

Solar Uptake Barriers and Potential Solutions

Upfront Capital Investment

Solar electricity allows users to pay for their system through decreased electrical utility bills where solar power provides a portion of their electrical consumption needs. However due to the large upfront costs of a solar system, the payback period for solar users can be unfavourable. For example, a 5 kW solar panel system can cost at least \$15,000 (\$3 per Watt) for a typical solar user. If a solar user has the finances to cover these costs and can utilize the current rebate offered by SaskPower (which provides 20% of the total upfront cost), the payback period is approximately 11 years. However, most users do not have the upfront capital and will require financing, which results in a longer payback period due to added monthly interest charges.

The opportunities for the City of Saskatoon to address barriers associated with access to upfront capital include, property tax abatements, grants, providing a loan loss reserve or guarantee to support third party lending, preferential pricing of solar electricity supplied to the Saskatoon Light and Power grid and providing low cost or free long term (e.g. 30 year) land leases.

Rate Classes and Blocks

Outside the residential sector, electrical rates are currently designed to promote electrical consumption for high electrical consumers (such as commercial and industrial customers) through rate blocks and rate classes. Rate blocks offer discounted electricity rates for electrical consumption beyond a certain threshold.

For example, City Hall falls under the following rate class because of its high electrical consumption:

Commercial Loads Greater Than 75 But Not Exceeding 3,000 kVA - Utility Owned Transformer

Service Charge (\$)	\$61.55
Energy charge (¢/kWh)	
First 16,750 kWh	12.73¢/kWh
Balance	8.15¢/kWh
Demand (\$/kVA)	
First 50 kVA	no charge
Balance	\$16.57/kVA

neighborhoods may still exist and home owners may be able to utilize solar electricity through community solar projects which utilize Virtual Net Metering.

Virtual Net Metering

Virtual Net Metering (also known as Net Billing) is a concept that was developed in other communities to address issues due to rate blocks, rate classes and residents not having access to ideal solar locations. Under Virtual Net Metering, customers can pay to have a solar panel system built at an ideal solar location which is not physically connected to their electrical service and the utility provider will credit the customer's utility account with the solar energy generated from that system.



Source: <http://www.indianadg.net/community-solar-gardens-could-expand-solar-benefits-to-more-hoosiers-but-needs-virtual-net-metering>

Saskatoon Light and Power (SL&P) is currently working to pilot the concept of Virtual Net Metering in a demonstration project with the Saskatchewan Environmental Society (SES) Solar Co-op, Sun Country Highway, Saskatchewan Research Council (SRC), Saskatoon Car Share Co-op and the University of Saskatchewan. The demonstration project will virtually net meter solar power coming onto SL&P's grid from a large installation supplied by SES Solar Co-op to supply four electric vehicle (EV) charging stations. By using Virtual Net Metering the demonstration project can ensure that the electric vehicles charged at these sites are using solar energy to power their vehicles.

High Soft Costs

Solar costs are made up of three categories: hardware, installation and soft costs. Hardware correlates to the actual physical equipment and the installation costs represents electrical, mechanical and inspection costs that come with setting up the

system. Soft costs are all remaining costs associated with installing a solar system. These costs usually include:

- Application costs
- Permitting costs
- Taxes
- System Design; and
- Financing Costs

Soft costs can account for up to one-third of the solar installation costs and can hurt the economic payback for solar installations. The scale of these costs vary from region to region depending on the regulations and programs in place.

Municipalities can help decrease solar costs by reviewing application and permitting costs as well as determining whether some of these costs can be reduced or eliminated. For instance, Saskatoon currently requires a building permit for solar installations at a cost of approximately \$7.50 per \$1000 construction value. Calgary and Toronto have eliminated this cost by not requiring a building permit for solar installs when certain criteria are met to help promote the uptake of solar in their cities.

Limited Awareness of Solar Energy Among Consumers

Although solar electricity has been around for many years, it has not been a financially viable opportunity for most residents and businesses until recently. For this reason, education available to the public on how to get involved and utilize solar energy is limited in Saskatchewan. Residents who are interested in solar electricity are unaware of where to start if they are interested in the solar energy and what programs/incentives they can utilize.

There is an opportunity for the City to develop an education and awareness program to help residents and businesses. A variety of program-related considerations are outlined in Attachment 3. Any program approach should include strong education and awareness components to address this barrier.

Grid Interconnection Wait Times

As described in Attachment 1, residents who choose to use solar electricity will need to connect to the electrical grid managed either by SaskPower or Saskatoon Light and Power. This requires seeking permission to participate in their grid interconnection programs. Currently the process to participate in these programs and connect to the grid can be lengthy and may deter a user from participating in the program based on the uncertainty or the reason that things may change in the time it takes to receive approval. As interest in solar energy grows in Saskatchewan, the process for participating in these programs will need to be reviewed to see if there is any potential to streamline the process.