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Youth Climate Pitch Competition

Tribe

Learning Brief: Renewable Energy

When we talk about renewable energy, we're referring to energy generation that involves renewable sources such as wind, solar, tidal, geothermal and kinetic energy. The method in which these resources are harnessed can vary depending on what the source is (e.g., turbines for wind and photovoltaic panels for solar energy).

Nova Scotia's Current Grid Mix

Nova Scotia has some of the country's most ambitious climate targets laid out in the Nova Scotia Clean Power Plan, including a goal to achieve 80% renewables by 2030. This will involve a mix of existing renewables, imported hydro energy, wind, and solar.

Because of our strong winds, the province plans on increasing our wind energy from 20% to 50% of all of the province's electricity, adding about 1000MW of new wind by 2030 (enough electricity for roughly 380,000 homes a year). The province also plans on adding 300 MW of solar energy, including100 MW from community solar.

Currently, Nova Scotia's grid mix is over 50% coal and coke, requiring a large shift in how energy is generated in order to meet provincial targets.

Jobs in the Renewable Energy Industry

Renewable energy is a growing industry in many jurisdictions, including Nova Scotia. As demand for clean energy grows, so does demand for trained professionals. Below are some of the gaps in the job market that need to be addressed in order for us to transition to net-zero.

- Financial officers
- Marketing and communications experts
- Wind and solar technicians
- Lawyers with a background in energy
- Planners and policy analysts
- Unique transportation services (e.g., transporting turbine blades)

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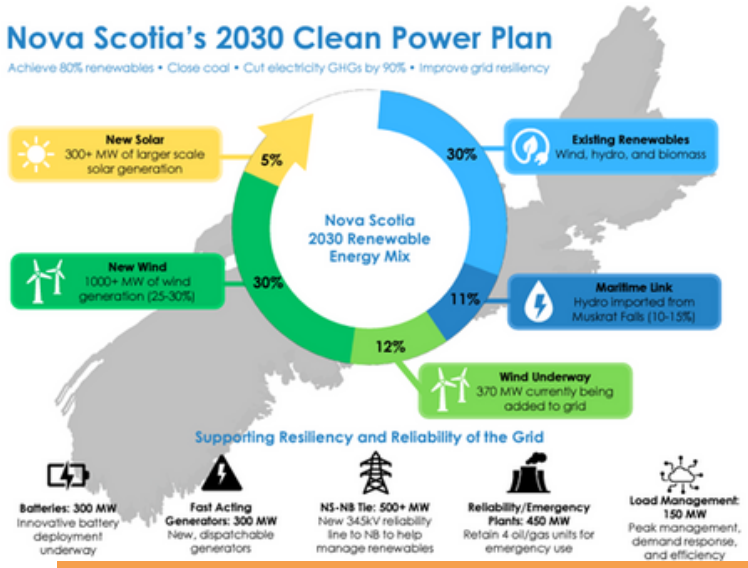
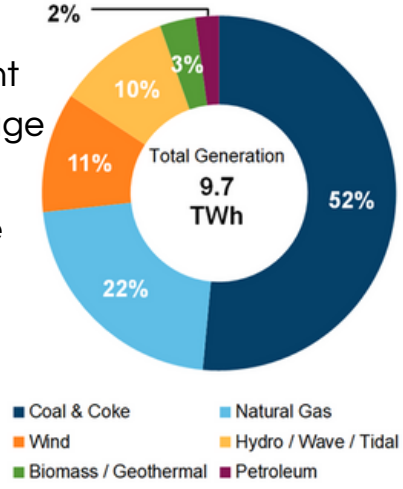
Nova Scotia relies on coal and fossil fuels because it lacks alternative baseload sources such as hydroelectricity, natural gas, or nuclear. Baseload power provides a stable supply of electricity that can always be activated to meet demand on the grid, which varies throughout the year. Wind and solar, on the other hand, are intermittent energy sources, available when the sun shines or the wind blows. Without low carbon alternatives that provide reliable, on-demand power, Nova Scotia will continue to need coal-fired plants, making a transition to cleaner sources more difficult.



The Need for Energy Storage

A key way to achieve a renewable energy-dominant grid is through energy storage solutions. The proposed 2030 grid mix will make use of battery energy storage systems paired with small amounts of fossil fuels, which will ensure we meet our baseload demand.



These battery energy storage systems provide a more affordable solution to meet our baseload compared to building new generation from sources like nuclear power, hydro-electricity, or natural gas. The technology requires further research in order to achieve mass implementation, but is a promising way to turn intermittent renewable energy sources into a consistent, reliable source for our grid.

Questions to consider:

- How can residents of urban centres benefit from renewable energy?
- How can people who can't have solar panels on their roof (e.g., renters, people in apartment buildings) still benefit from solar energy, e.g.. through community solar projects?
- How can we integrate renewable energy into transportation and/or energy efficiency solutions?
- How can we make battery storage for homes more available?
- How can we help Nova Scotians connect with and understand where their energy comes from?
- What financing mechanisms allow for shared solar adoption?

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