



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 69th 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.