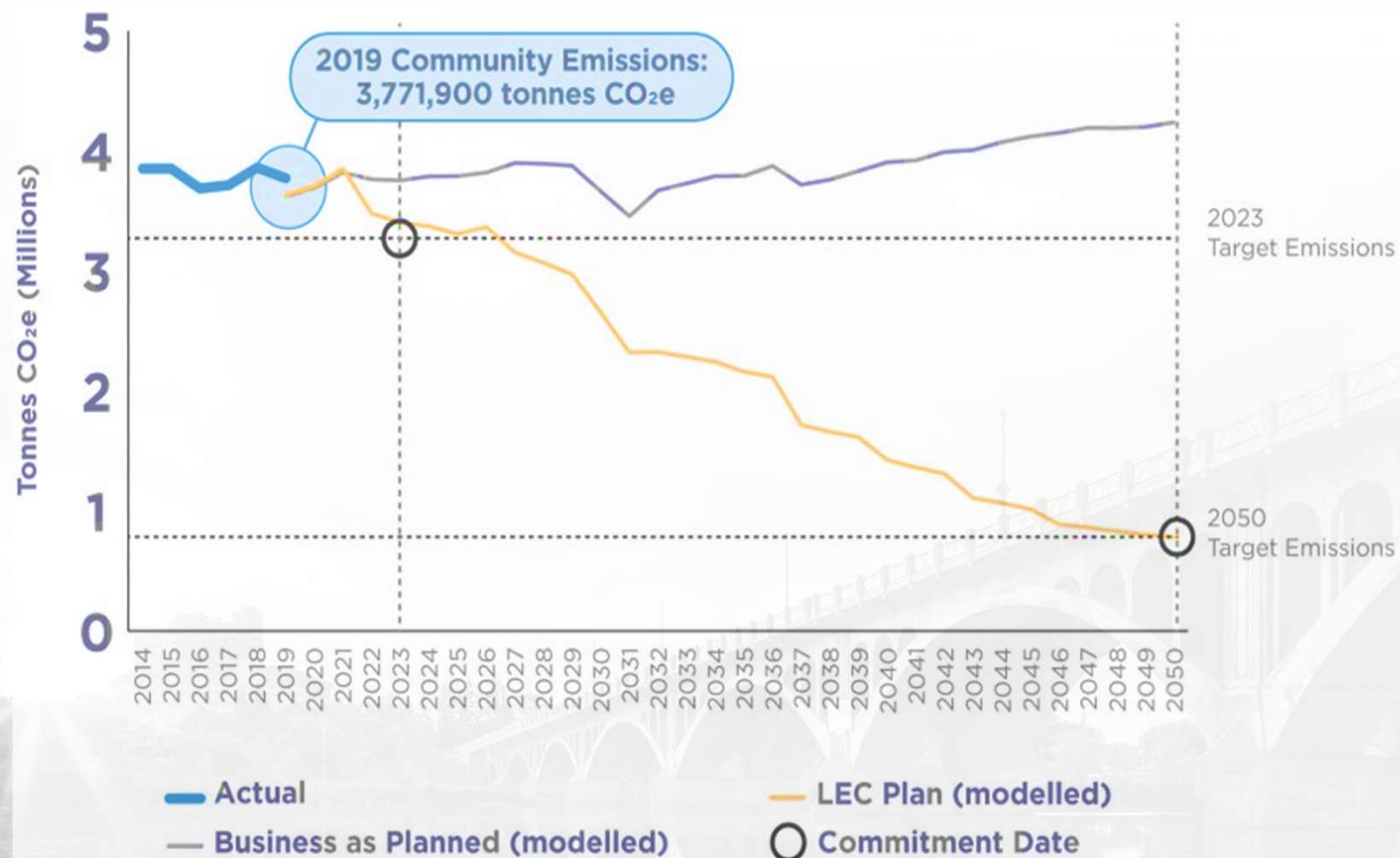


# Renewable and Low-emissions Energy Implementation Plan

Presentation to EMTF, September 7, 2022



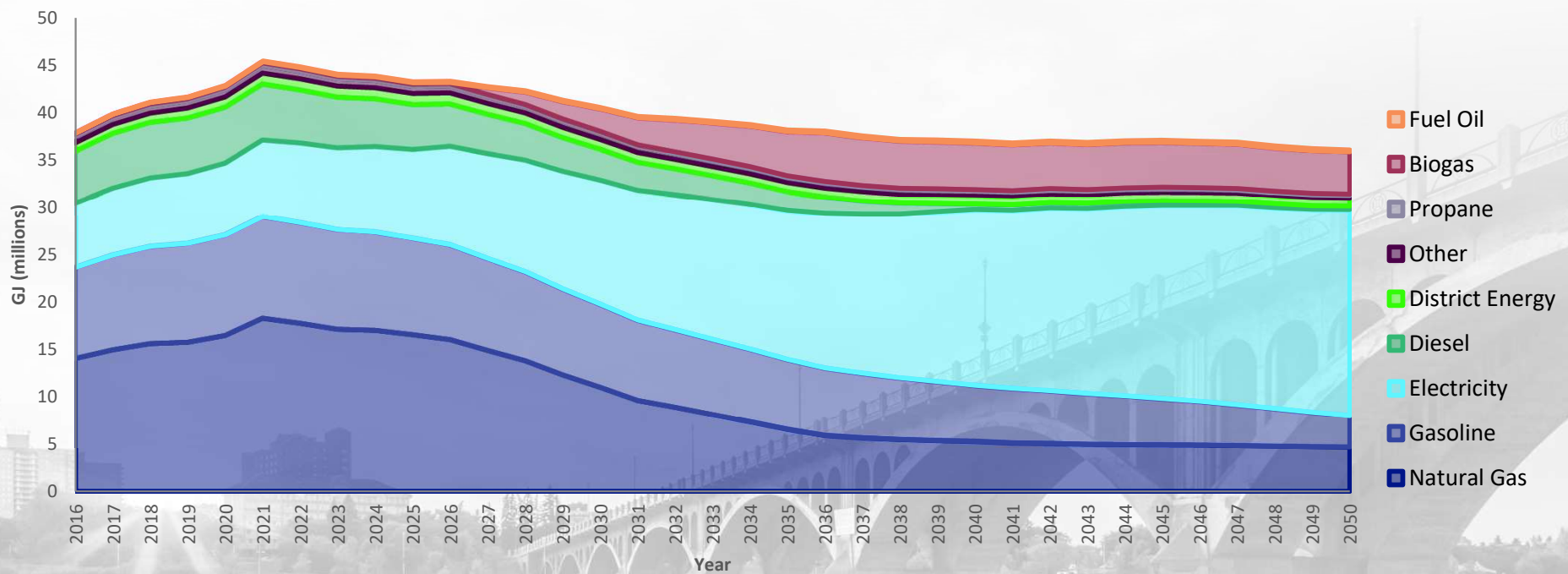
# Low Emissions Community Plan



# 40 Actions to a Low Emissions Community



# The Future is Getting (more) Electric



### Implementor (Leading by Example) Initiatives

**LEC 29 – Install solar PV on municipal buildings**

**LEC 30 – Install solar PV systems on Municipal Lands**

**LEC 34 – Install new solar PV utility-scale facilities within or adjacent to city boundaries**

**LEC 31 - Increase landfill gas capture from the Saskatoon Landfill**

**LEC 35: Install a CHP facility at St. Paul's Hospital**

**LEC 36 – Implement District Energy Systems in the Downtown and North Downtown Areas**

**LEC 37 – Construct a hydropower plant at the weir**

**LEC 38 – Install renewable energy storage over time**

**LEC 39 – Procure renewable electricity from a third-party producer**

**LEC 40 – Procure renewable natural gas from third party producers**

### Investor, Regulator and Encourager Initiatives

**LEC 32 – Encourage existing residential building owners and mandate new buildings to install solar PV system through programming and bylaw.**

**LEC 33 – Encourage existing ICI building owners and mandate new buildings to install solar PV systems through programming and bylaw**

LEC Actions

Renewable &  
Low-emissions  
Initiatives

Phases:

- P1 – Initiation
- P2 – Development
- P3 – Implementation
- P4 – Operations

<sup>[1]</sup> While the installation of CHP facility at St. Paul's Hospital has been cancelled, the installation of CHP at a local facility for the reduction of GHG emissions will be investigated for definitive direction on the technology.

<sup>[2]</sup> The initiatives under LEC Action 36 will not be limited by the Downtown and North Downtown locations.

# Triple Bottom Line & Equity Considerations



# Engagement Takeaways

- Comprehensive list of actions
- Self-generation affordability and accessibility
- Education
- End-of-life waste management



Hydro



Wind



Hydrogen



Geothermal



Solar



Waste to Energy

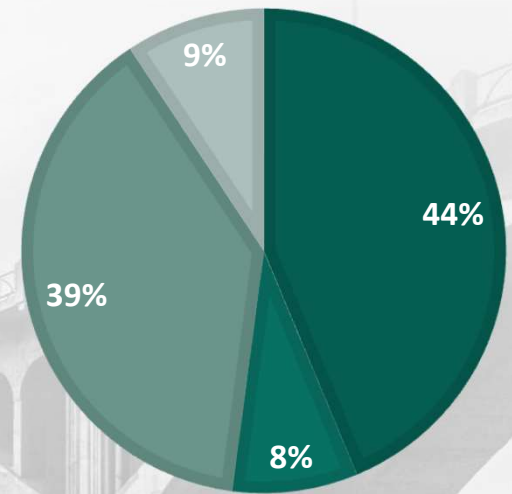
# Renewable and Low-emissions Energy Initiatives



1. Implementer
2. Investor
3. Regulator
4. Encourager

## WHAT SHOULD THE CITY PRIORITIZE?

- Larger renewable energy initiatives (City-led)
- Supporting self-generation in the community
- The City should support both, equally
- I have no opinion



# LEC Action Advancement – Leading by example

## LEC 29: Install 24MW of solar capacity by 2026 on municipal buildings



29.1 Install 1-1.5MW generation capacity of solar PV on up to 10 municipal rooftops

29.2 Install additional rooftop Solar PV to meet remaining MW targets

29.3 Alternatives to meet GHG targets

88% of engagement survey respondents supported solar on City properties

# LEC Action Advancement – Leading by example

**LEC 30:** Install a 1MW capacity solar system on Parcel M\* or similar land area by 2022

**LEC 34:** Install 20MW of solar capacity by 2030 (including LEC 30)

30.1 Install 2.2 MW generation capacity of ground-mount solar PV at Dundonald Solar Farm
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30.2 Dundonald Solar Farm naturalization landscaping
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34.1 Install ~1 MW generation capacity of ground-mount solar PV at the Wastewater Treatment Plant
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34.2 Install additional site solar PV to meet remaining MW targets
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34.3 Agrivoltaics pilot
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34.4 Alternatives to meet GHG targets
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Concept drawing of the Dundonald solar farm

# LEC Action Advancement – Leading by example

**LEC 31:** Increase methane capture and destruction from the landfill to 50%, by 2026

- |   |
|---|
| 31.1 Landfill gas expansion   |
| 31.2 Landfill gas Plant upgrade                                     |
| 31.3 New engine addition  |
| 31.4 Additional expansion and/or upgrades to meet remaining targets |
| 31.5 Next steps beyond 2034 agreement expiration                    |



Saskatoon's current Landfill Gas Facilities

# LEC Action Advancement – Leading by example

**LEC 39:** Procure electricity from 1,600 MW of renewable energy capacity installed outside of Saskatoon

58.7% of respondents somewhat or strongly supported Renewable Energy Credits, while 19.8% were unsure, and 21.5% did not support it

39.1 Procure renewable energy over time to meet targets
39.2 RPO opportunity with SaskPower
39.3 Alternatives to meet GHG targets

Possible Partnership Offering scenario, provided by SaskPower

# LEC Action Advancement – Leading by example

**LEC 40:** Import Renewable Natural Gas to displace 50% of natural gas demand

- |  |
|--|
| 40.1 Wastewater Treatment Plant biogas use opportunities |
| 40.2 Procure renewable natural gas to meet targets       |
| 40.3 Alternatives to meet GHG targets                    |



Aerial view of the WWTP

# LEC Action Changes – Leading by example

## **LEC 35:** Install two 540kW CHP units at St. Paul's Hospital

35.1 White paper on installing CHP units at a facility to meet targets

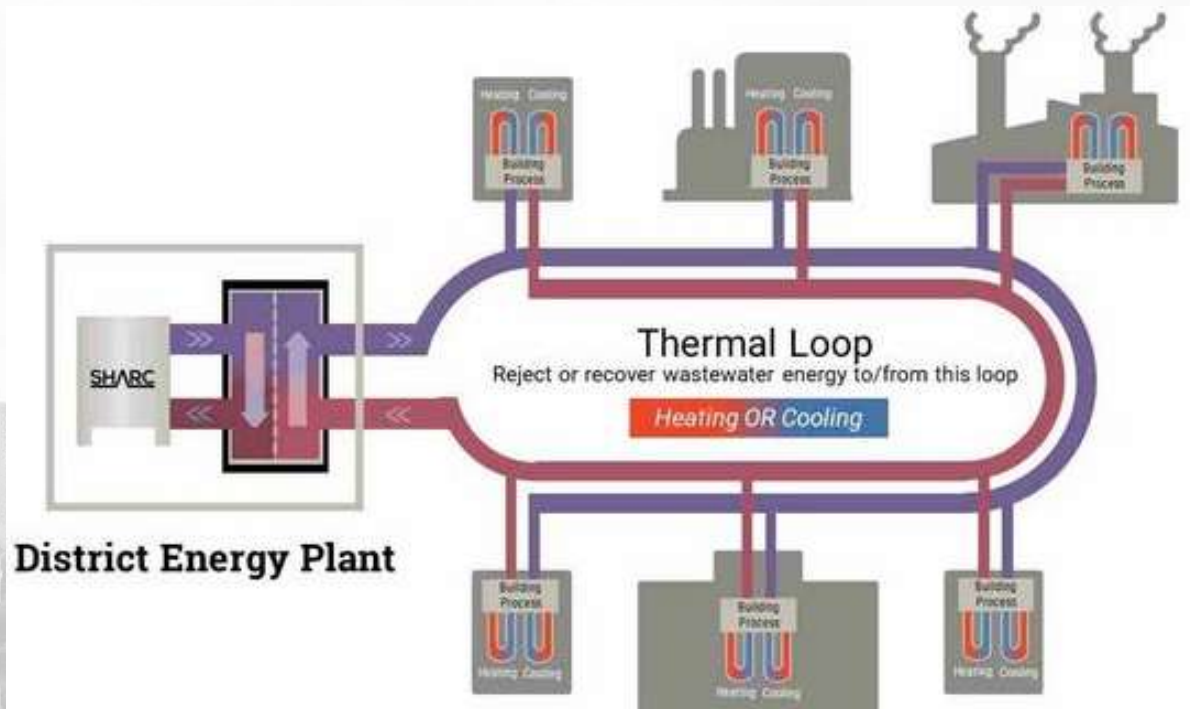
35.2 Alternatives to meet GHG targets



Shaw center, where CHP was installed in 2015

# LEC Action Changes – Leading by example

**LEC 36:** Create district energy systems to serve the downtown and north downtown areas



Schematic of DE, photo credit Saskatchewan Renewable Energy Solutions

36.1 District Energy opportunities to meet targets

36.2 Alternatives to meet GHG targets

54% of engagement survey respondents supported district energy systems

# LEC Action Changes – Leading by example

**LEC 37:** Complete installation of a 6MW hydropower project at the weir, with an operational efficiency of 55% or greater by 2027

37.1 Install Hydropower at the Weir to meet targets

37.2 Alternatives to meet GHG targets



Rendering of the proposed hydropower operation for the Saskatoon weir

# LEC Action TBD – Leading by example

**LEC 38:** 50MW of grid-tied electricity storage is added gradually between 2025 and 2050



38.1 Install renewable energy storage over time to meet targets

38.2 Alternatives to meet GHG targets

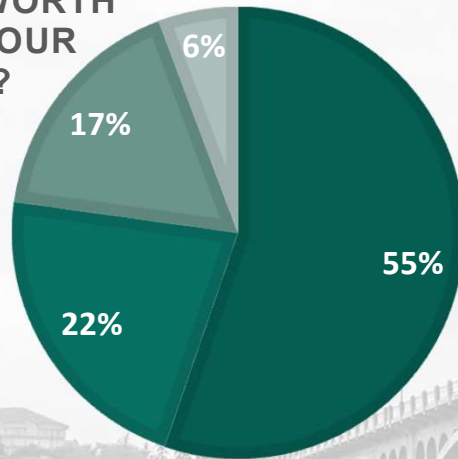


Town of Lumsden's solar + battery project for their WWTP  
<https://lumsden.ca/town-page/town-services/solar-project/>

# Investor, Regulator, and Encourager Initiatives

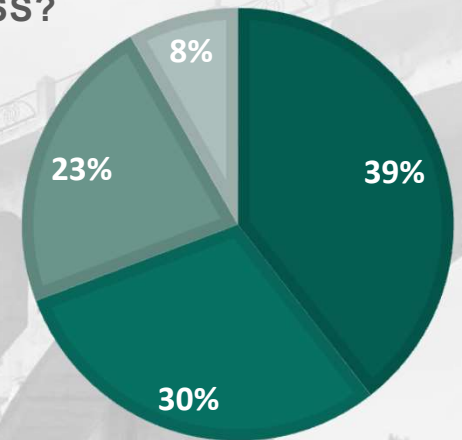
DO YOU THINK RENEWABLE ENERGY GENERATION IS WORTH THE INVESTMENT FOR YOUR HOME OR BUSINESS?

- Yes
- Somewhat
- No
- Unsure



ARE YOU LIKELY TO EXPLORE RENEWABLE ENERGY IN YOUR HOME OR BUSINESS?

- Yes
- Maybe
- No
- Unsure



# LEC Action Advancement – Invest

**LEC 32:** Install 10MW of residential solar capacity by 2030, 50MW by 2050.

32.1 HELP program
32.2 Smart grid initiatives
32.3 Residential rebates for renewable energy generation
32.4 Incentivizing community solar
32.5 Additional investor programming to meet GHG targets



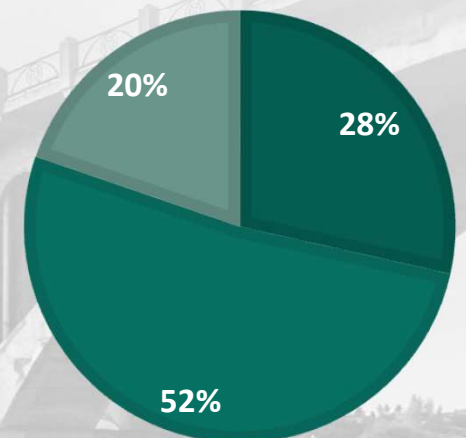
HELP Process: [https://www.saskatoon.ca/sites/default/files/documents/help\\_program-guide.pdf](https://www.saskatoon.ca/sites/default/files/documents/help_program-guide.pdf)

DO YOU REQUIRE ADDITIONAL  
REBATES TO INVEST IN  
RENEWABLE ENERGY?

■ Unsure

■ Yes

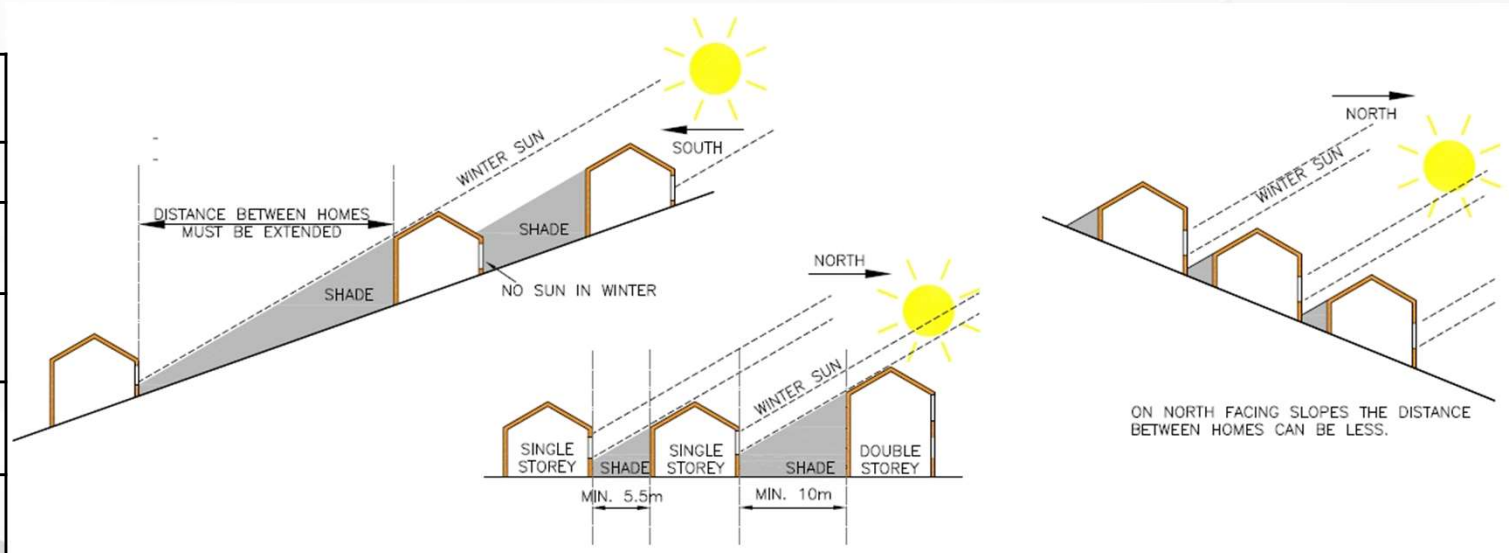
■ No



# LEC Action Advancement – Regulate

**LEC 32:** Install 10MW of residential solar capacity by 2030, 50MW by 2050.

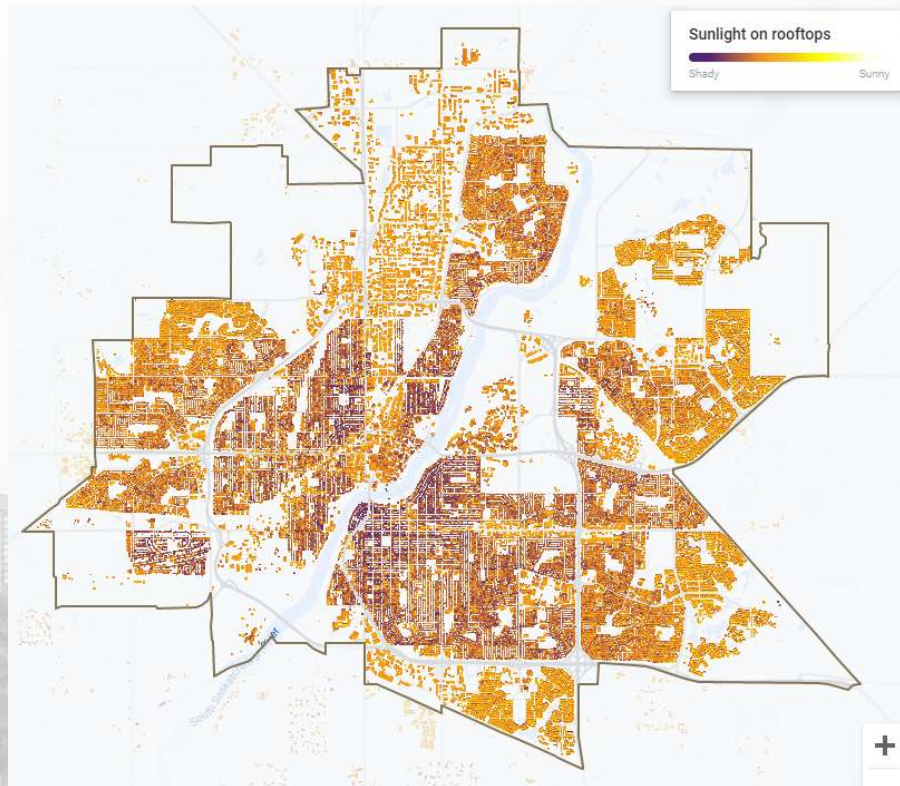
32.6 Net metering and power producer updates
32.7 Solar access regulation
32.8 Solar orientation guidelines
32.9 Solar administration review and update
32.10 Include renewable energy in park development standards
32.11 Additional regulator programming to meet GHG targets



example of solar access design – credit Planlux Lighting Design

# LEC Action Advancement – Encourage

**LEC 32:** Install 10MW of residential solar capacity by 2030, 50MW by 2050.



[https://insights.sustainability.google/places/ChIJK5ntR7\\_2BFMRkCZ3ITKeBAU/solar](https://insights.sustainability.google/places/ChIJK5ntR7_2BFMRkCZ3ITKeBAU/solar)

32.12 Educational programming for energy efficiency and renewable energy generation

32.13 Renewable energy waste recycling

32.14 Additional encourager programming to meet GHG targets

Support

One-stop-shop website (83%)  
Solar mapping tool (83%)  
Home/building energy rating and disclosure (82%)  
Sharing success stories (80%)  
Training, workshops, or coaching lessons (75%)

# LEC Action Advancement – Invest

**LEC 33:** Install 20MW of ICI solar capacity by 2030, 200MW by 2050

33.1 Industrial, Commercial and Institutional Energy Efficiency program

33.2 Additional programming to meet GHG targets

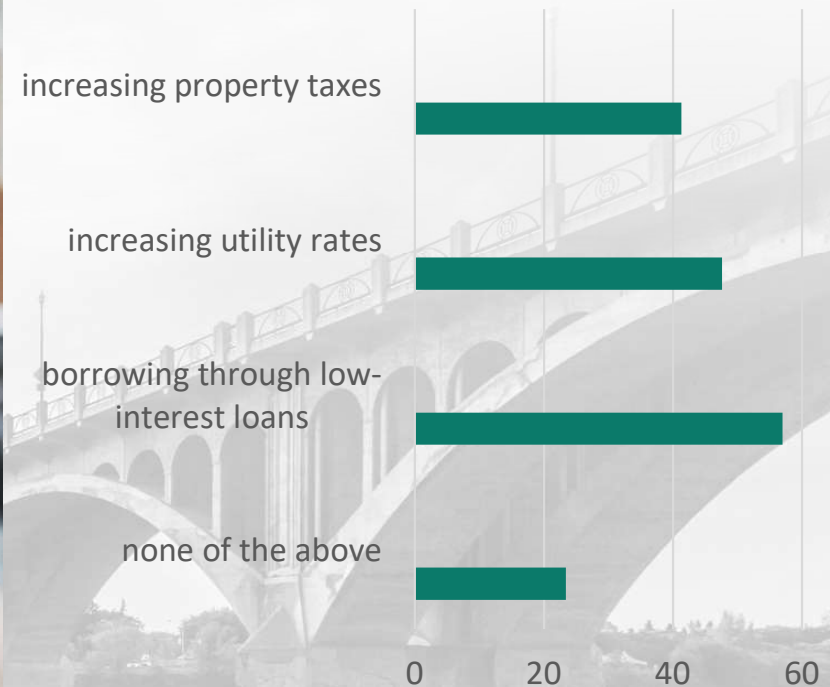


Bishop James Mahoney Catholic High School's Smartflower. Credit: CBC

# LEC Action Accountability



## Support for funding measures



# Next steps

- Implementation Plan planned for EUCS November 7<sup>th</sup>, 2022
- Business cases for initiatives supporting actions 29, 32, 34, 36 & 39 planned for next budget cycle
- Engagement for Industrial, Commercial and Institutional Energy Efficiency programming
- 202X: LEC revamp

# Discussion

- I. Overall thoughts?
- II. Do you notice any noteworthy opportunities, barriers, impacts?
- III. How can the City better educate the community about renewable and low-emissions energy for next steps?
- IV. How many electricity puns will be required to ensure the plan's success?
- V. How would you like to be informed about future initiatives and engagement?

# Thank You!

Don't hesitate to reach out if you have more questions or would like to chat about the implementation plan.

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