ENERGY FACTS

*Below are a few facts on the **diversity of energy** production, transformation, transportation, use, and trade across Canada.*

NORTHWEST TERRITORIES

- **Crude oil and** natural gas production have been decreasing over the past decade
- **Approximately 60% of** electricity comes from hydro
- **Diesel is used** for power generation in remote communities

NUNAVUT

- **Electricity generated** mainly by diesel in communities not connected by roads or power lines
- **Transportation accounts** for about half of the total final energy demand
- **No natural gas** is used

QUEBEC

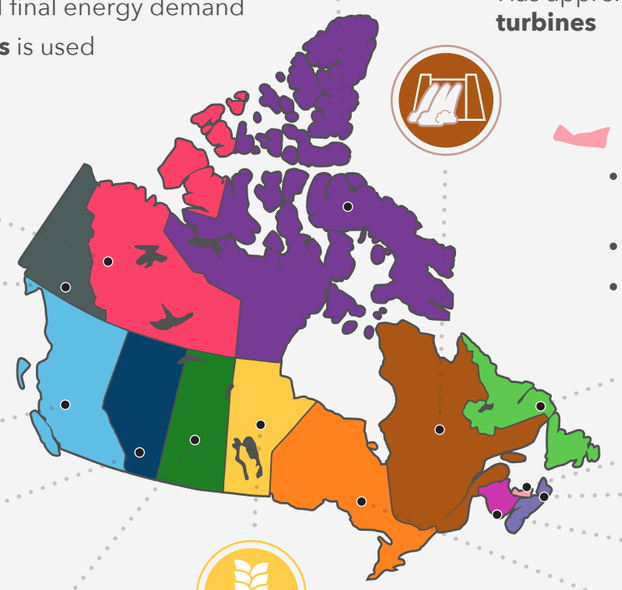
- **Crude oil arrives** via pipeline, rail, and tankers to two refineries
- **Hydroelectric stations** generate around 95% of Quebec's electricity
- Has approximately **1,990 wind turbines**

NEWFOUNDLAND & LABRADOR

- **Crude oil production** occurs offshore
- **3rd largest oil** producer, behind Alberta and Saskatchewan
- **Generates 95% of** electricity from hydro sources

YUKON

- **Lowest end-use** energy demand per person in Canada
- **Generates the majority** of its electricity from hydro sources
- **No refinery,** so all oil products are imported



PRINCE EDWARD ISLAND

- **The majority of** the electricity consumed in PEI comes from New Brunswick
- **Electricity generated** in PEI is 99% wind
- **Does not produce** crude oil, natural gas, or have a refinery

NOVA SCOTIA

- **Offshore natural gas production** ended in 2018
- **Primary source of** electricity generation is coal
- **Home to the** only tidal power generating station in North America

BRITISH COLUMBIA

- **Produces about 34%** of Canada's natural gas
- **Many large-scale** facilities to export liquefied natural gas (LNG) on ships have been proposed
- **90% of electricity** from hydroelectric sources

ALBERTA

- **Largest producer** of crude oil and natural gas
- **Electric generation** dominated by coal and natural gas, but coal to be phased out by 2030
- **Energy demand** dominated by the industrial sector

SASKATCHEWAN

- **Produces 10%** of total Canadian crude oil (second behind Alberta)
- **Power generation** currently dominated by coal and natural gas
- **The Boundary Dam** coal plant includes carbon capture and storage technology

MANITOBA

- **15 hydroelectric** generating stations
- **97% of electricity** generation from hydro
- Has approximately **133 wind turbines**

ONTARIO

- **Produces less than** 1% of Canadian oil and gas production
- **2nd largest producer** of electricity in Canada with 3 nuclear power stations
- **Around 90% of** electricity is produced from zero-carbon-emitting sources

NEW BRUNSWICK

- **Home to the** largest refinery in Canada
- **The only province** outside of Ontario with nuclear power
- **Diverse power mix** also includes hydro, wind, biomass, oil, coal, and natural gas

Use the **interactive online tool** to visualize provincial and territorial energy trends based on **total demand, economic sector, and electricity type.** Visit **www.cer-rec.gc.ca/energyfuturesdata**

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ENERGY LIFECYCLES

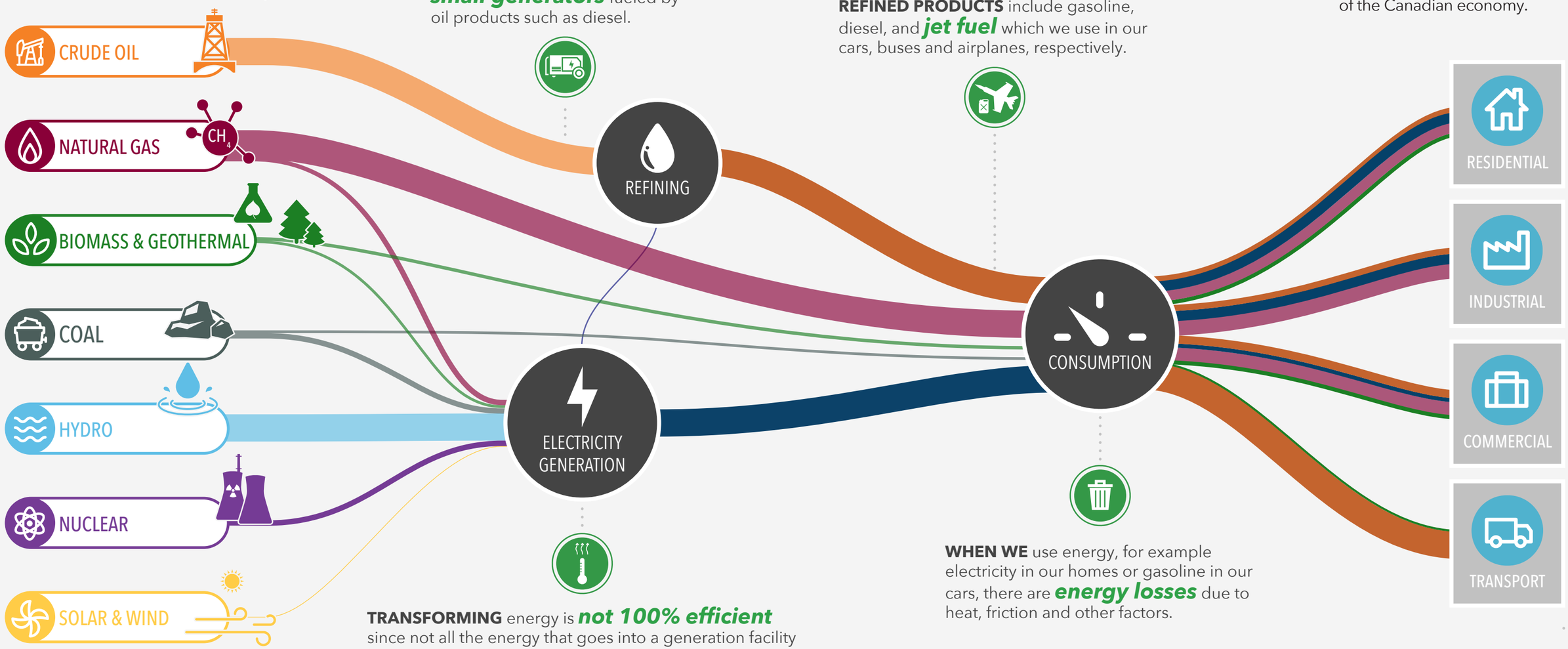
*A **SANKEY DIAGRAM** shows the flow of a set of items from one state to the other. The **width** of the lines shows the **relative proportions** of these items.*

ENERGY SOURCES come from our **environment.** They can be found buried underground, on land, or in the Earth's natural wind and water cycles.

ELECTRICITY GENERATION in Canada's **north** and in remote communities is often reliant on ***small generators*** fueled by oil products such as diesel.

REFINED PRODUCTS include gasoline, diesel, and ***jet fuel*** which we use in our cars, buses and airplanes, respectively.

ALL FORMS OF energy are consumed within the **four sectors,** or large segments of the Canadian economy.



TRANSFORMING energy is ***not 100% efficient*** since not all the energy that goes into a generation facility becomes electricity. The efficiency of generation facilities varies depending on the source of energy.

WHEN WE use energy, for example electricity in our homes or gasoline in our cars, there are ***energy losses*** due to heat, friction and other factors.

Use the **interactive online tool** to project the future of energy trends in Canada and explore various energy scenarios which involve various cases of **technology development, climate policy, energy prices, exports and pipelines.** Visit **www.cer-rec.gc.ca/energyfuturesdata**

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POWERING CANADA'S REMOTE COMMUNITIES

Remote communities *are a unique part of Canada's diverse energy system*

COMMUNITY POPULATION*

- 500
- 1000
- 2000
- 8000

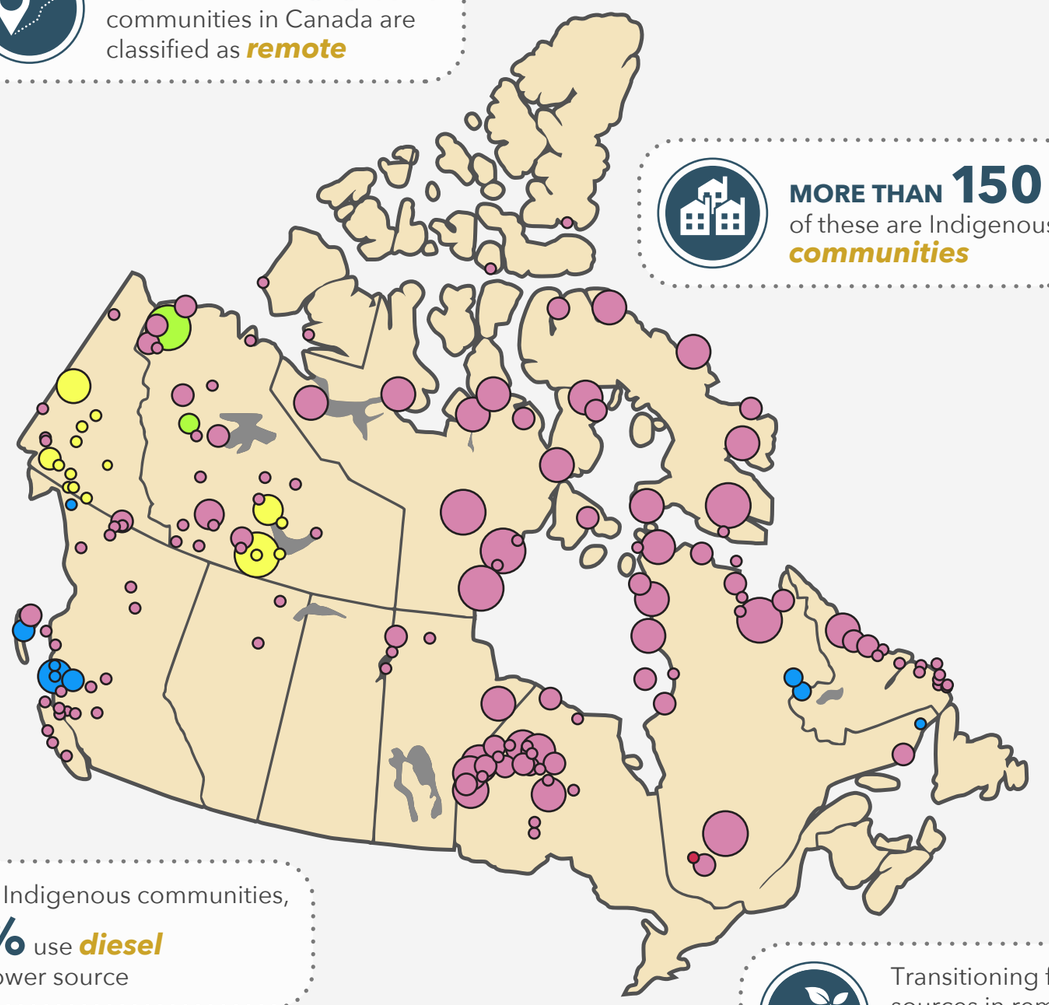
MAIN POWER SOURCE

- Diesel
- Regional electricity grid
- Hydro
- Natural gas
- Other

*Map based on data from the *Remote Communities Energy Database*

MORE THAN 250 active communities in Canada are classified as ***remote***

MORE THAN 150 of these are Indigenous ***communities***



Among remote Indigenous communities, **OVER 80%** use ***diesel*** as their main power source

Transitioning from diesel to ***cleaner*** power sources in remote communities is a key part of the *Pan-Canadian Framework on Clean Growth and Climate Change*

WHY THE RELIANCE ON DIESEL?

- **Reliable**
- **Easily stored**
- **An energy-dense fuel**
- ***Diesel-fired generators*** are relatively affordable, easy to install, and can be scaled-up or down as required

WHY SHOULD WE REDUCE DIESEL DEPENDENCE?

- **High operating costs**
- **Prices can be volatile**
- **Negative environmental impacts** including high ***greenhouse gas*** emissions

HOW CAN WE REDUCE DIESEL DEPENDENCE?

- **Improve energy efficiency**
- **Switch to natural gas** by trucking in liquefied natural gas (LNG)
- **Increase use of renewable technologies** including biofuels, wind and solar
- **Use new technologies** such as battery storage, microgrids and small modular nuclear reactors
- **Access lower cost fuels** by connecting off-grid communities to provincial and territorial grids via ***transmission lines***
- **The best option will differ** depending on the regional setting and the community

Learn more about the energy system in your province or territory using the interactive online visualization tool. Visit **www.cer-rec.gc.ca/energyfuturesdata**

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