Factors Influencing Solar Opportunities

Increasing Rates

Since 2013, electrical utility rates have increased an average of 5% annually. This trend is projected to continue as SaskPower applies for another rate increase of 5% to be implemented in March 2018. With growing electricity demand observable in Saskatchewan, increased environmental commitments made federally, and the need to invest in modernizing an aging electrical infrastructure, continued annual rate increases can be anticipated in the next 5 to 10 years.

Higher rates for electricity make the business case for alternative energy generation more favourable.

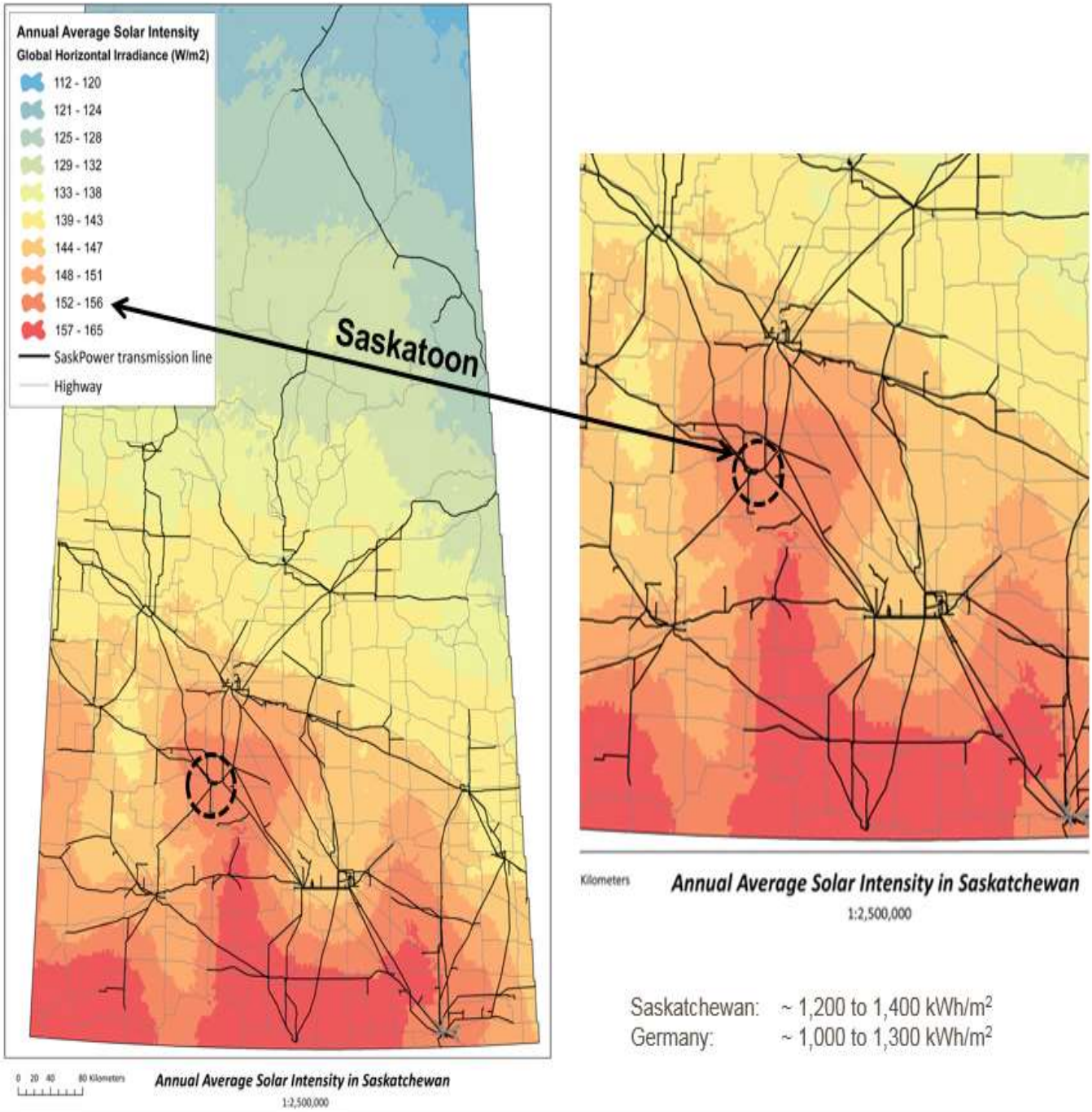
Solar Costs Falling

As electrical rates increase, solar electricity will become more viable to residents. Solar electrical panel costs are steadily decreasing and becoming more affordable. In 2014 Dunsky Energy Consultants conducted an analysis showing that solar electric panels are reaching a tipping point in the Saskatoon market. The analysis predicts that, by 2020 residents will be able to produce electricity (to be fed into an electrical grid) for less than the cost of purchasing it from a power utility.

Similar forecasts for solar electricity are reported by the International Renewable Energy Agency. In their 2016 report they forecast solar electricity costs could reduce in price 59% by 2025 with the right regulatory and policy framework in place.

Solar Resource in Saskatoon

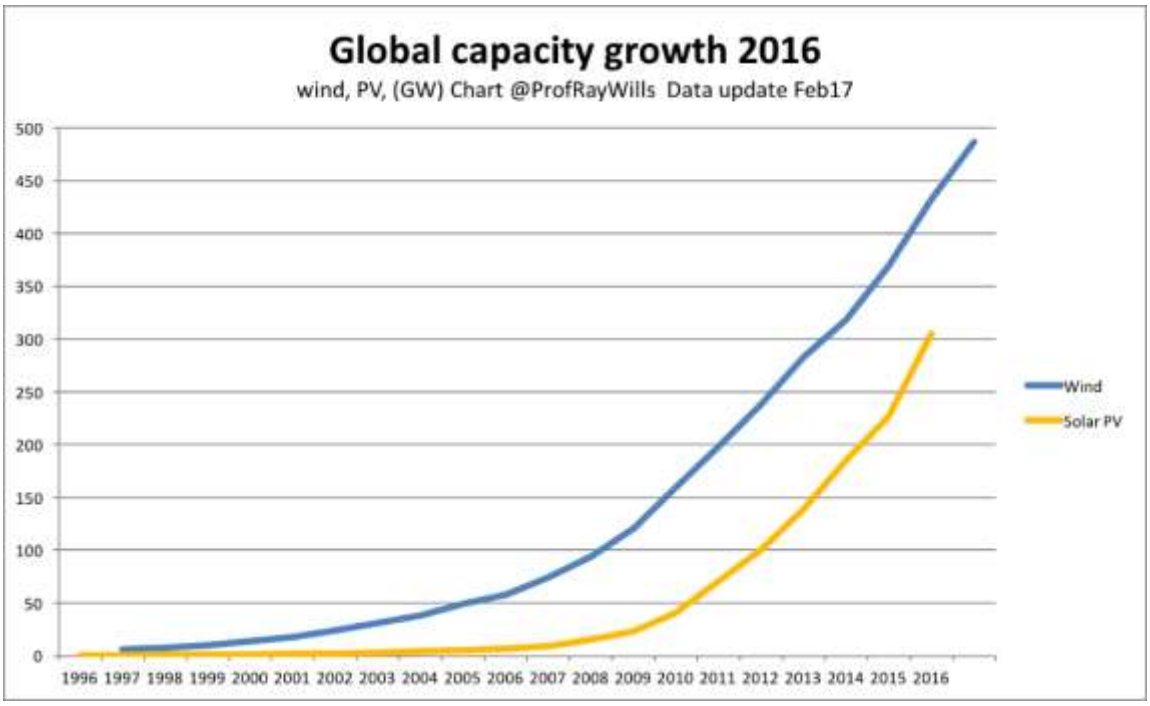
Location plays an important role in the ability to utilize solar energy. Solar intensity (Watts/m^2) varies from region to region. Canada's solar intensity on average is lower than most countries, however, Saskatchewan alone has a solar intensity which rivals or exceeds countries like Germany which have invested heavily in solar energy.



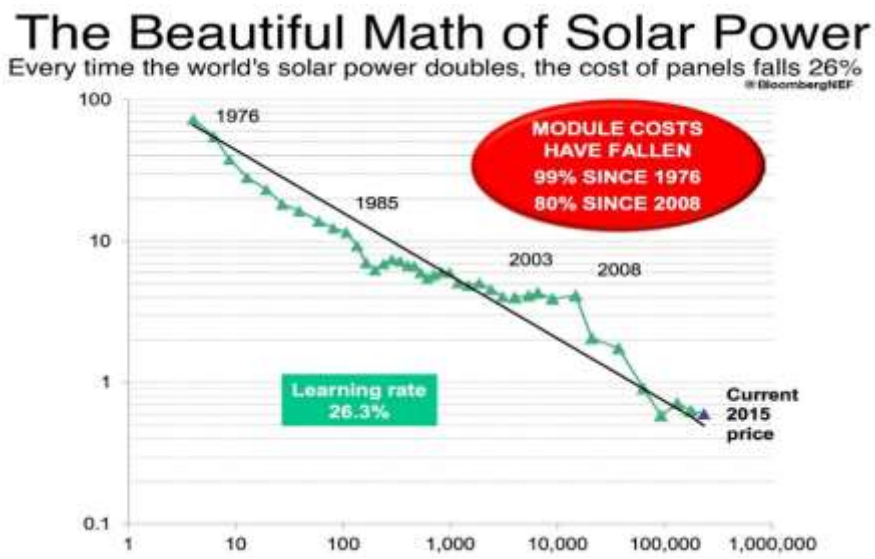
Source: SaskPower Renewables Roadmap http://www.saskpower.com/our-power-future/renewables-roadmap/

Growing Community and Market Interest

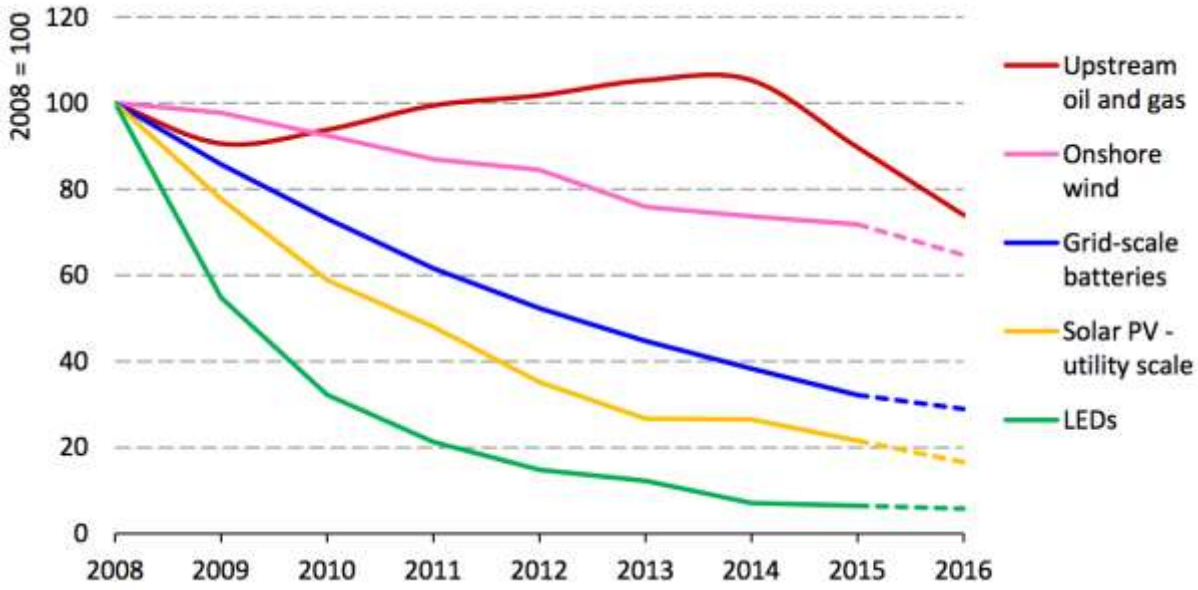
Civic staff recently attended the Global Renewable Cities Forum where the economic performance of solar and other renewable energy technologies were highlighted. The following graph illustrates the global increase in solar and wind power generating capacity (measured in gigawatts) between 1996 and 2016



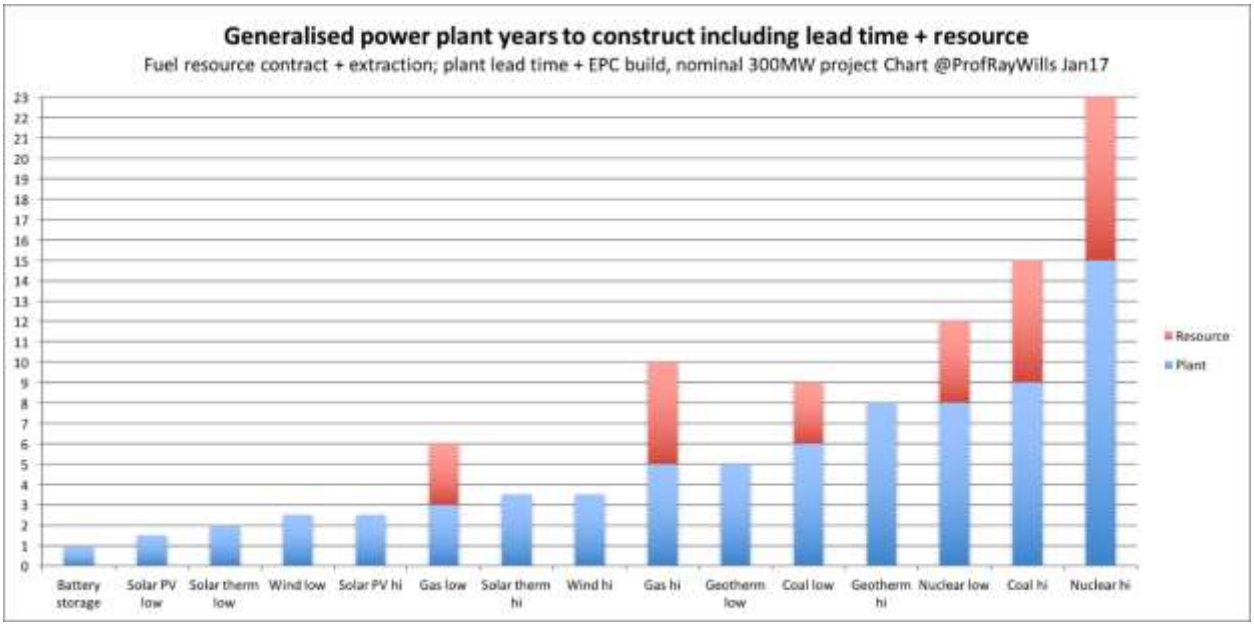
These significant growth rates have occurred both as a result of falling costs and are also contributing to ongoing cost reductions. The following graph shows this relationship in what Bloomberg New Energy Finance has labelled ‘the beautiful math of solar power’.



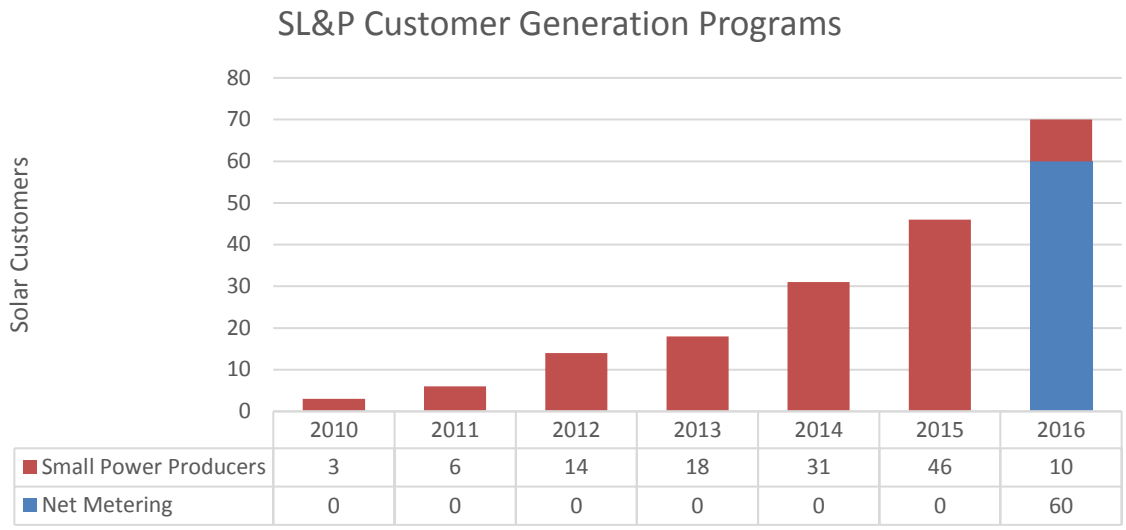
With prices for renewable energy falling quickly, renewable energy such as solar electricity is being generated globally at rates cheaper than 'traditional' fossil-fuel based energy as shown below in an analysis of developed projects by a conference presenter, Ray Wills, economist and futurist from Australia.



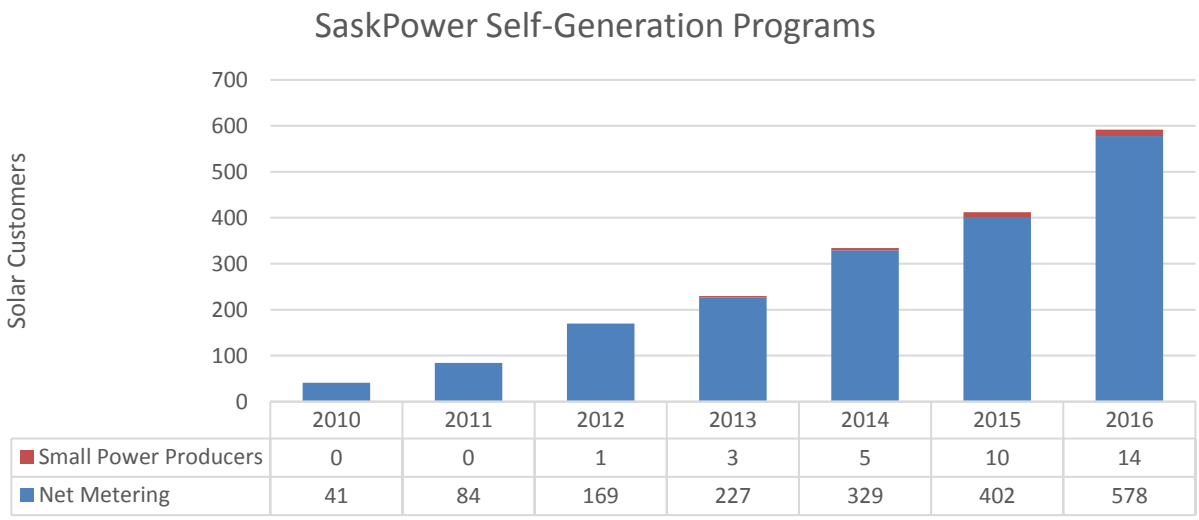
These projects are developed in the marketplace more quickly than other forms of energy.



Local market experience is consistent with these global trends. Saskatchewan has a solar resource that creates ideal conditions for residents to utilize solar energy. Residents in Saskatoon that connect solar electric panels to an electrical grid are required to follow the terms of the programs offered by their electrical utility, either Saskatoon Light and Power (SL&P) or SaskPower. For a typical residential installation these programs are the Net Metering or Small Power Producers Program. Of the two programs the Net Metering Program is more favourable to residents due to the preferential rate and Net Metering Rebate offered by SaskPower. Since 2010 both SL&P and SaskPower have seen growth in these programs, particularly in the area of solar electricity panels (known as photovoltaics or PV). SaskPower has grown from 46 solar electricity customers in their grid interconnection programs in 2010, to 617 in 2016 (13-fold increase or 55% annual growth rate) and SL&P has grown from 3 solar electricity customers in their grid interconnection programs in 2010, to 70 in 2016 (23-fold increase or 70% annual growth rate).



*SL&P Net Metering Program began in 2016
**Decrease in participation in Small Producers Program in 2016 due to customers switching to Net Metering Program



Jobs

The solar industry has started to play a more important role over the last 5 years in regard to job growth within the energy sector. The following has been reported by the United States and the International Renewable Agency:

- Fossil fuels still account for a large portion of the United States energy jobs, however specifically in the Power Generation Sector, solar employment makes up the bulk of jobs at 43%
- Solar employment in the United States, since 2010, has experienced increasing growth rates from 0% to 200%
- Construction and installation, wholesale trade, and manufacturing make up the bulk of solar electricity jobs; and

- Internationally, there were approximately 8.1 million renewable energy jobs in 2015, with approximately 2.8 million of these jobs coming from solar electricity employment

Canada's investment in solar energy is currently not as robust as in other countries due to large amounts of electricity already being obtained from renewable sources such as hydro. However, solar electricity capacity in Canada has steadily increased from 2008 to 2013. In addition, the Federal Government has committed to phase out coal fired power by 2030, which will create a generation capacity gap that can be filled by sources such as solar electricity. For instance, in Saskatchewan, SaskPower has committed to changing their generation capacity to 50% renewables by 2030, with 180 MW coming from solar generation by 2031. This shift by SaskPower to more renewables will contribute to increased solar employment in the province and help offset the recent reductions in employment within the fossil fuel sector.