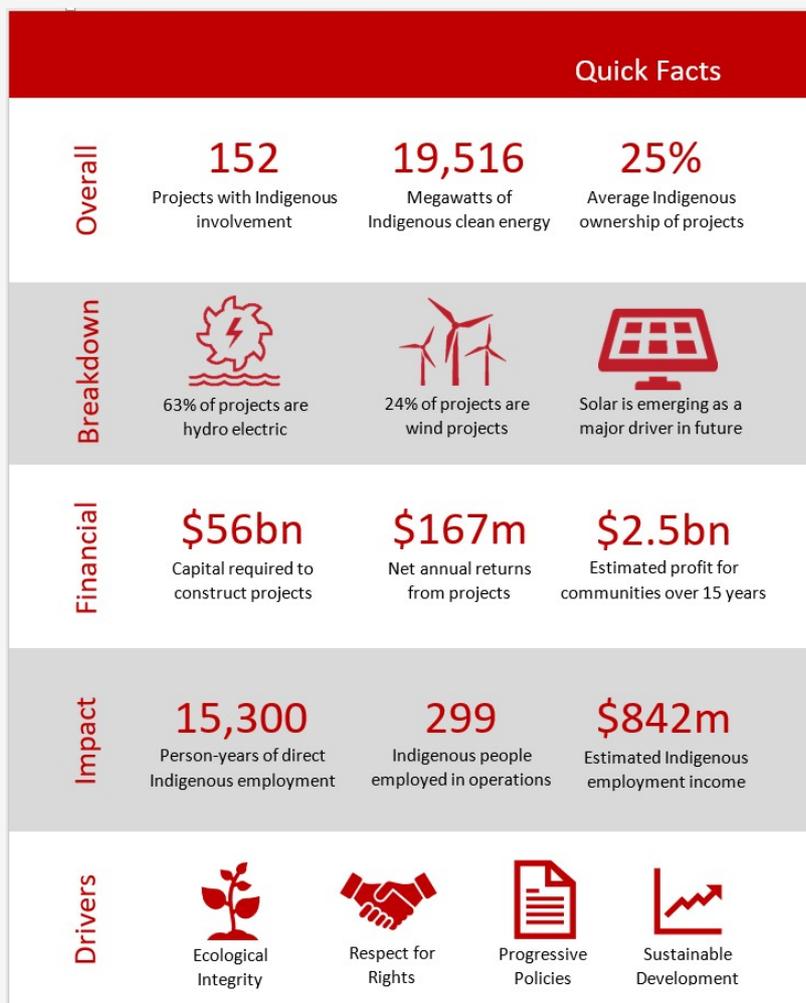


Powering Reconciliation

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This survey draws on national research and the company's database of clean energy projects which has been maintained for over 8 years. It was prepared by Lumos Energy, Canada's leading Clean Energy Advisor to Indigenous communities. Lumos provides trusted, qualified, and expert advice to First Nations, Métis and Inuit leaders and communities to finalize participation and partnerships in energy planning and clean energy projects.



Growth and Drivers

Indigenous participation in Canada's burgeoning clean energy economy has risen rapidly over the past two decades in every region of the country.

Lumos Energy, a leading clean energy advisor to First Nations, Métis and Inuit communities has validated, through a comprehensive national survey, Indigenous participation in one hundred and fifty-two **(152)** medium-large scale solar, wind, hydro and bio-energy clean energy projects now in operation.

Medium-large projects are categorized as renewable energy installations sized to generate a minimum of one (1) megawatt of electricity at full operating capacity. For reference, 1 megawatt of electricity would supply four to five hundred **(400-500)** homes.

Federal and, particularly, provincial/territorial government policies in the areas of energy, climate change, and economic development have been essential to the rise of Indigenous participation in the clean energy sector. The extent of Indigenous clean energy participation would not have been possible without public sector programs and mechanisms, and electricity market terms and conditions.

Typically, these energy projects supply electricity to provincial/territorial power grids, reducing reliance on fossil fuels like coal and gas. Some large-scale hydro and wind developments produce hundreds of megawatts, or more, of power.

Lumos Energy projects that an additional fifty to sixty **(50-60)** medium-large renewable energy projects with Indigenous participation will come on line over the next five to six (5-6) years.

"Indigenous communities have jumped on board the clean energy band wagon in a big way. There are Indigenous clean energy projects in every corner of Canada."

- Chris Henderson, President, Lumos Energy

The national survey undertaken by Lumos Energy also confirmed that over one thousand two hundred (1,200) small renewable energy projects have been constructed with Indigenous participation. Such projects generally meet local electricity requirements for First Nations, Métis and Inuit communities.

Indigenous clean energy projects affirm Indigenous rights, and the sustainable, ecologically-positive nature of renewable clean energy resonates with First Nations, Métis and Inuit cultures and traditions.

Clean energy projects with Indigenous participation embody the process of national reconciliation between Canada and Indigenous peoples. Such respect-oriented

relationships can strengthen the economic basis for healthy communities, long term prosperity, and sustainable livelihoods.

			
Ecological Integrity	Respect for Rights	Progressive Policies	Sustainable Development
Clean energy represents a path forward that closely aligns with traditional values and livelihoods.	Indigenous co-ownership and benefit realization is “walking the talk” of reconciliation.	Government policy and energy market conditions have created a ‘demand-pull’ for Indigenous participation in clean energy.	Communities have leveraged investments in clean energy to increase their self-reliance.

Cross-Canada Developments

The map below shows the spread of solar, wind, hydro and bio-energy projects with Indigenous involvement across Canada. British Columbia is leading the way with **52%** of Indigenous clean energy projects in operation nationally. Ontario is next with **24%** of projects, followed by Quebec with **10%**.

The remaining eighteen (18) projects are spread between the Maritime Provinces, the Prairies and the Territories. These regions are beginning to develop more projects with 12 occurring since 2010 and two presently under construction.

Regional participation has been subject to various market and policy forces. While BC and Ontario have been the most active jurisdictions in terms of renewable energy development, and encouraging Indigenous participation; clean energy growth in these provinces is now relatively low.

“Solar is powering a new, more socially and economically stable future for our people”

- Chief Jim Leonard, Rainy River First Nation, Ontario

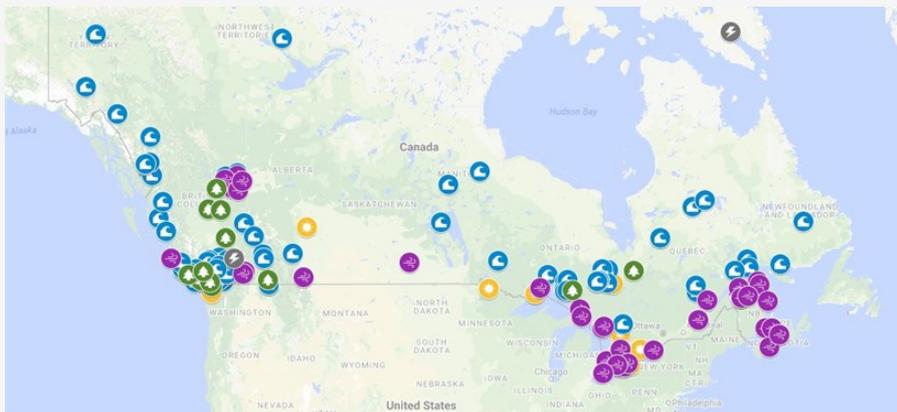
Other jurisdictions, including Saskatchewan and Alberta, are now moving into an Indigenous clean energy growth phase. Further, major growth is anticipated over the next

three-five years in the over 175 off-grid, remote and northern Indigenous communities as they transition away from diesel-reliant energy.

Clean energy projects with Indigenous involvement in British Columbia include 55 projects under 50 megawatts. This compares against Quebec where 14 projects are located, but with a tendency towards larger projects representing 27% of total generating capacity.

Hydroelectric is the most dominant resource for Indigenous renewable energy projects, comprising 63% of all Indigenous clean energy projects. Wind has been a growing technology with application in **24%** of Indigenous clean energy projects. Of the 35 wind projects, two are under construction, two came into operation this year, and 30 have come online since 2009.

The remaining 13% of projects are split between three technologies, eight are solar all of which are in Ontario, and eight are biomass where all but one is in British Columbia with the last being in remote Quebec. Nunavut is operating a district heating system.



Investments and Returns

Most clean energy projects with Indigenous participation include the following features:

- Develop a renewable resource on traditional Indigenous territory
- Involve partnership with energy development companies or utilities
- Structured as a Limited Partnership
- Operate as an independent clean energy business
- Include at least one, and sometimes several Indigenous partners
- Sells power to provincial electricity systems/grids
- Often receives development support from the federal and provincial/territorial

governments

- Is constructed through long-term commercial financing

The generating capacity of clean energy projects with Indigenous partnerships is substantive totalling **19,516 megawatts**. This represents nearly one fifth of the country's overall power production infrastructure, and has required **\$56 billion** in capital to construct.

Actual equity investment from Indigenous/developer/ utility partners ranges from 10-15% of total capital requirements because such ventures are highly leveraged. That means the majority of project capital is financed through long term debt.

The norm is for Indigenous communities/partners to hold approximately **25%** of ownership in clean energy projects. Based on project data, Lumos Energy estimates that Indigenous communities have invested \$1.8 billion in equity in clean energy projects.

This estimate is conservative, and accounts for the fact that participation in large hydro new builds and retrofits compromise a fair proportion of Indigenous clean energy involvement. Investment projections have been discounted accordingly.

For newer projects, such as Wuskwatim Hydro in Manitoba, Indigenous communities have obtained a percentage of project ownership. For other projects, La Romaine in Quebec, for example, Indigenous benefits are structured as one-time payments, or on-going Impact Benefit Agreements (IBA's).

The source of Indigenous investment varies by project and community, and includes: community funds, funds from treaty settlements and land claims, community trusts, debt financing through the project development partner, direct grants from the project development partner, external borrowing on full commercial terms, and/or external borrowing backstopped by guarantees provided by governments, Indigenous financial institutions like the First Nations Finance Authority, or project partners.

"Our northern, remote Inuit community wants to get off diesel. The good news is our Innavik hydro project is a cost-effective solution, and we'll reduce huge amounts of Greenhouse Gases"

- Eric Atagotaaluk, President, Pituvik Landholding Corporation

Using project metrics, Lumos Energy estimates that Return on Investment (ROI) averaged 14% for projects constructed prior to 2014, 12% for project from 2014 to the present, and the trend going forward appears to in the range of 10%.

These assumptions translate to annual Indigenous gross ROI of \$270 million from clean

energy projects across Canada. Net returns after covering the cost of capital total **\$167** million. These numbers will increase substantively over time as new projects come on line, and the amount of senior debt from projects already constructed is reduced.

Over the next 15 years, Indigenous communities will generate at least **\$2.5** billion in profit from clean energy project investments. The overall economic impact on the Canadian economy will be three to four times larger due to human resources development, improvements in community infrastructure, economic spinoffs, and reinvestments.

Survey Methodology

Over the course of project development and construction, and on-going operations, First Nations, Métis, and Inuit peoples have sought to catalyze a range of community and social benefits from their participation in clean energy projects.

“For the T’Sou-ke Nation, renewable energy projects have been central to our culture, and created jobs for our young people.”

- Chief Gordon Planes, T’Sou-ke First Nation, BC

First and foremost, Indigenous communities seek clean energy projects with low to minimal ecological impact on lands, water, fisheries, and wildlife. There are dozens of examples of Indigenous communities opposing clean energy projects that are environmentally damaging.

Many Indigenous leaders who responded to the national survey expressed that the most important benefit arising from participation in Canada’s clean energy economy was a strengthening of community pride, and an affirmation of Indigenous rights and territory. The abiding view was that clean energy project can materially support holistic community economic and social health.

A significant number of the Indigenous respondents also spoke to the respectful relationships arising through solar, wind, hydro, and bio-energy initiatives with project partners, government programs, and energy authorities.

Using actual construction employment data from Indigenous clean energy projects surveyed, and extrapolating for all projects, Lumos Energy estimates that **15,300** person-years of direct Indigenous employment have been achieved.

Further, utilizing national wage rates by job category, construction stage employment income for Indigenous people totals **\$842** million. Additional income was generated from

sub-contracting to Indigenous owned and operated trades, materials, and construction firms. However, empirical data is not of sufficient quality and coverage to make a definitive estimation of Indigenous sub-contracting income.

“Training initiatives like the 20/20 Catalysts program, and interactive platforms like the Indigenous Clean Energy Network are building Indigenous capacity for clean energy.”

- Stacey Goulding, Leq’a:mel First Nation

On-going employment is much more modest, as clean energy facilities do not require a large operating labour force. It is estimated that 299 Indigenous people are currently employed to operate clean energy projects; rising to 398 individuals within eight years because of Indigenous training and apprenticeship programs, and as new projects are completed.

Ancillary benefits from projects include: local infrastructure upgrades, community energy literacy and planning, community program support, housing improvements, and cultural features, such as the integration of Indigenous art into clean energy facilities.

Apart from generating a spectrum of community and social benefits for First Nations, Métis and Inuit communities, there is a considerable body of evidence that Indigenous participation has generated tangible value for projects, including: a) enhanced design to reduce ecological impacts through community consultation and traditional knowledge, b) accelerated environmental and other approvals due to early-stage and on-going community involvement, c) reduced project costs arising from more local and Indigenous employment, and d) reduced project risks mitigating the cost of capital.

“The solar panels are a beacon of hope for our young people. They represent a path forward towards healing and change.”

- Melina Laboucan Massimo, Lubicon Lake Band

The survey classed Indigenous participation in a clean energy project as including either: Indigenous ownership; a memorandum of understanding with economic benefits; royalty agreements; evidence of Indigenous financing; revenue sharing agreements; lease agreements; Impact Benefit Agreements (IBA's); and/or partnership agreements. Projects which had limited Indigenous benefits, such as minor employment gains or a modest community donation were excluded from the survey.

The survey methodology was as follows:

1. Clean energy projects with Indigenous participation were identified through literature, Internet research, media, and government funding programs,
2. In many instances, data on project size, capital investment and Indigenous participation such as equity ownership was garnered from public sources,
3. Individual Indigenous communities identified as having clean energy involvement were contacted by phone and email to obtain information project status, participation/investment terms, project benefits and rates of return,
4. An undertaking was given to all Indigenous respondents that information shared with Lumos Energy would be held as confidential and only disclosed in aggregate summaries,
5. All projects were located and situated on a map of Canada,
6. Definitive empirical data was obtained for 77 of the projects identified including: generating capacity, capital cost, Indigenous participation, and in some cases employment numbers,
7. From this baseline national projections for made for all clean energy projects with Indigenous participation with reference to project case studies and business parameters.
8. Estimates provided in the survey are conservative, discounting investment, income and employment impacts from Indigenous clean energy participation.

Definitions

Clean Energy – Projects considered in this report were non-fossil fuel based sources of energy and advanced energy systems, like district energy.

Participation – Participation includes: ownership, partnerships, IBAs, royalty agreements, lease agreements, etc. Projects with limited benefits were excluded.

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