



Cowichan

The Solar Capital of BC

Recommendations For Local Governments

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This report is intended for elected and unelected officials with local governments in the Cowichan Valley, including First Nations, the Cowichan Valley Regional District, the Municipality of North Cowichan, the City of Duncan, the Town of Ladysmith, and the Town of Lake Cowichan.

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We would also like to thank LUSH for its support for our local solar outreach work.

One Cowichan is a citizens group working to make the valley a great place to live, work and play. We believe in connecting decision makers with the strong social and environmental values that join us together as a community, and in celebrating this beautiful place – our home.

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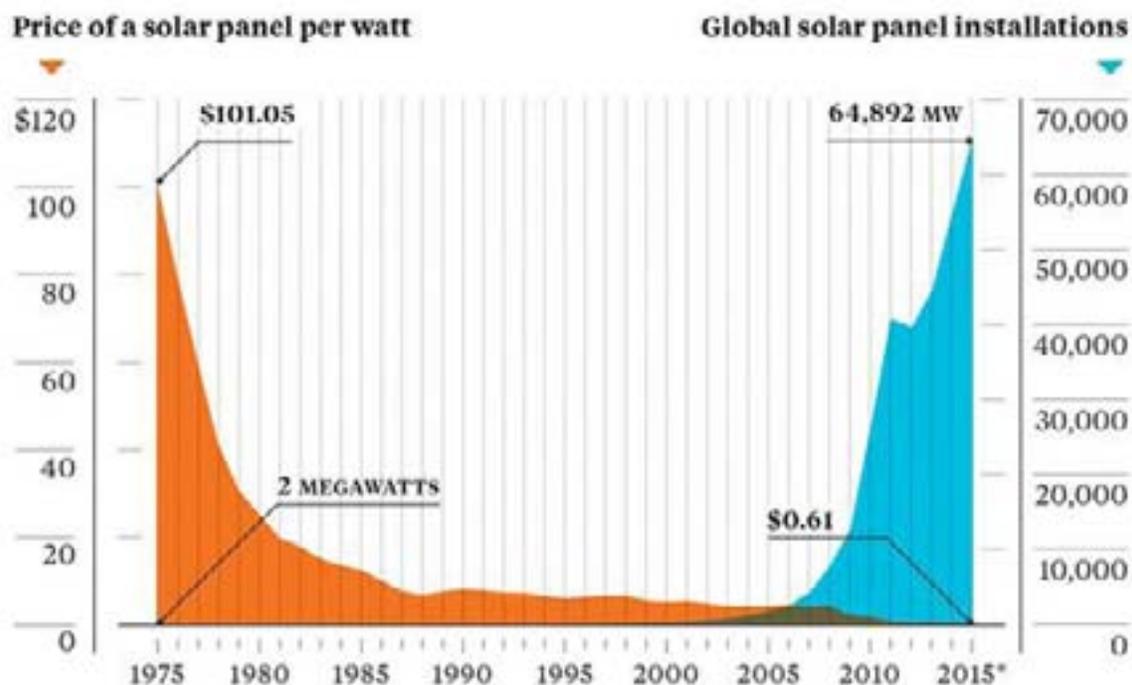
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Recommendations

Cowichan is already an emerging leader in solar energy. With local government leadership it could do much more. We could become the solar capital of BC.

Consider:

- Over the next decade, Cowichan will send away over a billion dollars for energy.¹ Part of that money that could instead be invested locally, creating economic activity and jobs here at home.
- We are already directly experiencing early signs of climate change with more frequent droughts in Cowichan. Scientists are [warning](#) us that at most remaining fossil fuels will have to remain in the ground if we are to have secure life support systems. We have no choice but to switch to alternatives.
- In 2013, BC Hydro [announced](#) that electricity rates would increase 28% over 5 years. This is probably just the beginning, though, as grid [upgrades](#) and likely cost [overruns](#) for the Site-C dam put more upwards pressure on rates over 5 years, with 15.5% of this already in place.
- Over the past 40 years, globally the price of a solar panel per watt has [fallen](#) from US\$101.05 in 1975 to US\$0.61 today. The more that solar costs fall, and the more that BC Hydro rates go up, the less time it takes for solar installations to pay for themselves – currently estimated at about 15 years, or a 4-6% rate of return, depending on various factors.



Credit: Earth Policy Institute/Bloomberg

¹ This figure comes from multiplying the number of households in the CVRD (over 30k in 2011) by a \$5k average energy bill, estimated [here](#). That would yield \$165 million/year, but we've rounded down.

- Electric vehicles and electricity storage are **advancing** significantly with improvements in battery technology. This is changing the game, disrupting both traditional fossil fuel infrastructure and utility infrastructure.

The transition point is here and local governments have a key role to play, as other cities across Canada are already showing. Here are our recommendations for local governments in Cowichan:

1. Lead By Example

Local governments are able to make "patient" investments of the type needed for solar power. Given the solar area that local governments own (from building rooftops to city parks), there's no reason why local Cowichan governments cannot reduce their electricity bill to zero through investment in solar panels. Beyond that, there are opportunities to switch to electric vehicles for local government needs, and to replace petroleum bills with electricity generated in house.

2. Be Inclusive

There is the potential for Cowichan's solar transition to be confined to wealthier residents and to outside contractors. Lower income households need assistance with financing and incentives, or risk being left behind. There are also good jobs installing solar systems and other solutions that local people should be trained for, including First Nations. Local co-ops are already playing a role, and can do more.

3. Remove Barriers

Are there local rules and regulations that make it difficult for households to install solar panels in Cowichan? One **study** found that despite promises to be "green," the City of Vancouver is slow and costly for solar installations. We recommend local governments conduct an audit to ensure they are not throwing up barriers to solar.



4. Regulate

Local governments can require that developers build developments and homes to be "solar ready," taking into account home orientation and roof standards. The City of Vancouver now [requires](#) new homes to be ready to accommodate electric vehicles.

5. Get Incentives/Disincentives Right

Local governments have always shaped residents' energy choices through taxing and spending patterns. Servicing new greenfield single family residential developments, for example, drives energy intensive outcomes. Spending money on bike lanes and transit instead of roads does the opposite. Frankly, all local spending decisions should be put through this lens, but for now we recommend following cities like Banff in adopting solar incentives.

6. Establish Local Financing

While the economics are improving rapidly, investing in solar is still a medium term payoff. Below we outline how Halifax has established a financing program. Local governments may also explore the concept of "green bonds" for its own solar installations, whereby local investors finance the projects and receive a regular rate of return (see North Island example [here](#)). We also believe that local financial institutions have a role to play establishing financing programs (eg. "solar mortgages"), and can get there with encouragement by local governments.

7. Seek Funding Partnerships

There are grant programs available for local energy solutions and training, but more success will be achieved when local governments – including First Nations – join together, possibly with other community actors, to apply.

8. Bundle Other Solutions

While solar electricity is a great, visible indicator of positive change, it isn't a silver bullet. Nothing is. But, it is a great gateway conversation into other solutions, including insulation, passive solar, water conservation, heat pumps, geothermal, public transit, bike lanes, and electric vehicles. We recommend bundling other solutions, as cities like Halifax have done.

9. Structure Yourselves To Act

This is probably the most important recommendation. No offense intended, but good intentions can die a slow and painful death in "study" and in "committee." Anything that is executed well is put in the middle of the desk of key people to drive, allocated time and resources, and given deadlines for action. We recommend all these things.

Eyes Wide Open

The conversation about solar seems to bring out the same kind of people who formerly denied climate change – now suddenly concerned about the environment and alleging eco-abuse by the solar industry. Anything but change.

Yes, producing solar panels and batteries does have impacts. All energy production does. It comes down to choices (eg. a livable climate?) and to working to improve those impacts. Solar panels have been shown to be net positive for greenhouse gas emissions and manufacturers are starting to implement recycling programs. More must be done, and we must ask that it be done.

Background

Solar energy's time is here. It is not some theoretical, far-off dream, but a technology that is ready for adoption as a critical piece of Cowichan's energy puzzle.

As recently as 2012, consultant Geographic Resource Analysis and Science reported almost dismissively to the CVRD that the role of solar in Cowichan's energy mix was of little consequence. In the 56-page, "Cowichan Valley Energy Mapping and Modelling Report 3—Analysis of Potentially Applicable Distributed Energy Opportunities," less than three pages dealt with solar photovoltaics. The scant metrics referred to are, by today's standards, lacking in credibility (see pdf [here](#)).

Laudably, the CVRD had commissioned this report in an effort "to increase its energy resilience, as well as reduce energy consumption and greenhouse gas emissions, with a primary focus on the

residential sector." The CVRD had a stated "internal target" calling for 75% of the region's energy within the residential sector to come from locally sourced renewables by 2050. This target had been developed as a mechanism to meet resilience and climate action objectives.

The motivation for this study was to increase the resilience of CVRD communities to future climate and energy uncertainties and to increase energy self-sufficiency in the face of global and regional challenges. "Overall this strategy will reduce reliance on imported energy and the aging infrastructure that connects Vancouver Island to the mainland."

It is time for local governments to rededicate themselves to this important policy objective and revisit the significance of distributed solar photovoltaic (PV) technology. Our community is clamouring for action. In recent weeks, hundreds of citizens have signed a One Cowichan petition calling on our locally elected representatives to get involved (see [here](#)).

One Cowichan's aim in circulating this petition was to prove to local government that they have a strong social licence to implement a robust package of local clean energy measures. Some dozens of Cowichan households have already seized on the potential of PV generation and invested in rooftop arrays. BC Hydro now reports that the Cowichan Valley now leads British Columbia in small-scale solar installations.

So, What's Happening in Cowichan With Solar Energy and Why Is Now The Time To Act?

BC Hydro and Sunshine

Just as demand is not uniform, neither is hydroelectric power generation. There are seasonal and year-to-year variations in water inflow and hydroelectric capacity. Hydro reservoirs are typically at their lowest levels just before spring runoff. In North America, this is normally in the March–May timeframe. PV generation does vary over the year and can offset hydro reservoir cycles. Water concerns and Hydro increasing rates will make solar generation a cost effective alternative.

Canada, though not in the running for top PV-installed capacity, does host one of the world's largest PV power plant in Sarnia, Ontario (see [here](#).) Germany, the globe's [leader](#) in solar power installations, is responsible for half of the solar electricity generated worldwide. The average amount

of sunshine per year in Germany is 1500 hours. Here in the Cowichan Valley we receive an [average](#) of 1800 hours per year, indicating that our valley is well suited for solar power. Apparently, we already lead the province on private solar installations, showing that the citizens of the valley are enthusiastic about solar. More references [here](#) and [here](#).



Local Activity

- **The Bulk Buy.** There have been two bulk buys of solar panels. Last year, it only took 3 weeks and 30 homeowners to raise \$125 000 to buy 864 panels. Peter Nix bought 192 of them and his solar array is about 50% complete today. The second bulk buy ended March 30, 2015, but requests are still coming—so far, about 350 panels and 15 homeowners. Some of these requests are from up-Island so not all of the installations are in the Cowichan Valley, but this also speaks to the potential to create jobs 'exporting' solar expertise.

- **Viridian Energy Co-operative.** This worker-owned co-operative, an alliance of three licensed electrical contractors, a journeyman plumber, and three renewable energy specialists, offers

expertise in renewable energy and energy recovery options for industrial, agricultural, public sector, commercial, and residential clients. The co-operative provides a vast array of technical services from feasibility assessments to service, maintenance, upgrades, and troubleshooting. Viridian can install and maintain both solar photovoltaic (both grid-tied and off-grid systems) and solar thermal systems (solar hot water). For more information, see [here](#).

- **Other Local Elements.** We already have a community-owned and operated organization dedicated to the local production, use, and promotion of ethical and environmentally sustainable energy for the local economy. Since 2005, the Cowichan Bio-Diesel Co-operative has [supplied](#) 100% biodiesel recovered from recycled cooking oil to its members as a petro-diesel alternative. There has been a positive discussion about expansion into solar. Cowichan Energy Alternatives, founded in 2008, [provides](#) energy and greenhouse gas emissions inventories and planning services, renewable energy feasibility studies and implementation, and leadership for community carbon offsetting initiatives. A Climate Action and Energy Plan has been adopted by North Cowichan Council. This plan has recorded our community's existing energy use and greenhouse gas emissions and identified future trends based on population, land-use, technology, and other factors.

Collectively, these organizations and their expertise will greatly assist us with solar power infrastructure planning. A lot of the local work is already done. But let's step back a bit to see what we can learn from other communities here in BC and across Canada.

Other Canadian Cities Taking Leadership

Saskatoon crowd-funded and created Saskatchewan's first solar co-operative. They sold memberships for \$900, which buys one solar panel. The project started with 400 solar panels and members will receive yearly rebates. For more information, see [here](#).

Halifax's "Solar City" program acquired a \$545 000 grant and a low-interest loan from the Canadian Federation of Municipalities (\$5.4 million). These funds are loaned by the city to homeowners at low, long-term interest rates to install solar hot water systems. Along with reducing CO2 emissions, the program's embedded water conservation effort will save more than 30 million litres of water annually. For more information, see [here](#) and [here](#).

Banff charges rent to the utilities that use space under the streets. This money was put into an environmental reserve fund and then spent on energy-efficient rebates, hybrid buses, LED street lights, and solar installations on public buildings. Moreover, Banff offers incentives to households that install their own solar systems. For more information, see [here](#), [here](#) and [here](#).

Kimberly's SunMine is the biggest solar field west of Ontario. Construction started officially in July 2014 as part of a \$5.3 million project to make use of a contaminated mine site. Project costs are reduced tremendously as all high-voltage power lines and a substation are already in place. SunMine will hold 4000 solar cell modules, mounted on 96 solar-tracking stands, following the sun's movements and generating electricity. For more information, see [here](#).

Dawson Creek imposed a \$100 per tonne levy on greenhouse gas emissions, depositing these funds into the newly created Dawson Creek Carbon Fund. With this money, LED street lights were installed, which use 66% less energy. The city vehicle fleet is being hybridized and solar panels have been installed on many public buildings. For more information, see [here](#).

Gibsons BC Green Team and **Sunshine Coast in Transition** is exploring the possibilities of a solar co-operative and solar projects. For more information, see [here](#).

T'Sou-ke Nation is producing electricity and hot water from the sun since 2008. Large PV systems were installed on the band's fisheries office, the band hall and above and beside the community's canoe shed. Solar hot water systems have been installed on 40 homes and there is a solar powered electric vehicle charging station. 10 members were trained to complete some of the installs and an eco-tourism program invited those outside the community to take a tour of their solar installs. Funding came from 15 different government and non-profit sources including the provincial Innovative Clean Energy Fund, Indian and Northern Affairs Canada and Solar BC totalling \$1.5 million. For more information, see [here](#).

Squamish is interested in becoming an official "Canadian Solar City." The mayor and many councillors voiced support in principle for a motion to work towards this goal and the City is already working on several "Solar City" requirements. One project is an educational booklet about local possibilities for alternative energy. A Squamish Alternative Energy Group is also actively pursuing this goal. For more information, see [here](#), [here](#), and [here](#).