



# Solar Photovoltaic Panels at Southland Leisure Centre

## Frequently Asked Questions

### 1. What is a solar photovoltaic (PV) system and how does it work?

- A solar PV system is made up of multiple components in addition to the panels that you see.
- The solar panels convert energy from the sun into electricity that is then converted, by the inverters, into a form of electricity that can be used in the building.
- The panels are secured to the roof by a racking system and electricity is transferred by electrical cables.

### 2. How long will the solar PV system last?

- Solar PV systems are typically expected to work for over 25 years.

### 3. How much electricity is the solar PV system at Southland Leisure Centre expected to produce?

- Overall, this system is expected to produce up to 184,000 kWh of electricity each year, which is the equivalent to offsetting the electricity used by 24 average Calgary homes.
- The system at Southland Leisure Centre includes 600 solar panels totalling 153 kW in size, with a rated panel efficiency of 15.7%.

#### **4. What are the benefits of this system?**

- The system will generate financial benefits through reduced electricity costs and environmental benefits by increasing the amount of renewable energy produced in Alberta.

#### **5. How long did the installation take?**

- Once design was complete and permits were in place, the installation took approximately 1.5 months.

#### **6. How much did the system cost?**

- Including a structural assessment of the roof, The City of Calgary paid \$390,000.
- The anticipated annual cost savings will contribute to paying the system off in less than 14 years.

#### **7. At what angle are the solar panels installed, and why was this angle selected?**

- The solar panels are installed at a 20 degree angle.
- In order to avoid penetrations to the roof and a potential risk of leaks, a ballasted mounting system was used.
- That means the panels are mounted on racks that are weighed down, rather than bolted onto the roof.
- The lower panel angle of 20 degrees was used to prevent the risk of wind uplifting the panels.

#### **8. Will the solar panels still produce electricity on cloudy or snowy days?**

- Even on cloudy days some light is absorbed by the solar panels, therefore some electricity will still be produced.
- With snow, the panels absorb heat during the day and the melting snow creates a water slick.
- The snow then slides off and the panels resume producing electricity.

#### **9. What is the difference between solar PV and solar thermal systems?**

- Solar PV systems produce electricity, whereas solar thermal systems are used to produce hot water.
- In Alberta, high electricity costs and low natural gas costs give solar PV systems a better return on investment.
- Also, solar PV systems have lower maintenance costs than solar thermal systems.

#### **10. What other solar PV projects has The City completed?**

- The solar PV system at Southland Leisure Centre is the largest solar PV project at The City of Calgary.
- There are other small scale solar PV systems at The City of Calgary, including the 50kW system at the Bearspaw Operations Workplace Centre, the 30 kW system at the 69<sup>th</sup> Street LRT Park and Ride and other small scale projects under 5kW.

#### **11. Is The City planning to do any more solar PV projects?**

- Yes! Until now, solar technologies have been fairly expensive and many of our existing buildings are not suitable candidates.
- Recently, solar PV has become more beneficial to The City based on the following observed trends:
  1. The cost of the technology continues to decrease;
  2. The efficiency of the technology continues to improve; and
  3. The price of grid electricity continues to rise.
- The City is currently evaluating options for additional projects at new and existing buildings.
- Not all sites are suitable due to structural capacity, location, shading, and other factors.
- We have the best people on the job reviewing potential options, so stay tuned.

#### **12. How can I get solar panels installed on my house?**

- You can visit CanSIA's (Canadian Solar Industries Association) online member directory and contact any local member.