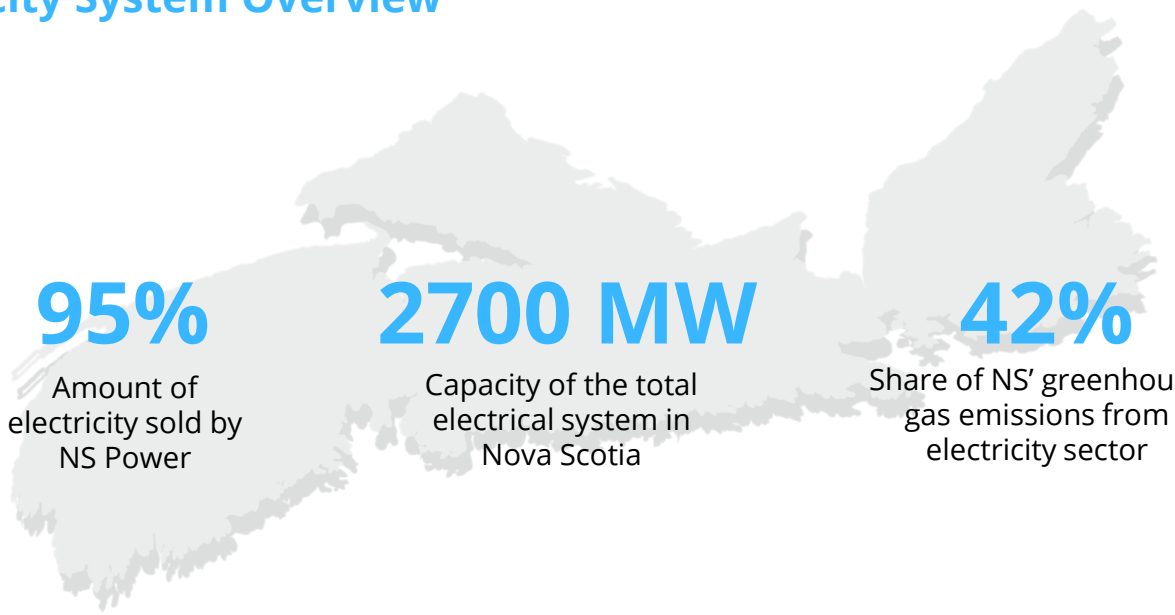
Nova Scotia Electricity Fact Sheet

Electricity System Overview



95%
Amount of electricity sold by NS Power

2700 MW
Capacity of the total electrical system in Nova Scotia

42%
Share of NS' greenhouse gas emissions from electricity sector

- **Nova Scotia plans to achieve 80% renewable energy by 2030.** New energy resources will help transition away from coal, including:
  - **1000MW of onshore Wind**
  - **300MW of local Solar through programs**
  - **300MW of Grid-scale batter storage**
- Government recently tabled legislation to create the Nova Scotia Independent Energy System Operator, which would be responsible for managing how energy flows in the system.
- **Nova Scotia Power Inc. (NSPI)** is a privately owned monopoly utility that maintains 95% of the power lines. **Five** smaller **Municipal Electric Utilities (MEUs)** provide the remaining **5%.**
- Nova Scotia has a **peak electricity demand** typically on cold evenings in **January or February** when most people are home with their heat and lights on while running major appliances (e.g., stove).

Roles & Responsibilities

Government
Sets laws, policy and planning, creates programs and incentives.

UARB
Direct oversight of utilities to enforce laws. Operates like a court system.

System Operator
Direct the flow of electricity, and permissions to use wires

Nova Scotia Power
Owns generation, lines, facilities, maintains system and operations.

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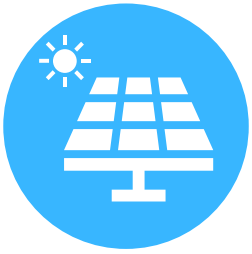
Technical Terminology

- **Watts**: unit of measurement how much energy something produces or consumes.

Watts (W)
An incandescent lightbulb consumes **60 watts.**



Kilowatt (kW)
= 1000 watts
average rooftop solar installation is **10-12 kW.**

Megawatt (MW)
= 1 million watts
average wind turbine size is **5 MW**.

Gigawatt (GW)
= 1 billion watts
The NS electricity system has generating capacity of **3 GW**

- **Kilowatt/Megawatt** hour (kWh or MWh): measure of electrical energy output by a technology such as wind or solar per hour or how much electricity is consumed by a particular facility per hour. The amount of energy produced both depends on technology and the resource (i.e. how windy it is, how sunny it is).
    - An **average NS household consumes 10 MWh** per year
    - One **5 MW wind turbine** produces ~**20,000 MWh** per year.
    - A **350 MW wind** procurement produces an estimated **1100 GWh** per year; this could **power ~25% of all homes** in Nova Scotia for a year.
- **Volts and Kilovolt (kV): unit of measurement** for the electrical potential for transmission of electricity **from point A to point B** along a wire.
    - *E.g., A distribution line is 25 kV. A transmission line is 345 kV.*
- **Grid reliability vs resiliency**: **Reliability** refers to the ability to provide electrical service to the **end-customer consistently** (i.e., keep the lights on). **Resiliency** refers to the **strength of the system** to withstand and resume service after a difficult situation like disruptions (i.e., storms, power generation failure, transmission line outages).
- **Battery Storage**: Batteries can be **charged by renewable energy** resources to be **stored** and made available when the **energy is needed the most** by the system. These batteries are just like the ones you use in a flashlight, just on a much bigger scale.