

Solar Implementation Toolkit

Presented by Starland County
September 2014

Introduction

The alternative energy industry has incredible growth potential and the ability to revolutionize our power sustainability and environmental footprint. There is significant benefit that can come to a community when the municipality supports the development of alternative energy.

In Starland County we have had a surge of interest in energy efficiency, monitoring of consumption, changing energy consumption habits, and overall excitement about this new perspective on power. These benefits are in addition to the local power generation, engagement with new technology and reduced environmental impact that we have seen because of our work with solar photovoltaic and alternative energy.

Why Solar?

Solar energy is not only sustainable, it is renewable - we will never run out of it! It is as natural a source of power as it is possible to generate. Not only are we able to refuel our vehicles with it, we can heat our water and light our homes. The creation of solar energy requires little maintenance, once the solar panels have been installed and they are brought up to maximum efficiency there is little else to do to ensure they are in working order. Starland County has employed solar panels for over ten years and none of them have required any maintenance. The advancements in the technology used to create solar energy are continuing to improve making it even more cost effective.

The cost for solar photovoltaic panels, associated racking and components necessary to install solar and connect to a home or yard site has become very simple and cost effective. In Starland County we are reaching the tipping point for the commercialization of solar. It is time to join the movement and engage with alternative energy.

A Solar Implementation Toolkit

A Guide To Getting Involved

In the pages that follow we provide a guide and access to tools that can help your community engage with alternative energy. We hope you find these tools beneficial. More importantly if you are interested in becoming an advocate for alternative energy please contact us! We would love to help any way we can.

1. Get Involved and Learn

Understand Payback and Business Model

Over the past 10 years Starland County has worked to implement solar photovoltaic technology. First hand experience is important. As well as learning what works well and what doesn't. We have worked hard at understanding paybacks and solar business models. In Starland we believe that if you work to implement good technology in a way that is cost effective you can experience investment paybacks approaching 10 years. In the right situation you may also be able to lower your line charges and get accelerated capital cost allowance that enhance that payback even further. Currently we are also being very active in pursuing a fair compensation for alternative energy within the Alberta energy system. If some of these adjustments were made in our system alternative energy would have drastically improved returns and market viability.

10 years ago a 10kW install cost more than \$200,000. 24 months ago that same system cost more than \$60,000. However, with some sweat equity and smart sourcing we are able to install that system for \$30,000 or better (under \$3 per Watt installed) becoming close to a 10 year payback. To reach an appropriate cost and payback you need to scrutinize the type of product, install costs, racking, wiring. Every aspect is important to find how we can get the lowest cost and the lowest payback with the best product.

TOOL

1

Payback Analysis

We worked to understand payback through calculating power consumption from annual power bills and projected production from Alberta statistics. Analysis does not include lowered power costs from associated decrease in line charges, analysis only compensates for benefit from produced power to offset consumption. Actual installations have perceived a substantially faster payback due to tax benefits and reduced line charges.

Download Options: [PDF](#) [Excel](#)



2. Advocacy - Build Support

Getting involved with solar is really joining or starting a movement. It is still counter cultural in Alberta to take steps and make investments towards controlling our own power. On the other hand people find it incredibly rewarding and empowering to take steps that will give them sustainable access to power. Advocacy around sustainable energy and developing a strong and knowledgeable support base is key to the success of implementing a substantial solar project.

TOOL 2

Sample Training Presentation

As we worked to inform residents about the advantages of solar and alternative energy we did numerous training and information sessions. We trained about the technology, how to implement the technology, the benefits of the technology and the return on investment. As we grew excited about the technology and were good at communicating, our community grew more and more excited about the technology as well.

Download Options: [PDF](#) [video 1](#)

TOOL 3

Sample Marketing Material

It was important to build many support materials to allow interested residents access to information. This material allows people time and space to research prior to getting involved. These channels were successful in supporting very strong interest and appetite for alternative energy technology within our residents.

Download Options: [video 2](#) [poster](#) [website](#)



3. Lower The Barriers

Our community was very clear: ‘we are concerned that solar photovoltaic installations are complicated and we do not want the hassle of connecting to the grid.’ At Starland we have worked towards having the systems that are simpler to install and connect then they have ever been. Systems can literally be delivered to your home and connected to your electrical system that same day.

Now more then ever wire line owners like Fortis and Atco are equipped and ready to work with solar installations. In any project there are bumps in the road, however the microgen regulation really is working and does facilitate grid connection efficiently. To further make sure connecting to the grid is not a barrier to new installations we try to facilitate the paper work and connection process. With some leg work and the support of partners this has become a good process.

TOOL 4

Sample Micro-generator Application and Process

Attached is a sample submission to the wireline provider. This package initiates the wire line provider ordering a new meter for the site and finalizing approval with AUC for the micro-gen site. We provide this package and then once the site is installed and inspected the inspector signs the line diagram and then that signed copy is resubmitted to the wire-line provider. Following this submission the wireline provider is able to provide an interconnection agreement for execution. The process is really simple.

Download Options: [PDF 1](#) [PDF 2](#) [PDF 3](#) [PDF 4](#)

TOOL 5

Discussion On Permitted Use Bylaw Adjustment

Lowering barriers also meant making sure the permitting process for installing solar was as efficient as possible. It is important to understand that installing a solar array is in many cases less of a project then installing a hot tub. In the attached document we outline what updates we made to our land use bylaws to facilitate a smooth permitting process for solar applications.

Download Options: [PDF](#)



4. Provide Incentive

We paid 50 cents per kW up to a maximum of \$5000 per installation. We know that long term these sorts of incentives are not the final solution for alternative energy. Because Alberta has chosen an 'open market' system, where the transmission pricing favours centralized producers, Alberta has not yet reached the tipping point where the economics would drive the full commercialization of solar photovoltaic.

\$5000 was our estimation of the gap between a non saleable payback on the installed solar photovoltaic systems and a payback close to ten years. Paying the incentive allowed us to begin implementing this technology ahead of the tipping point. The primary outcome is that when we do reach the tipping point we have strong advocates, our community has familiarity and experience with technology, and a strong appetite and excitement surrounding alternative energy. As the economics for alternative energy change in Alberta, this pilot project leaves us poised to successfully achieve very high installations rates in our community.

TOOL 6

Funding Agreements

As we provided incentives it was important that legal considerations were made. Specifically we made it mandatory that if the incentive was provided the associated photovoltaic equipment was installed and that they installed tracking and that access to the tracking data was provided to Starland County.

Download Options: [PDF](#) [Word](#)



5. Track and Tell Your Story

Maybe the most important step when working with alternative energy is knowing the benefits you have created and being effective at communicating your success. We highly recommend involving a high end tracking system in your implementation strategy. We employed egaug and have provided access to an example tracking site and sample quote for egaug in the tool below.

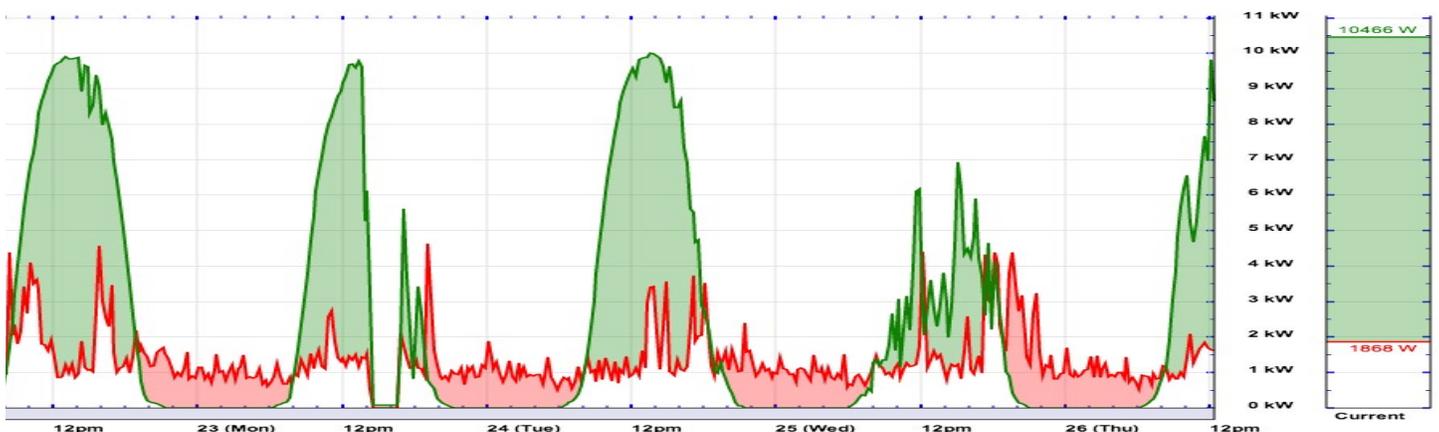
We have also been working on a web platform that can pull that data out of each of our egaug sites in real time and role up the information to cumulate the data either for a specific community or the province as a whole. This will be a very important tool for communities to showcase their work as we strive to reduce our carbon footprint. If you are interested in more information about that project please contact us.

The biggest benefit we have had from tracking our success and telling our story is a community that is both excited about alternative energy and about reducing power consumption. We have farmers that approach us with their stories of how they have saved significant power consumption by changing their habits. Before tracking was a part of our community, we were simply oblivious to how we could do better. As we tell our story we always have more interest and that has been a big part of starting an alternative energy movement in our community.

TOOL 7 Egaug Tracking Information

We have experienced tremendous benefit from tracking power consumption and solar production side by side. Users have become enthusiastic about using less power and managing their solar to maximize output. This information and platform is capable of being rolled together to showcase total community production and benefit so that we have high quality reporting.

Download Options: [Example Live Tracking](#) [Sample Quote](#)



This toolkit has been developed by Starland County with the generous support of the Municipal Climate Change Action Centre.



If you have any questions about working with Alternative Energy or the tools in this document, please do not hesitate to contact us directly.

Jordan Webber

Economic Development

587.795.0503

jordan@starlandcounty.com

The Starland Solar Initiative would also like to recognize the generous contribution made by Bullfrog Power which enabled the development of the project. Starland Solar Initiative would further recognize all of the farmers and residents that have supported and been involved in the initiative.

To date that Starland Solar initiative has been successful in supporting the installation of over 140 kW of solar photovoltaic capacity on to farms with Starland County in addition to the ongoing County alternative energy developments. More installations are being planned and developed all the time.
