



Renewable Energy

Current Environmental Issue

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About Me

- ▶ Grew up in Fredericton
- ▶ Civil Engineer
- ▶ Graduate of UNB
- ▶ Worked in NS, AB, NU and NB
- ▶ Currently work for NB Power
 - Worked at Point Lepreau Nuclear Generating Station 2007 - 2021

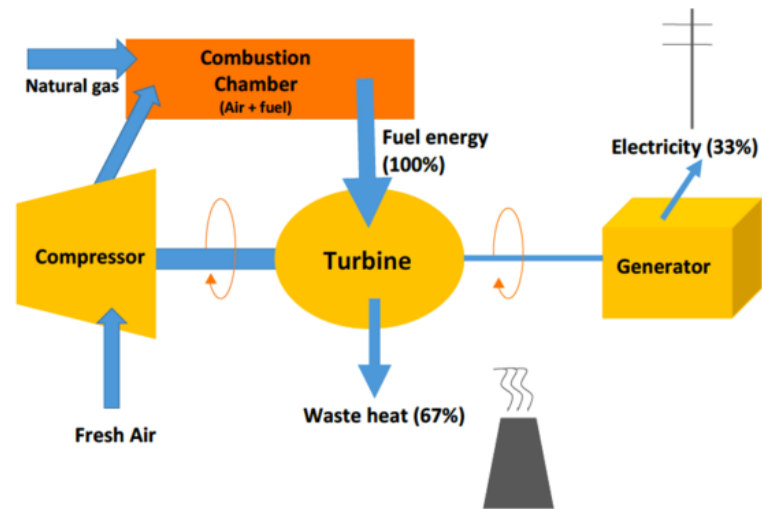
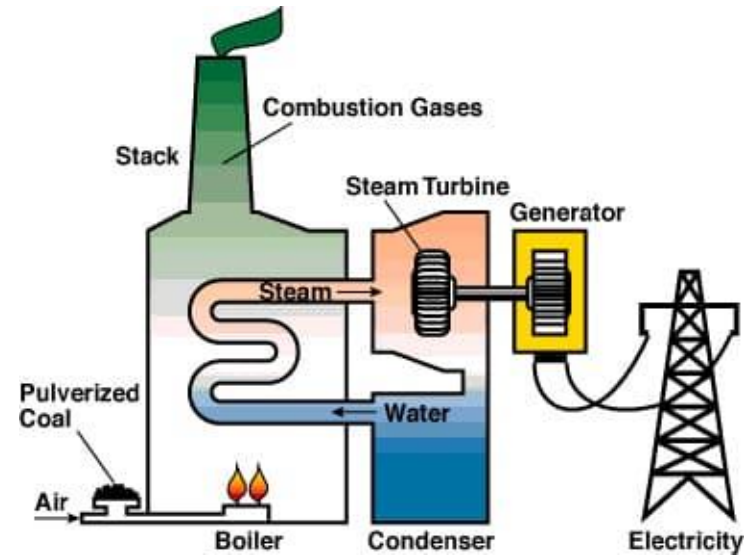


Definitions

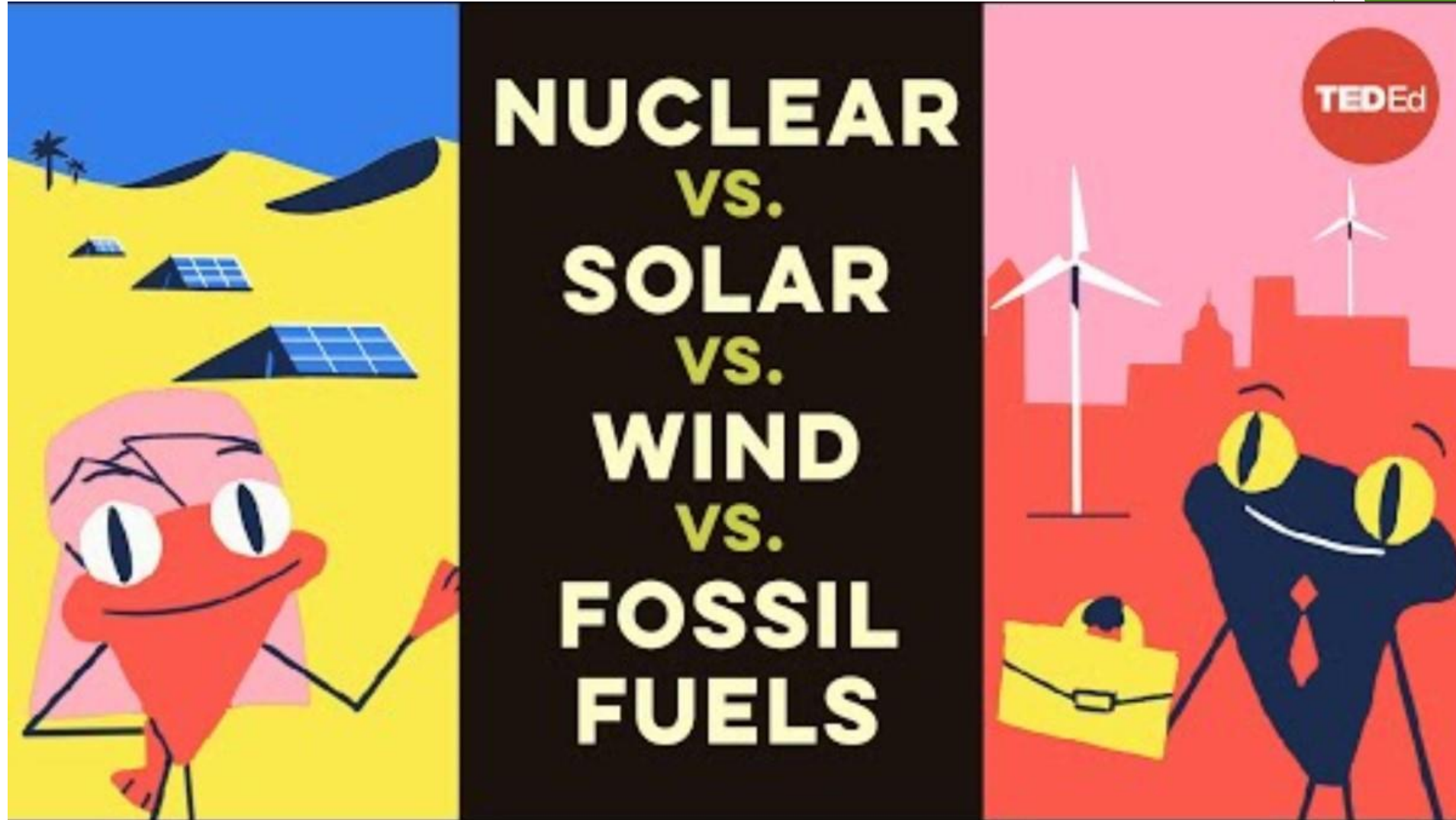
- ▶ Net-Zero Electricity - produced with either zero GHG emissions or GHG emissions are offset by processes that benefit the environment or reduce carbon in the atmosphere (like tree planting).
- ▶ Non-Emitting Electricity - produced without directly releasing GHG as a result of fuel combustion.
- ▶ Clean Energy - similar to net-zero electricity
- ▶ Renewable Energy - produced from replenishable sources such as the sun, wind, rivers, hot springs (geothermal), tides and biomass (biofuels)
- ▶ Electrification - process of converting an energy-consuming device, system, or sector from non-electric sources of energy to electricity
- ▶ Energy vs Electricity

How do we generate electricity?

- ▶ Solar - photo-voltaic
- ▶ Turbines connected to a generator
 - Wind
 - Water
 - Steam
 - Nuclear heat
 - Thermal heat (fossil fuels)
 - Combustion - jet engine



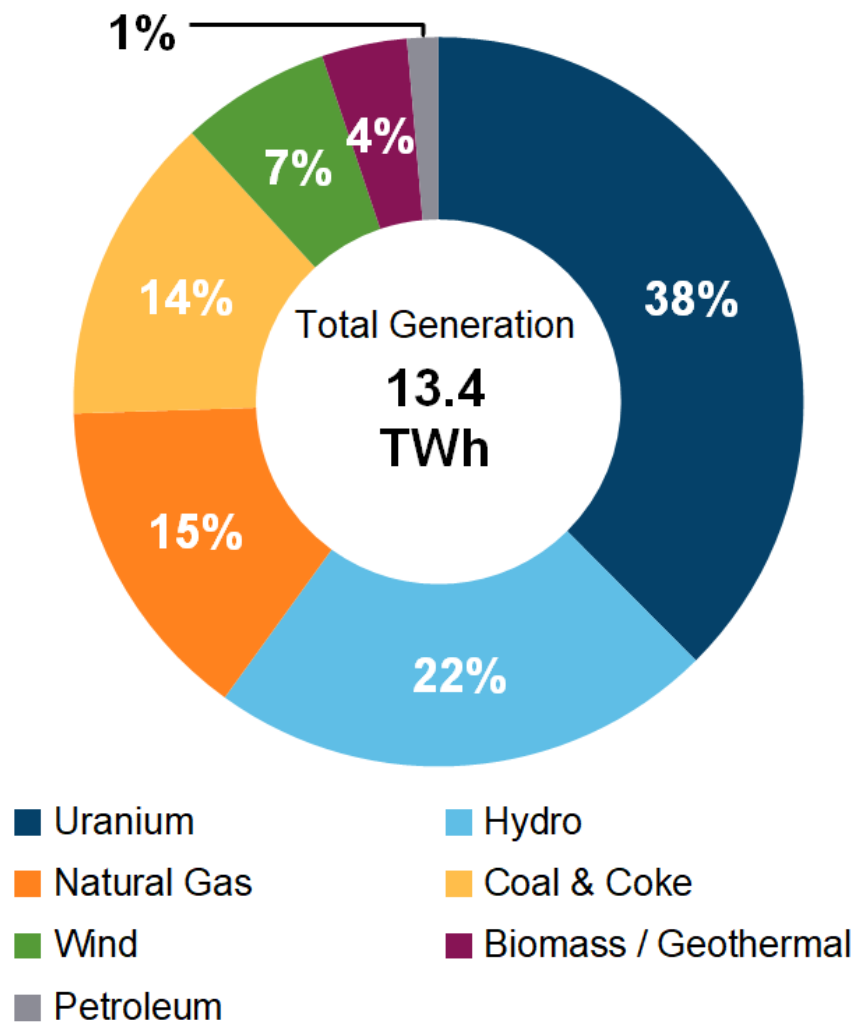
How much space do we need for electricity?



New Brunswick Electricity Map



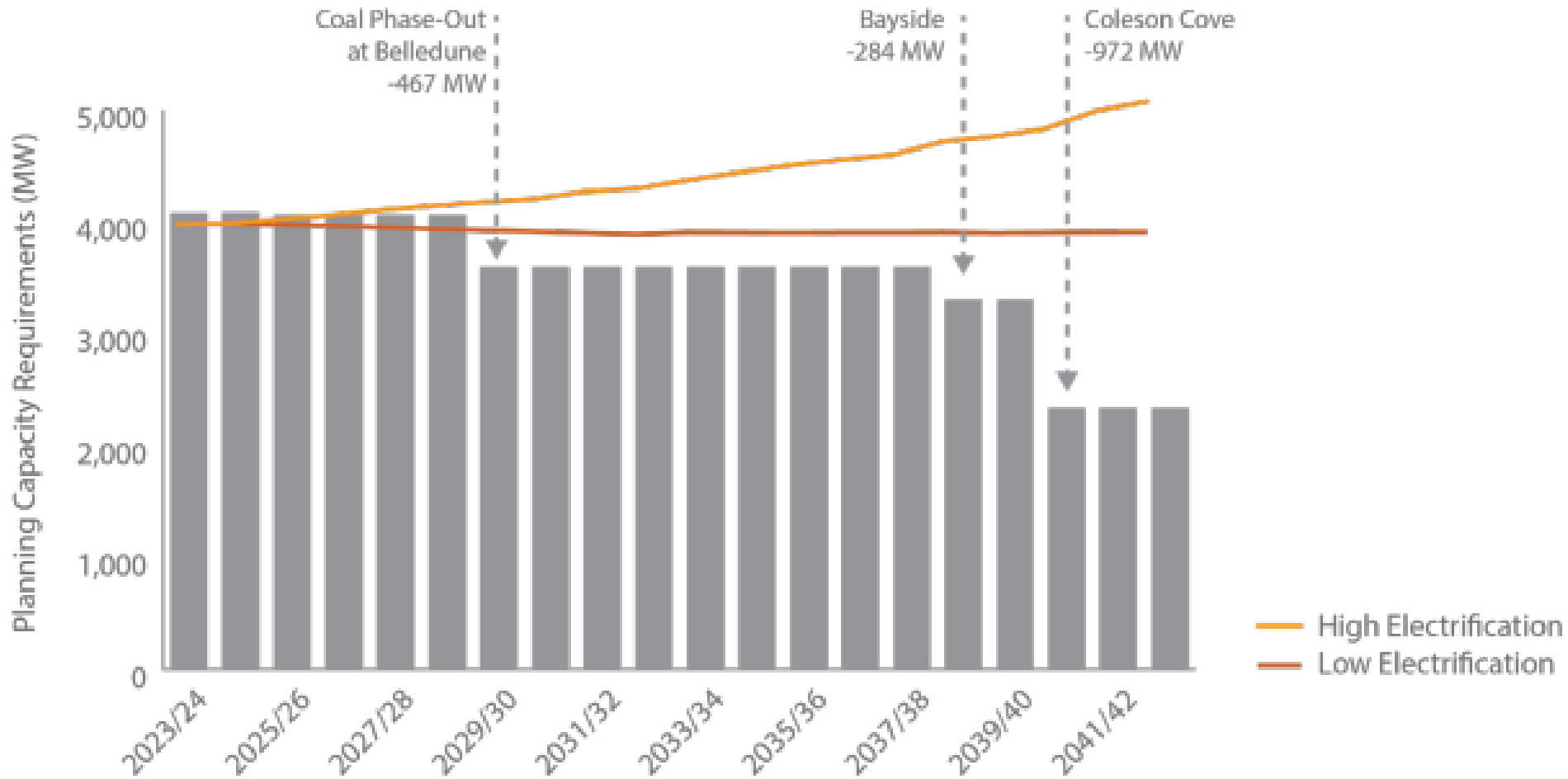
Electricity Mix for NB



Why do we care?

- ▶ Federal Net-Zero Emissions by 2050 Plan - Canada has joined over 120 countries in committing to be net-zero emissions by 2050, including all other G7 nations (United Kingdom, United States, Germany, Italy, France, and Japan)
- ▶ Provincial NB Clean Energy Plan - net-zero electricity grid by 2035

What does it mean?



What can we do?

- ▶ Reduce our electricity consumption
- ▶ Improve energy efficiency
- ▶ Install more net-zero generated electricity
- ▶ Find new ways to generate electricity

Combination of all solutions as this problem is complicated and challenging

References

- ▶ [System Map \(nbpower.com\)](#)
- ▶ [CER - Provincial and Territorial Energy Profiles - New Brunswick \(cer-rec.gc.ca\)](#)
- ▶ [Net-zero emissions by 2050 - Canada.ca](#)
- ▶ [GNB-CleanEnergy.pdf](#)
- ▶ [2023_irp.pdf \(nbpower.com\)](#)

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