

Nova Scotia Residential Solar



Market Outlook and Labour Force Study

Executive Summary
April 2019



Prepared for:



NOVA SCOTIA RESIDENTIAL SOLAR

MARKET OUTLOOK AND LABOUR FORCE STUDY

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ABOUT DUNSKY

Dunsky Energy Consulting, Canada's leading clean energy advisory, provides strategic analysis and counsel in the areas of energy efficiency, renewable energy and sustainable mobility. We assess opportunities (technical, economic and market), design strategies (programs, plans and policies) and evaluate performance for governments, utilities and others across North America.

Dunsky's team of 20+ experts is wholly dedicated to helping our clients build a sustainable energy future.

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EXECUTIVE SUMMARY

After a number of years of moderate but steady growth, the Nova Scotia residential solar market has experienced a significant increase in uptake over the past year. Provincial support for residential solar through Efficiency Nova Scotia's (ENS) SolarHomes incentive program has sparked customer interest and awareness in solar photovoltaics (PV) and has supported the development a strong local solar industry.

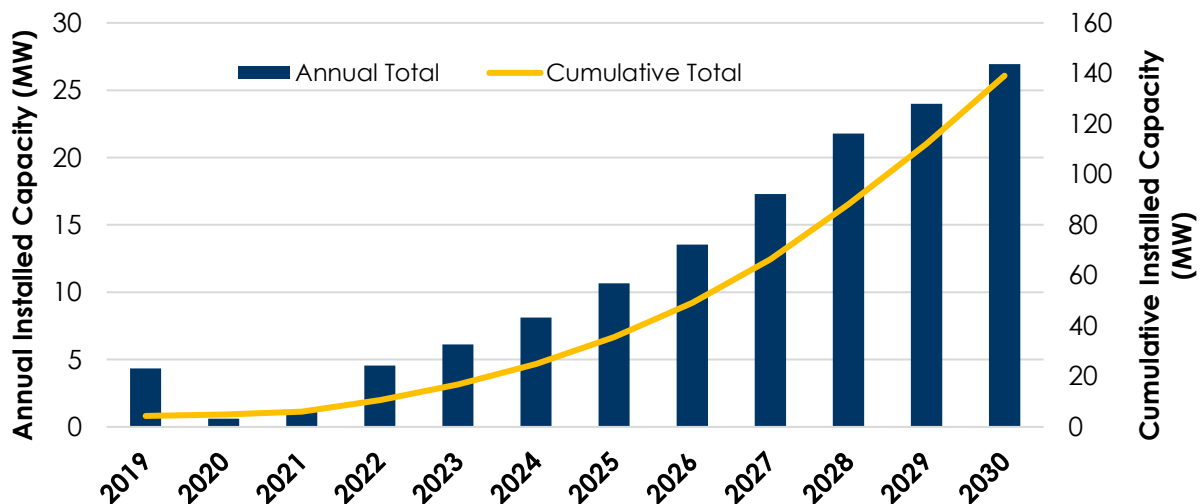
The scope of this study was to develop a market outlook and labour force study for the Nova Scotia residential solar market. Specifically, the report offers insights into forecasted residential solar deployment in Nova Scotia to 2030 under various market and policy scenarios. It also highlights estimated direct job creation associated with residential solar deployment as well as a high-level assessment of opportunities for indirect job creation along the solar supply-chain. Additionally, it identifies gaps in required skills, training and certification required to prepare the local labour force to meet the projected market demand. Finally, the report sheds light on the market potential of emerging technologies and the solar industry's readiness to engage in these areas, specifically battery storage and Electric Vehicle (EV) charger installation.

Findings from the study highlight the following key takeaways:

1 THERE IS SIGNIFICANT POTENTIAL FOR RESIDENTIAL SOLAR DEPLOYMENT IN NOVA SCOTIA OVER THE NEXT 10 YEARS

Under baseline conditions and assuming no future incentives beyond 2019, 140 MW (approximately 17,500 solar homes) are forecasted to be installed in Nova Scotia by 2030. By 2030, 150 GWh of renewable electricity are estimated to be generated from the forecasted deployment, representing 1.4% of Nova Scotia's total electricity consumption. The generated electricity is estimated to displace electricity from coal-fired power plants and results in 960,000 tCO₂e of emission reductions over the assumed systems' lifetime of 30 years.

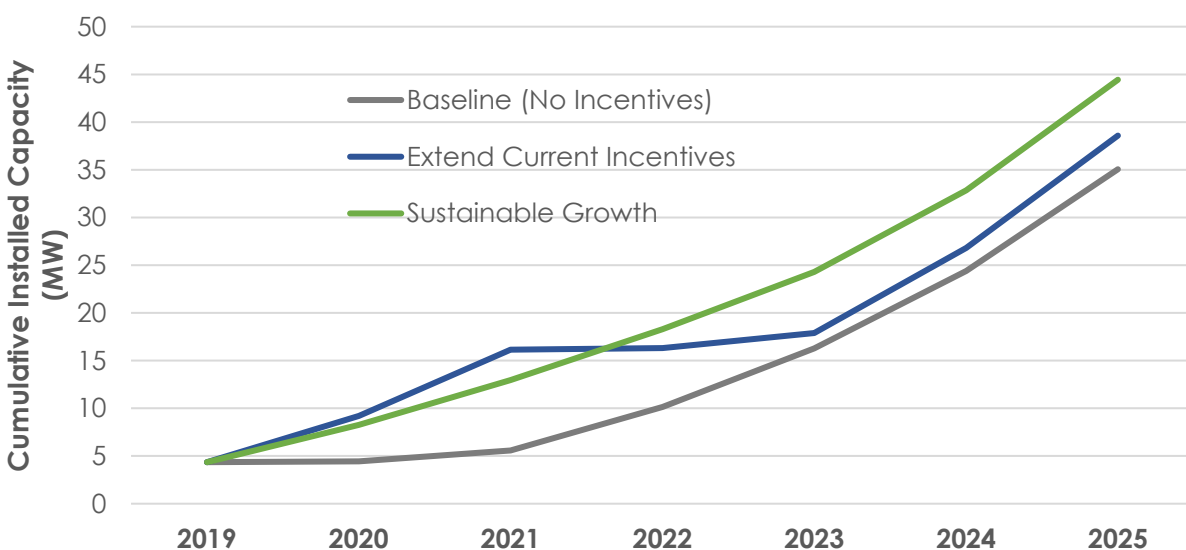
Figure ES 1: Projected Installed Residential Solar Capacity Under Baseline Scenario (No Incentives)



Sensitivity analysis highlights that market projections are influenced by local factors relating to system costs, electricity rates, system performance and system sizes which indicates a range in the forecasted increase in market demand from 96 MW to 187 MW. This corresponds to 104-202 GWh in annual renewable electricity generation by 2030 (1.0%-1.9% of Nova Scotia’s electricity consumption).

To assess the impact of future incentives and phase-out strategies on uptake, we model five future incentive scenarios that may apply to Nova Scotia. As shown in Figure ES 2, the results highlight the significant impact of policy on the market’s outlook in the short and long-term and confirm learnings inferred from other jurisdictions, where sudden removal of incentives (such as the shown *Extended Current Incentives Scenario*) has caused 2-3 years of near-zero demand, that can be severely damaging to local solar industries. More balanced gradual phase-out strategies (such as the proposed *Sustainable Growth Incentive Scenario*), where incentives are stepped down over a 3 to 5-year period, continue the market’s growth trajectory and ensure natural hand-off from incented to non-incented regime. ENS’s recent announcement of stepping down SolarHomes rebates from \$1 per Watt to \$0.85 per Watt as of April 2019 represents a similar gradual incentive ramp-down strategy, which will maintain market’s sustainable growth both in the immediate-term and post-program. **If a sustainable incentive phase-out strategy is maintained and rebates are stepped down gradually over longer periods of time, we project that 44 MW of solar will be installed in the province by 2025 (corresponding to roughly 5,500 homes) and 178 MW by 2030 (corresponding to more than 22,000 solar homes).**

Figure ES 2: Forecasted Cumulative Uptake Under Modeled Incentive Scenarios



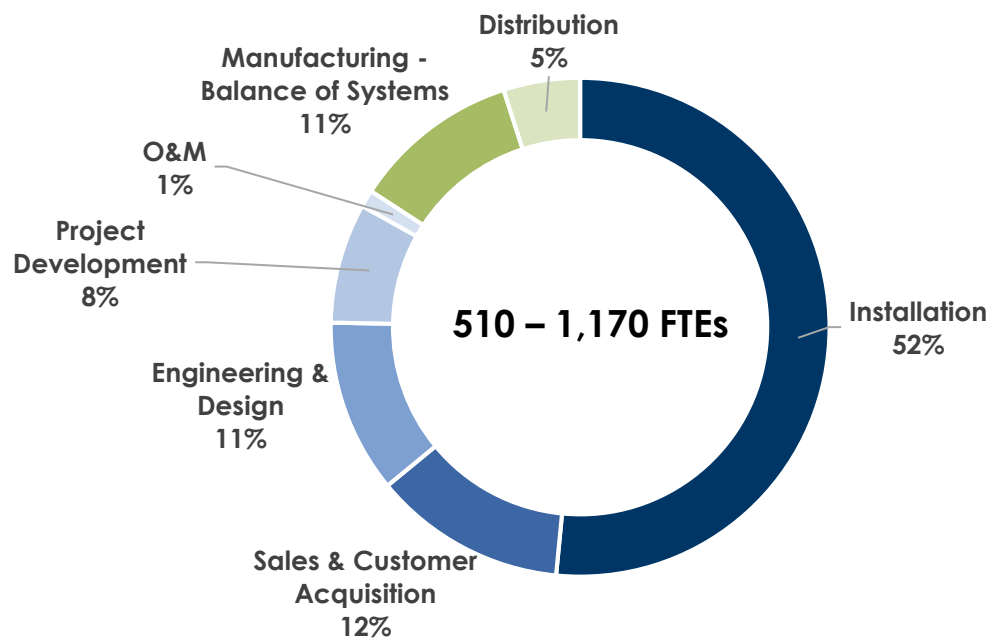
2 SUPPORTING THE SOLAR INDUSTRY OFFERS OPPORTUNITIES FOR LOCAL ECONOMIC DEVELOPMENT AND JOB CREATION

Nova Scotia’s solar industry is growing, particularly in down-stream direct project-functions such as sales, engineering and design, project development and installation. The momentum gained from Efficiency Nova Scotia’s SolarHomes program has resulted in significant growth in the local solar industry, with an estimated 51 active installers in Nova Scotia today. Input from stakeholders highlights that there are currently low barriers to entry for installation companies, and that the strong interest and support from the province and municipalities is likely to spur further growth.

Despite limited activities today, Nova Scotia has potential to unleash further job creation and economic development opportunities if additional components of the solar supply chain are addressed locally. Through a conducted Supply Chain Opportunity Assessment, Nova Scotia was found to be well-positioned to grow and foster a local solar distribution industry as well as a manufacturing of racking and other balance of system components required for the solar industry.

Based on a jurisdictional scan of employment studies from other jurisdictions and survey of local Nova Scotia installers, we estimate that the forecasted residential solar deployment in Nova Scotia will support up to 1,170 local jobs by 2030; expressed in Full-Time Equivalent (FTE)¹, with 84% (430 - 980 FTEs) being direct jobs in installation, sales, engineering and other project related functions and 16% (80 – 190 FTEs) being indirect jobs in upstream activities related to distribution and manufacturing of balance of system components. Future program support will be critical in the short-term to capture these job creation estimates; particularly continuing the gradual rebate step-down strategy will ensure continuous growth of the industry in Nova Scotia. On the other hand, periods of flat-line demand that could be caused by sudden drops in Incentive level could break the momentum the industry has gained and result in reduced employment.

Figure ES 3: Distribution of Jobs Supported Through Residential Solar Deployment in Nova Scotia by Function



A survey of industry members highlights that Nova Scotia’s existing labour force has the necessary skills to address market needs, however limited experience in solar installation and solar-specific engineering functions was pointed as short-term challenge. Although local, national and online channels for training programs were identified, several installers, through both the survey and stakeholder engagement, reported limited access to adequate courses as a major challenge. This indicates that need for developing local, accessible and well-advertised training program, which will be critical for the industry’s success and continued growth. For example, establishing a “one-stop-shop” for solar-specific training for engineers,

¹ We use Full-Time Equivalent (FTEs) to measure jobs; which is defined as one full-time position (i.e. 40 hours per week) for a period of one year. While FTEs are defined as one full-time position for a period of one year, in reality, this may be a mix of part-time and full-time positions that when combined make up the FTE metric and applied results.

installers and other general labourers in the industry would help mitigate concerns about labour force's lack of experience and ensure the industry is ready to meet the forecasted market demand.

3

EMERGING POTENTIAL AND OPPORTUNITIES FOR THE SOLAR INDUSTRY TO ENGAGE IN NEW SERVICE AREAS

The solar industry is well positioned to meet future market demand for emerging technologies; namely battery storage and electric vehicles charging infrastructure installation.

Under current conditions, limited opportunities exist for large-scale deployment of residential battery storage, with only 15 – 35% of new residential solar installations estimated to be storage-paired by 2035. The solar industry is well-positioned to tackle the market demand for storage, which is expected to create 10 – 30 additional FTEs by 2030. Under alternative rates or solar compensation structures, which may increase the value proposition of storage-paired solar, market demand and corresponding economic impacts are expected to increase significantly.

Engaging in services relating to sales and installations of EV home charging stations could result in interesting business opportunities for industry, through additional revenue streams from new services as well as expanding lead generation channels for solar business. Based on NSPI's forecasted EV adoption in Nova Scotia, we estimate that 20 – 70 FTEs could be supported in EV home charger installation services by 2030.