



# Energy in the Canadian economy

April 2023, Statistics Canada



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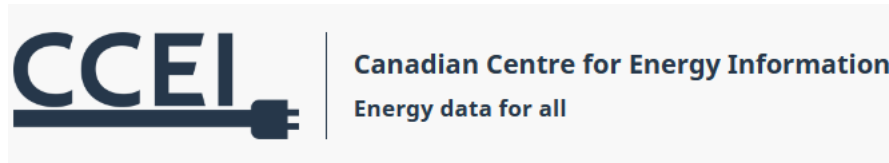
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# About the Energy Statistics Division

Bringing together data, tools and reports to provide you with the latest information on energy in Canada. Houses:

- The [Canadian Centre for Energy Information](#), a partnership with Natural Resources Canada, Environment and Climate Change Canada, and the Canada Energy Regulator; and
- The [Energy Statistics Program](#), which publishes data and analysis on energy supply, demand, trade, and more.





# Presentation Overview

A look at the available energy data and how you can use it—Statistics Canada and beyond:

- The Canadian Centre for Energy Information (CCEI): genesis and mandate
- An overview of energy and the economy
  - GDP, employment, trade, prices
- Energy statistics at Statistics Canada - how are they produced?
- Data review
- Next steps



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# Why was the Centre for Energy Information established?

- Polarization of energy/environment debates aggravated by multiple and often conflicting data sources
- Data duplication, respondent burden, and general confusion from multiple sources of similar data
- Incoherent data and inconsistencies across sources
- Difficult to find Canadian energy data and substitution of data from international sources

***Budget 2019 provided \$15.2 million over five years, with \$3.4 million per year ongoing, to establish a virtual Canadian Centre for Energy Information (CCEI) delivered by Statistics Canada and Natural Resources Canada, in collaboration with FPT partners.***



The screenshot shows a CBC news article from January 27, 2019, titled "Experts urge Ottawa to fix Canada's data deficit" by Tavia Grant and Eric Andrew-Gee. The article discusses the challenges of fragmented public data in Canada and the need for a centralized system. A sub-headline reads "Why Canada needs better information about all the energy it produces". The article includes a photo of an oil pumpjack in Alberta and a quote from an analyst: "Imagine trying to drive a car while having only the rear-view mirror." The article also mentions that industry watchers are calling for better access to robust information about Canada's energy sector.



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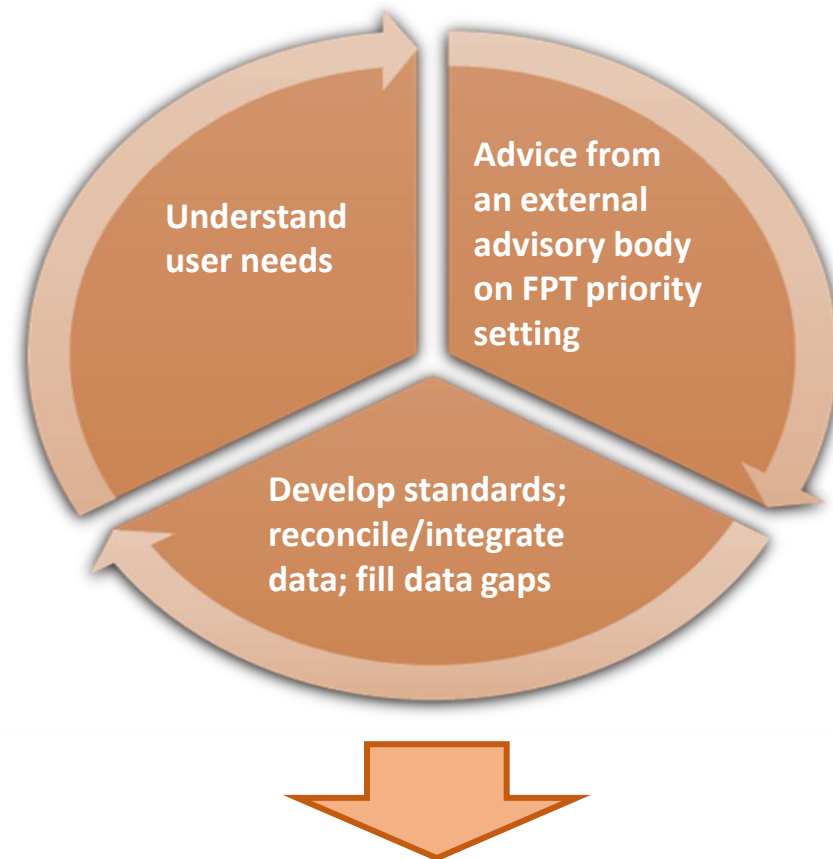
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# What is the Canadian Centre for Energy Information?

- The CCEI is a user-friendly, one-stop shop for energy information in Canada:
  - Website launched in October 2020
  - Inventory of energy products from various sources is continuously expanding
- It is a unique collaboration with FPT partners to:
  - Provide new data products, visualization tools, and expert analyses
  - Compile, reconcile, and integrate energy data
  - Develop common definitions, measurements, and standards
  - Engage with stakeholders and expand partnerships to understand unique needs of data users and contributors.
  - Fill data gaps, improve data quality, timeliness, granularity, frequency, etc.



***Independent, coherent and credible data will help inform decision-making and shape Canada's energy future.***



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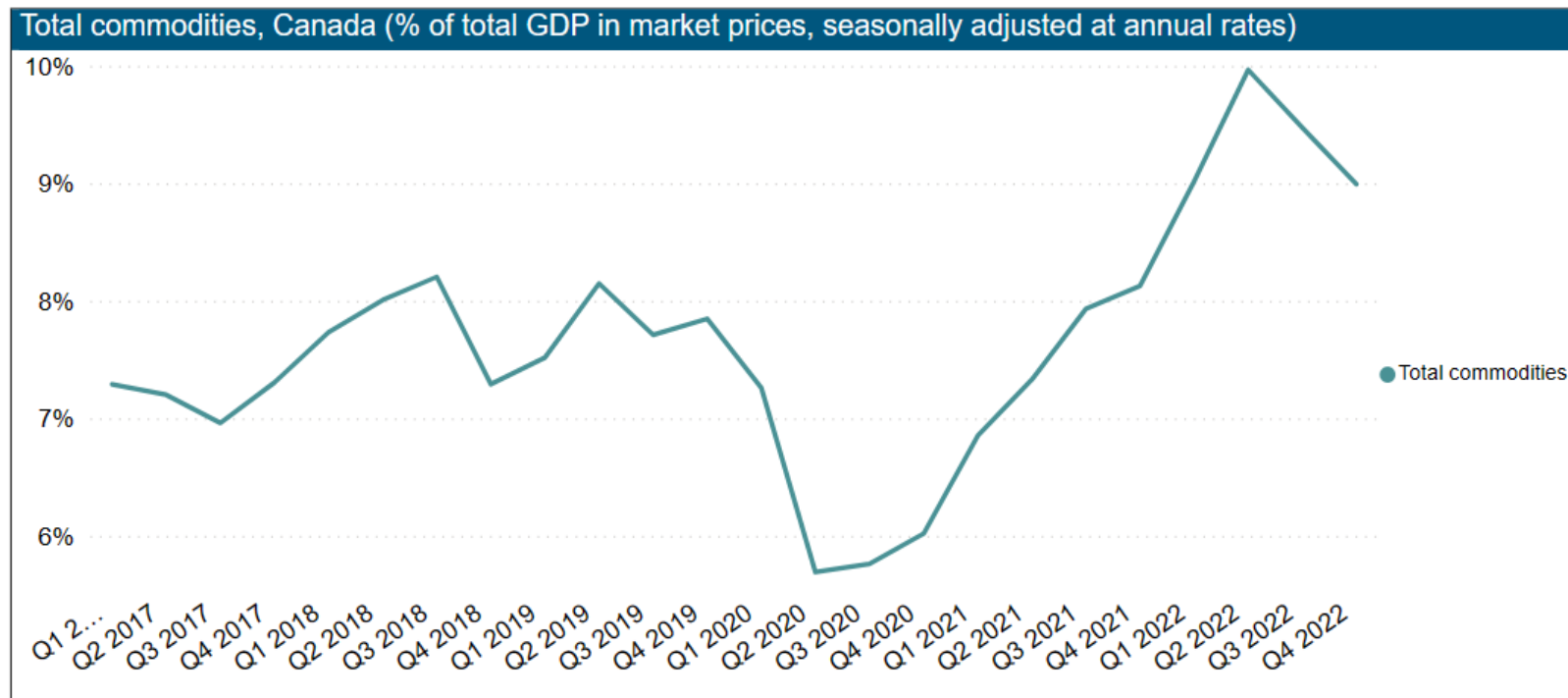
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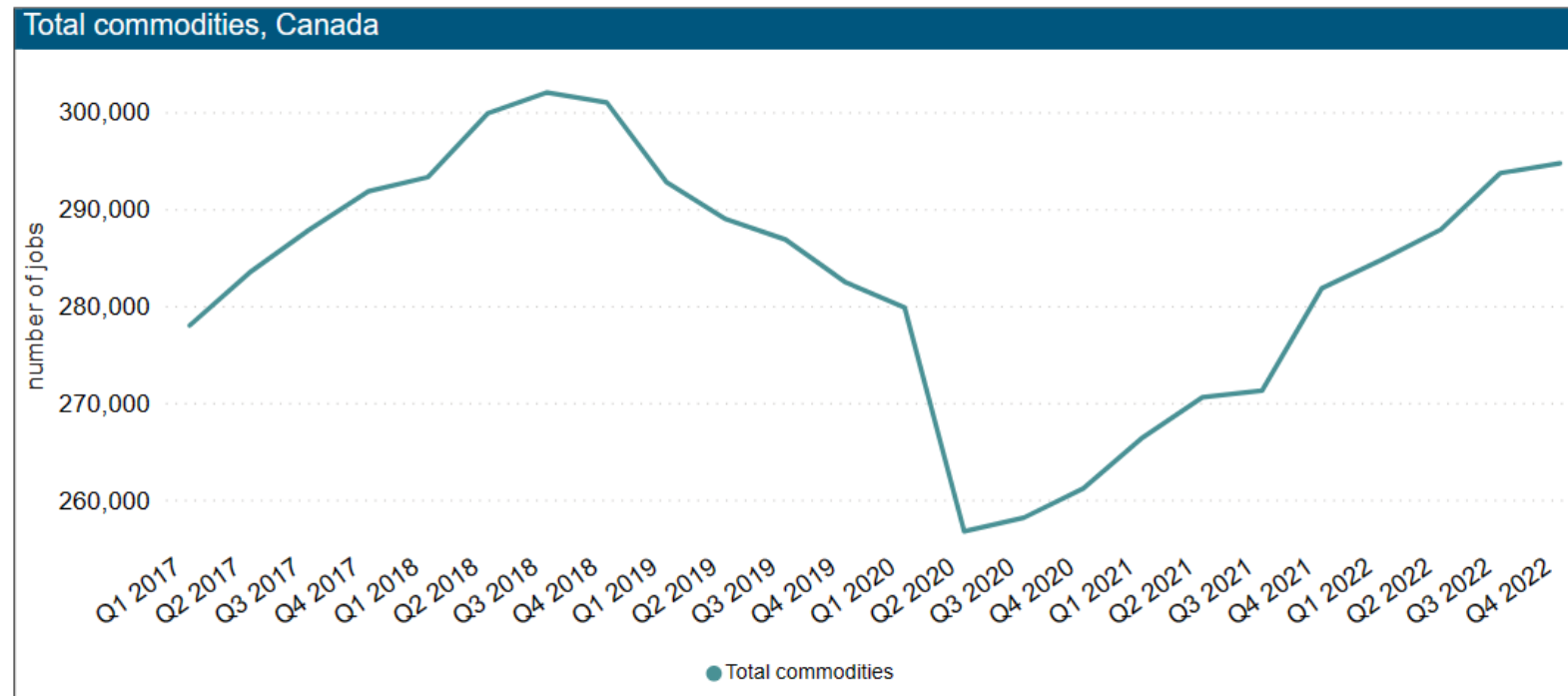
# Energy commodities in the GDP

- Energy commodities made up 9% of gross domestic product at the end of 2022, down from a high of 10% in the second quarter of 2022.



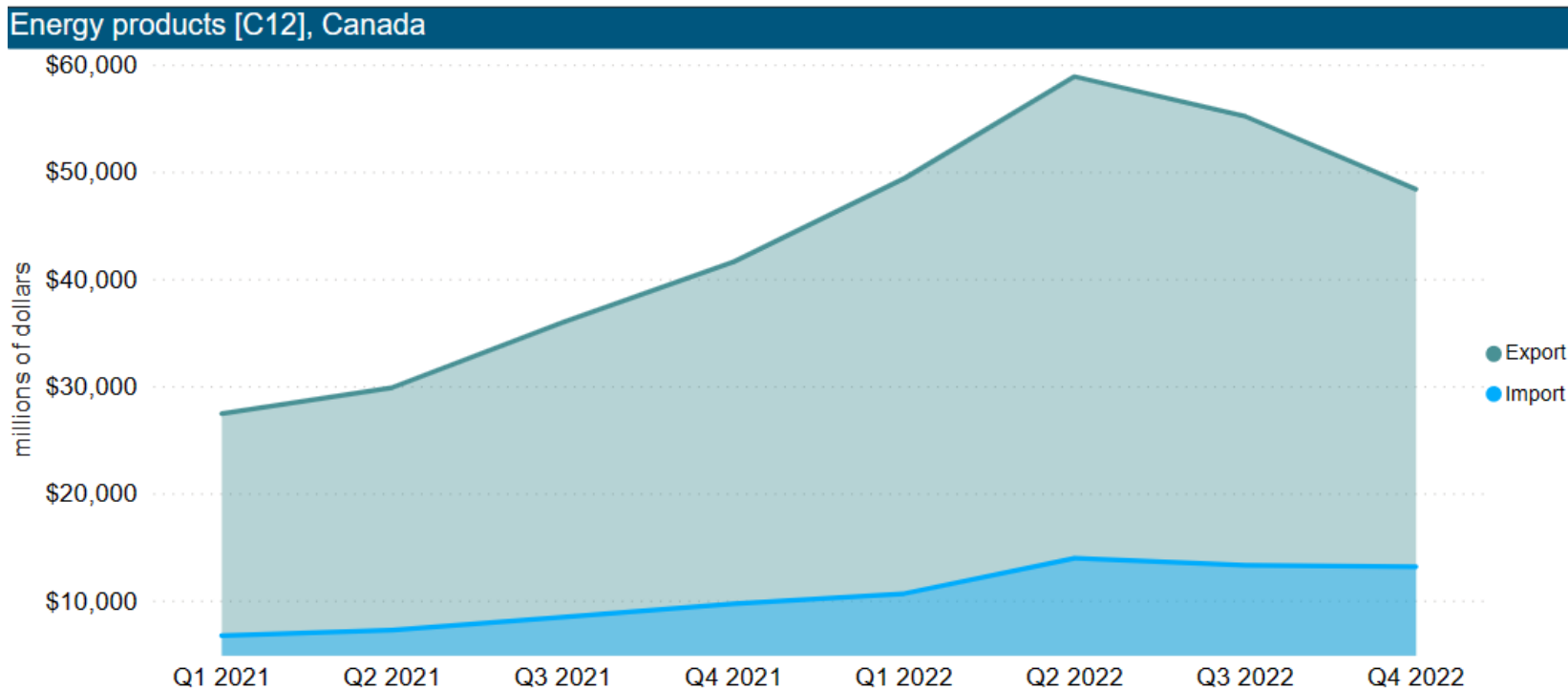
# Energy and employment

- Like other sectors, energy employment has rebounded since losses faced during the pandemic. The number of jobs was 294,722 at the end of 2022, up from a low of 256,748 in the second quarter of 2020.



# Energy and trade balance

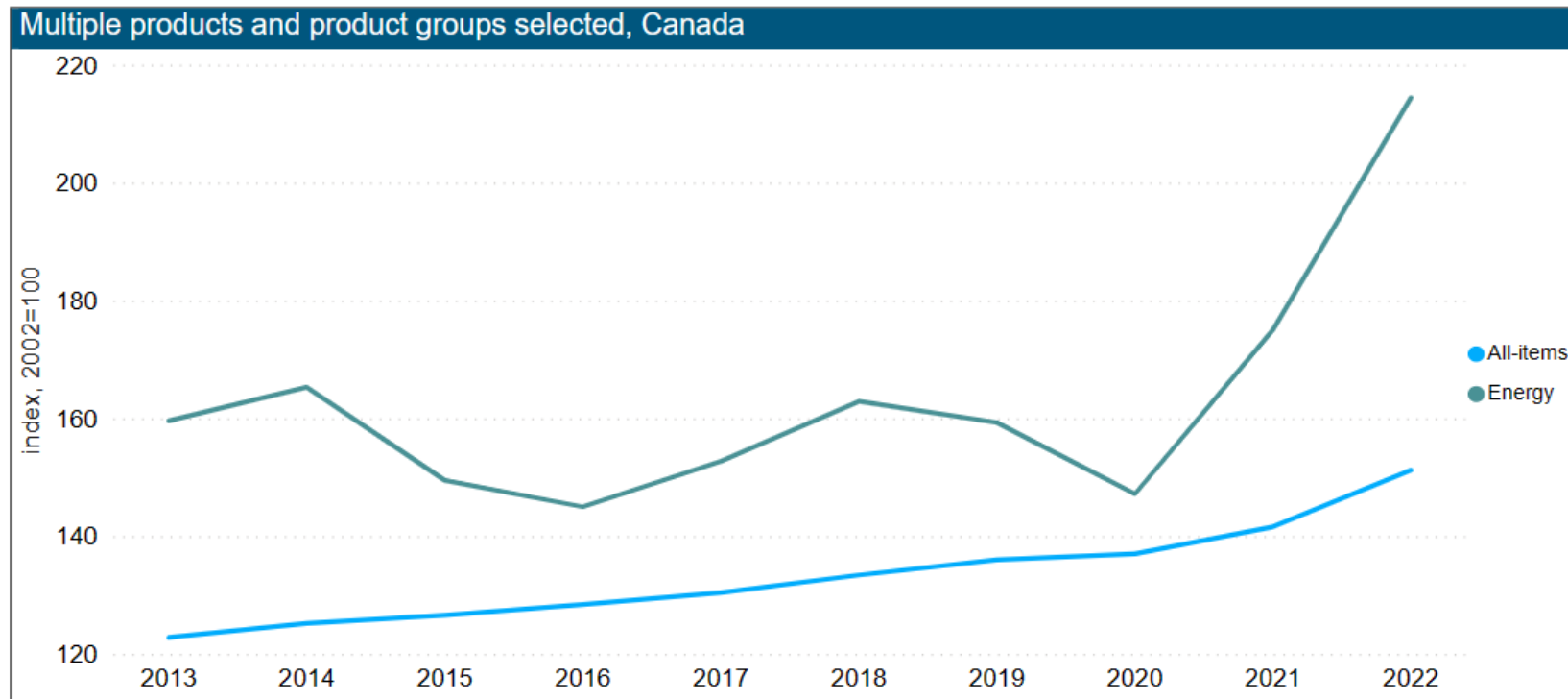
- For almost all energy commodities, Canada exports more than it imports, with the exception of refined petroleum energy products.





# Energy and consumer price index

- Since the onset of the pandemic, the price of energy has risen faster than the CPI overall (up 22.5 % from 2021 to 2022 versus 6.8% for all items)





# Energy data at Statistics Canada

- [Data \(statcan.gc.ca\)](https://statcan.gc.ca)
  - 122 data tables, the majority are a mix of monthly and annual, national and provincial data
    - Electricity
    - Energy Supply and Use
    - Fossil Fuels (Oil, Natural Gas, Coal etc)
    - Pipelines
    - Renewables
  - Generation
  - Consumption
  - Imports/Exports
  - Storage/Inventories





# Energy data at Statistics Canada

- [Consolidated Energy Statistics \(statcan.gc.ca\)](https://statcan.gc.ca)
  - Combination of many surveys
  - provides national level monthly estimates of supply and demand characteristics
  - data is presented in terajoules; a common unit of measure,
  - allowing easy comparisons between different fuel and energy types
- [Physical flow account for energy use: Interactive tool \(statcan.gc.ca\)](https://statcan.gc.ca)
- [Energy statistics: Interactive dashboard \(statcan.gc.ca\)](https://statcan.gc.ca)





# Energy data usage

- Monitoring of Economic Health of the Industry
- System of Macroeconomic Accounts (calculation of the GDP)
- Key input in deriving Environmental Indicators (e.g. National Greenhouse Gas Emissions)
- Energy Efficiency Indicators
- Supports managing Energy Security and Preparedness (Domestic and International)
- Energy Forecasts
- Modelling (supports predictive analysis for industry's reaction to the change)



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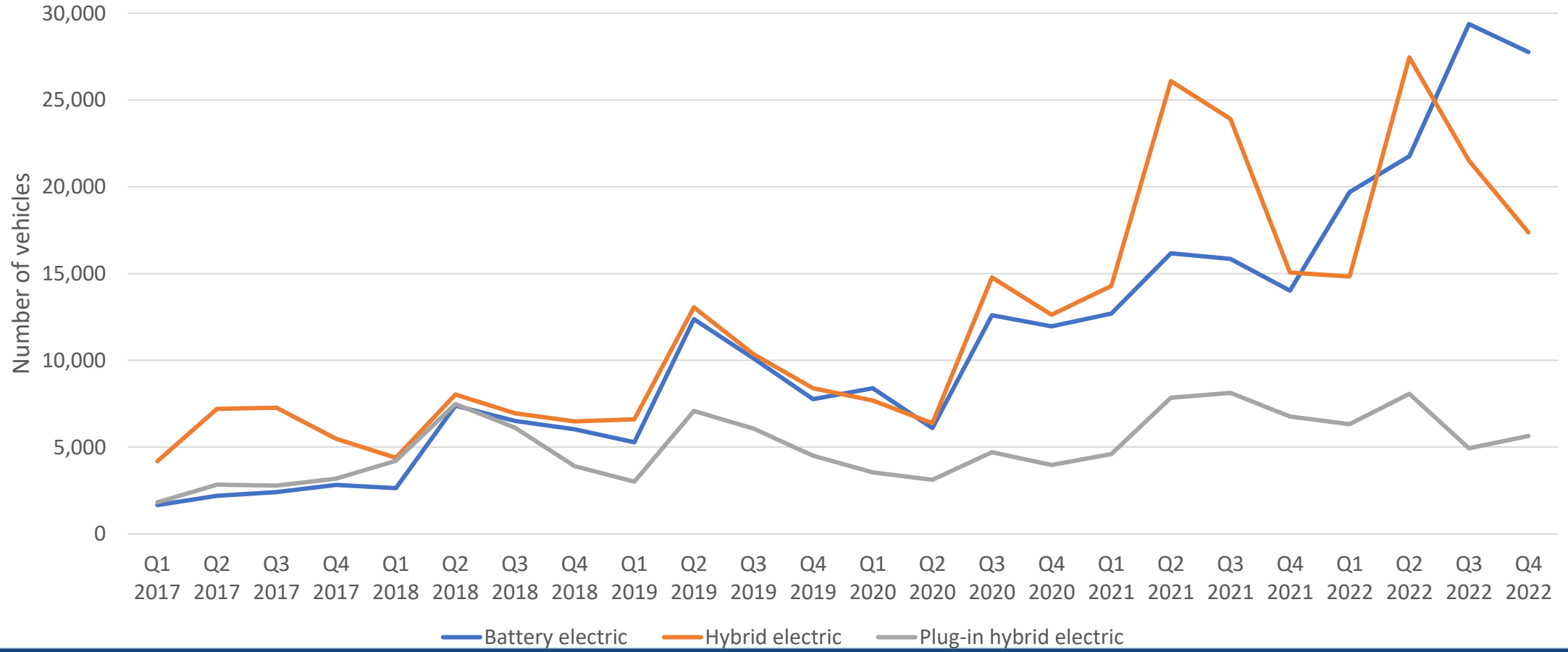


# Real world example - Electric vehicles

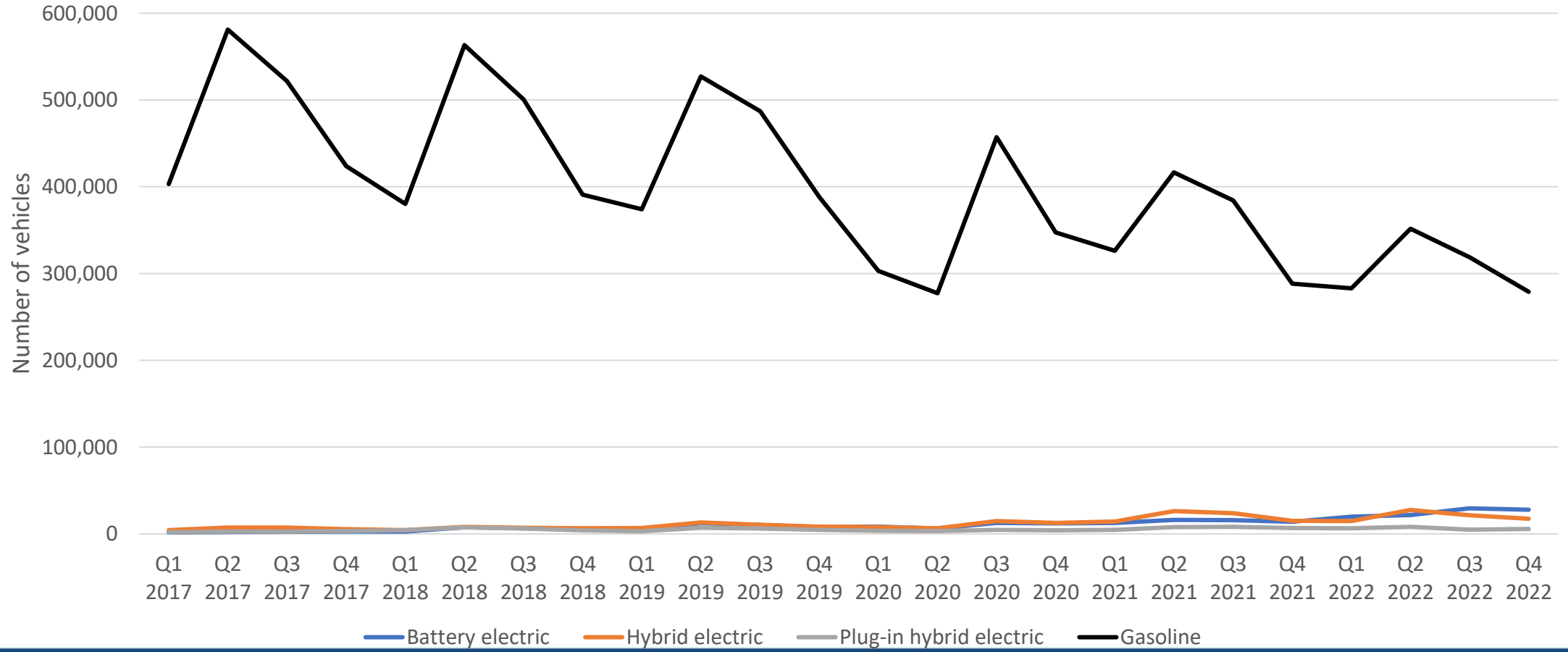
- [Canada's Action Plan for Clean On-Road Transportation](#)
  - The regulations will require that at least 20 percent of new vehicles sold in Canada will be zero emission by 2026, at least 60 percent by 2030, and 100 percent by 2035.
- Many things you could look at/have questions about:
  - Raw materials production (critical minerals)
  - Labour
  - Auto production as % of GDP
  - Prices
  - Vehicle registrations by type
- All important and CCEI has links to these things and more




New motor vehicle registrations, quarterly,  
 Table: 20-10-0024-01  
 Canada



New motor vehicle registrations, quarterly,  
 Table: 20-10-0024-01  
 Canada





# What impact will the increase of electric vehicles have and how to track

- Electricity demand will increase
  - Potential strains on electricity grids, need to expand our capacity
- For the use of electric vehicles to fulfill their case of being better for the environment, then electricity generation should come from renewables
- Energy infrastructure and how we are generating it now
- What capacities need to be built/upgraded



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# Electricity generation

- [Statistics Canada. Table 25-10-0015-01 Electric power generation, monthly generation by type of electricity](#)
- Nationally (2022 annualized), electric utilities
  - Hydro = 62.3%
  - **Non-renewable combustible fuels = 16.3%**
  - Nuclear = 14.0%
  - Wind = 6.5%
  - Solar = 0.5%
  - Biomass = 0.4%



# Federal plans

- [Canada's actions to reduce emissions - Canada.ca](#)
- [Coal phase-out: the Powering Past Coal Alliance - Canada.ca](#)
- [Canada's Small Modular Reactor \(SMR\) Action Plan \(smractionplan.ca\)](#)



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# Increase capacity and move away from non-renewable sources

- All provinces have plans for future projects.
  - [Grid Modernization \(nbpower.com\)](http://nbpower.com)
  - [Clean Energy Sources | Nova Scotia Power \(nspower.ca\)](http://nspower.ca)
  - [Sustainable Electricity \(newfoundlandpower.com\)](http://newfoundlandpower.com)
  - [Maritime Electric - Renewable Energy](#)
  - [Planning and Construction Projects to Ensure Tomorrow's Energy Supply \(hydroquebec.com\)](http://hydroquebec.com)
  - [Advancing hydroelectric development – OPG](#)
  - [Major projects \(hydro.mb.ca\)](http://hydro.mb.ca)
  - [Future Supply Planning \(saskpower.com\)](http://saskpower.com)
  - [Alberta's Power System in Transition » AESO](#)
  - [Projects & operations \(bchydro.com\)](http://bchydro.com)





# Ontario – “Net Zero Needs Nuclear”

- [Net Zero Needs Nuclear – Net Zero Needs Nuclear \(netzeronuclear.com\)](https://netzeronuclear.com)
  - First on-grid small modular reactor (SMR) in Ontario to be completed at Darlington
  - preliminary schedule is to complete construction of the reactor by 2028 with commercial operation in 2029
- Refurbishment of Ontario’s existing nuclear reactors
  - Extend the life of existing plants
  - Expected completion of refurbishments = Q4 2026
- It is expected that natural gas use for electricity generation will increase during this time



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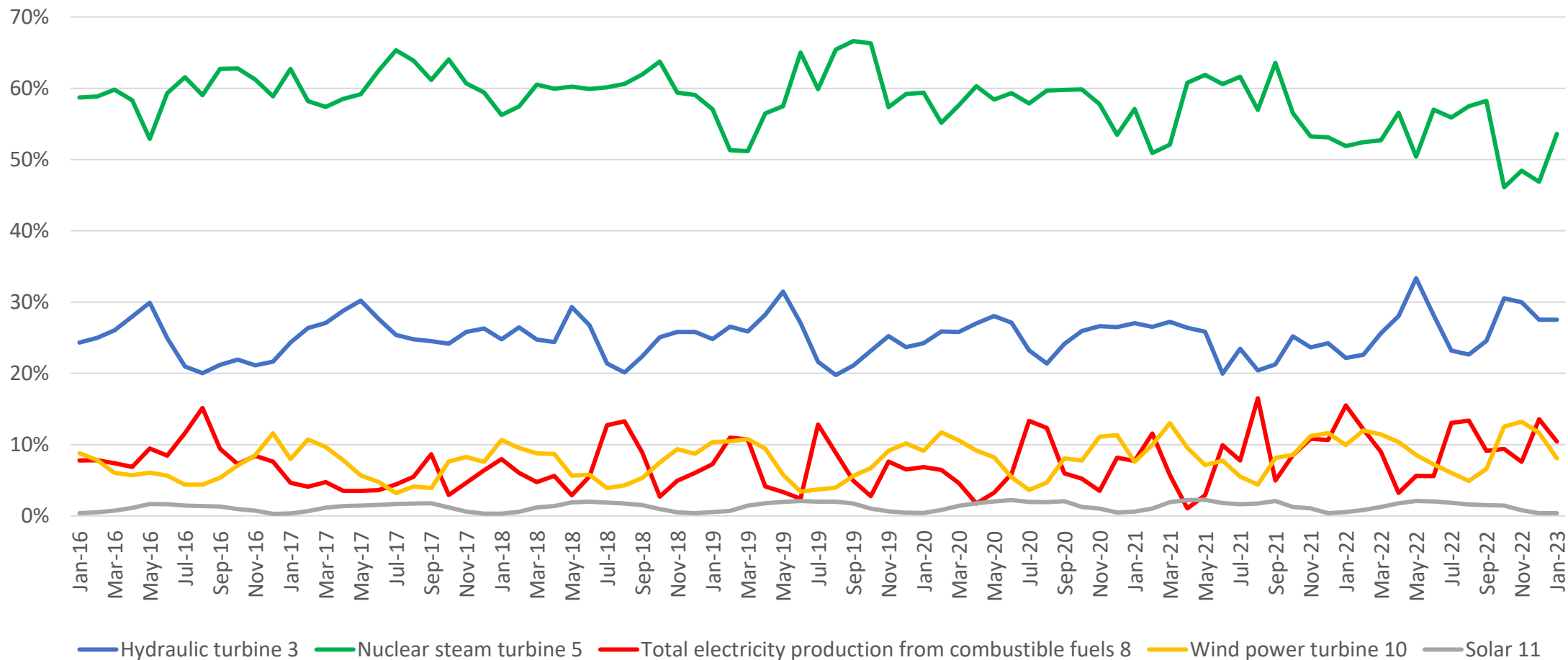
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# Electric power generation, monthly generation by type of electricity,

Table: 25-10-0015-01

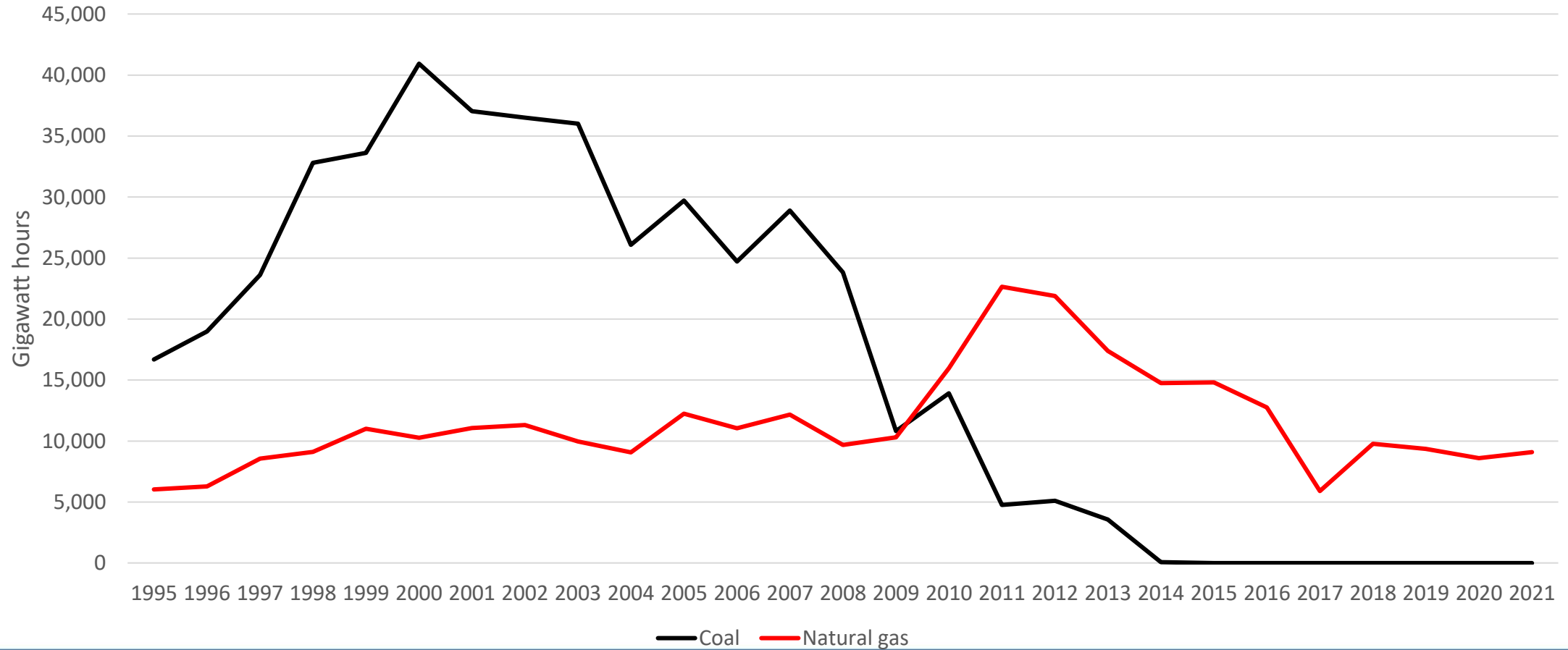
## Ontario – percentage of total generation, electricity producers, electric utilities



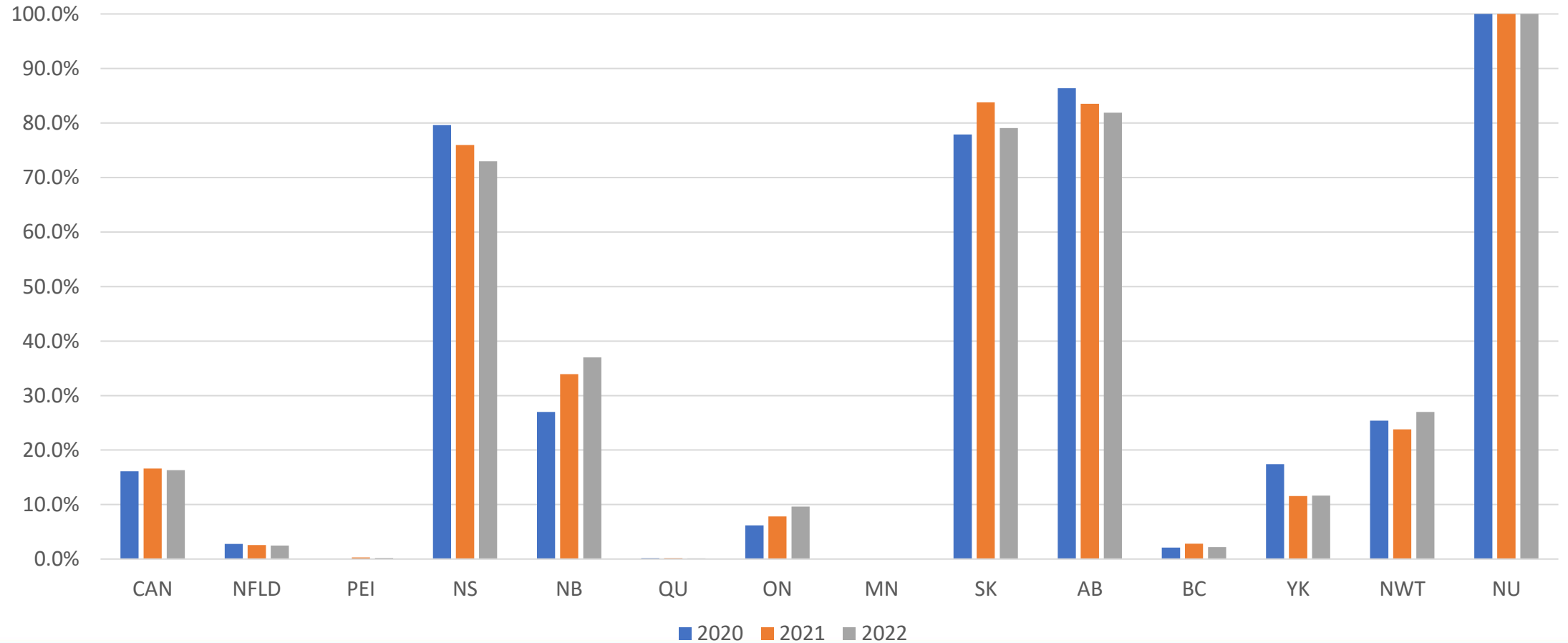
# Electricity generated from fossil fuels, annual

Table: 25-10-0028-01

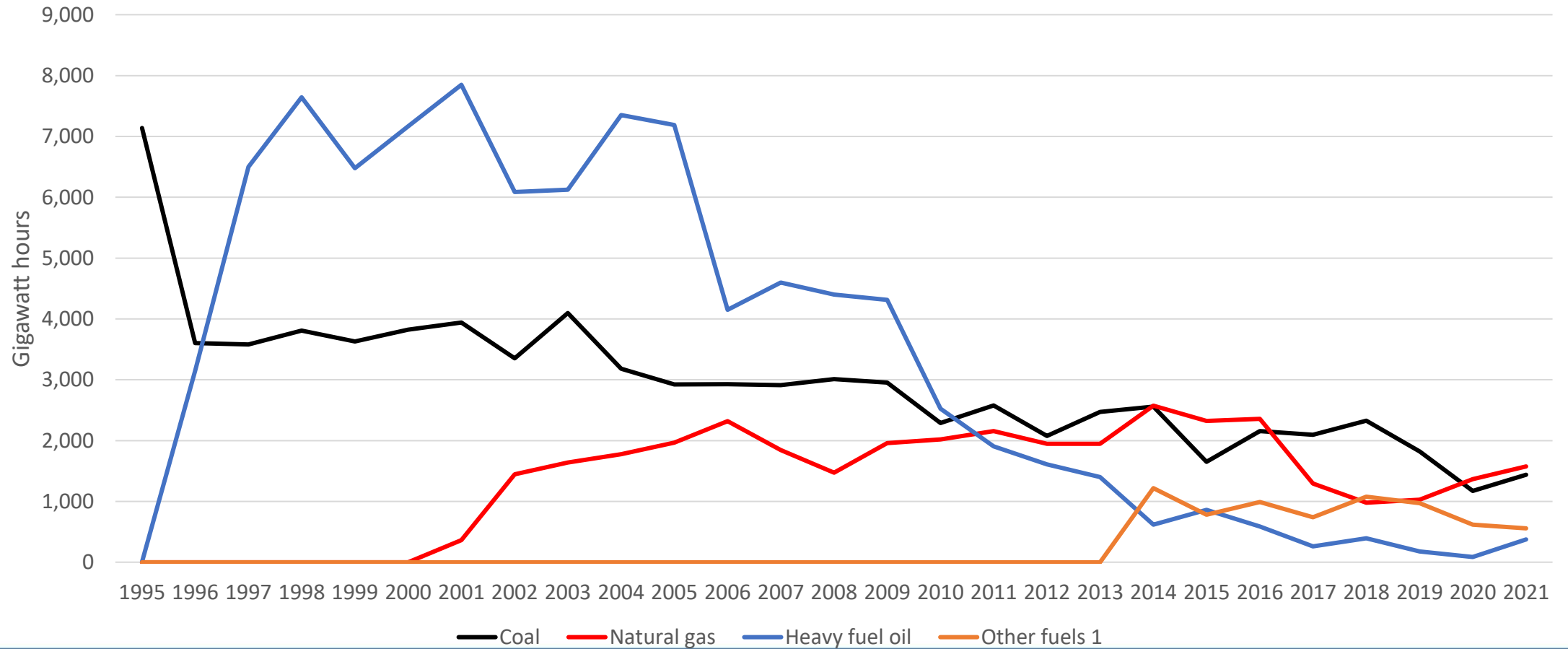
Ontario, Utilities



Electric power generation, monthly generation by type of electricity  
 Table: 25-10-0015-01, Utilities, Annualized  
 Percentage of electricity generation from non-renewable combustible fuels

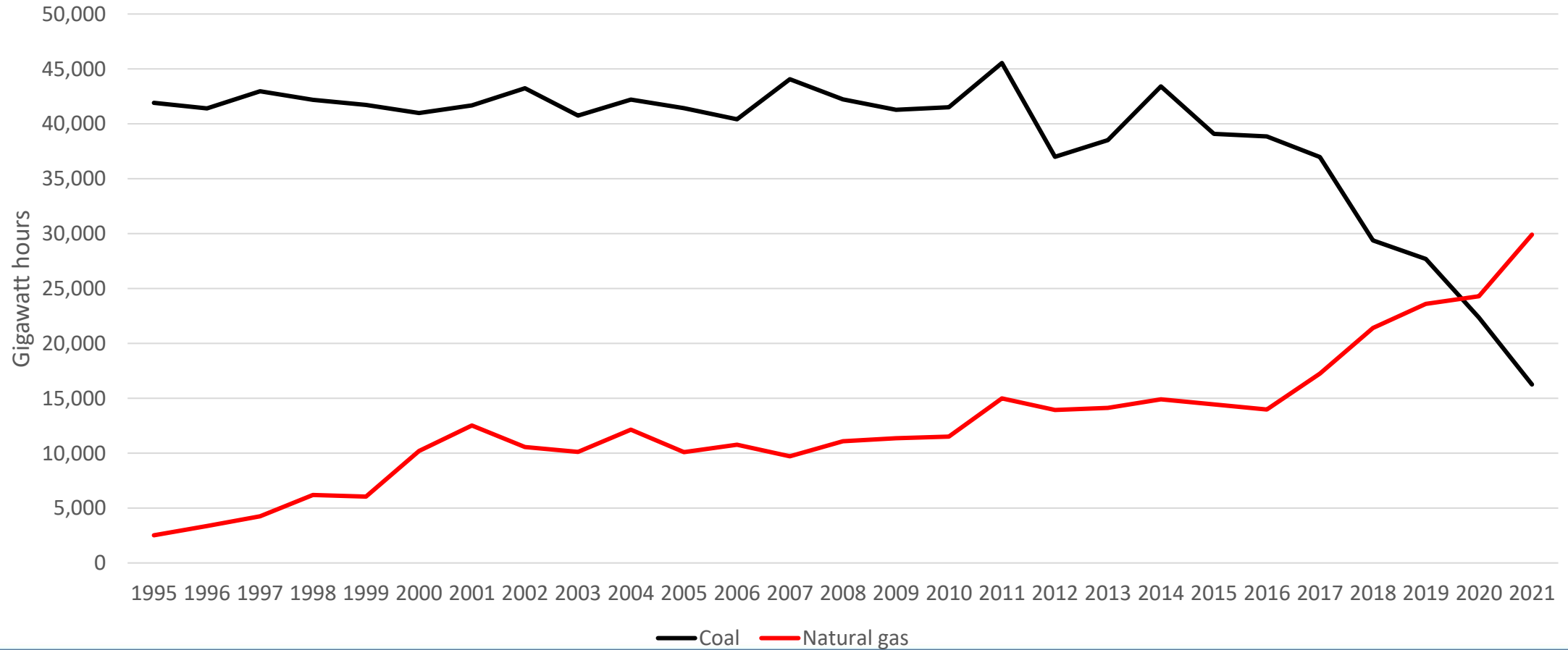


Electricity generated from fossil fuels, annual  
 Table: 25-10-0028-01  
 New Brunswick, Utilities





Electricity generated from fossil fuels, annual  
Table: 25-10-0028-01  
Alberta, Utilities





# Renewable sources and weather impacts

- Energy is frequently used to produce heat
  - Thus consumption patterns are very seasonal
- This can be observed in various data tables and can be juxtaposed with other data
- Also can have impacts on ability to produce and/or transmit energy products
- Renewable sources
  - intermittent in nature
  - Meaning that there needs to be a back up source
  - Or storage capability that presently does not exist



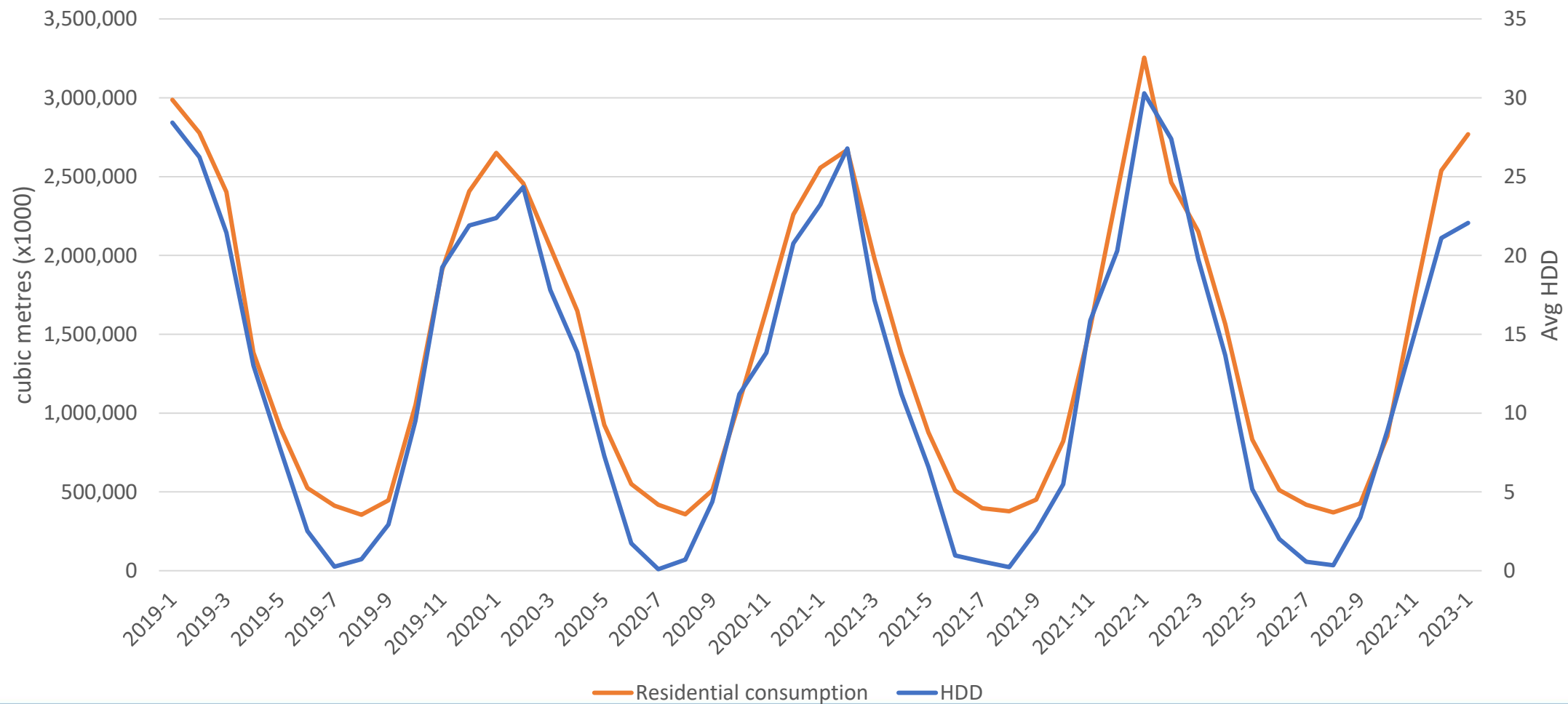
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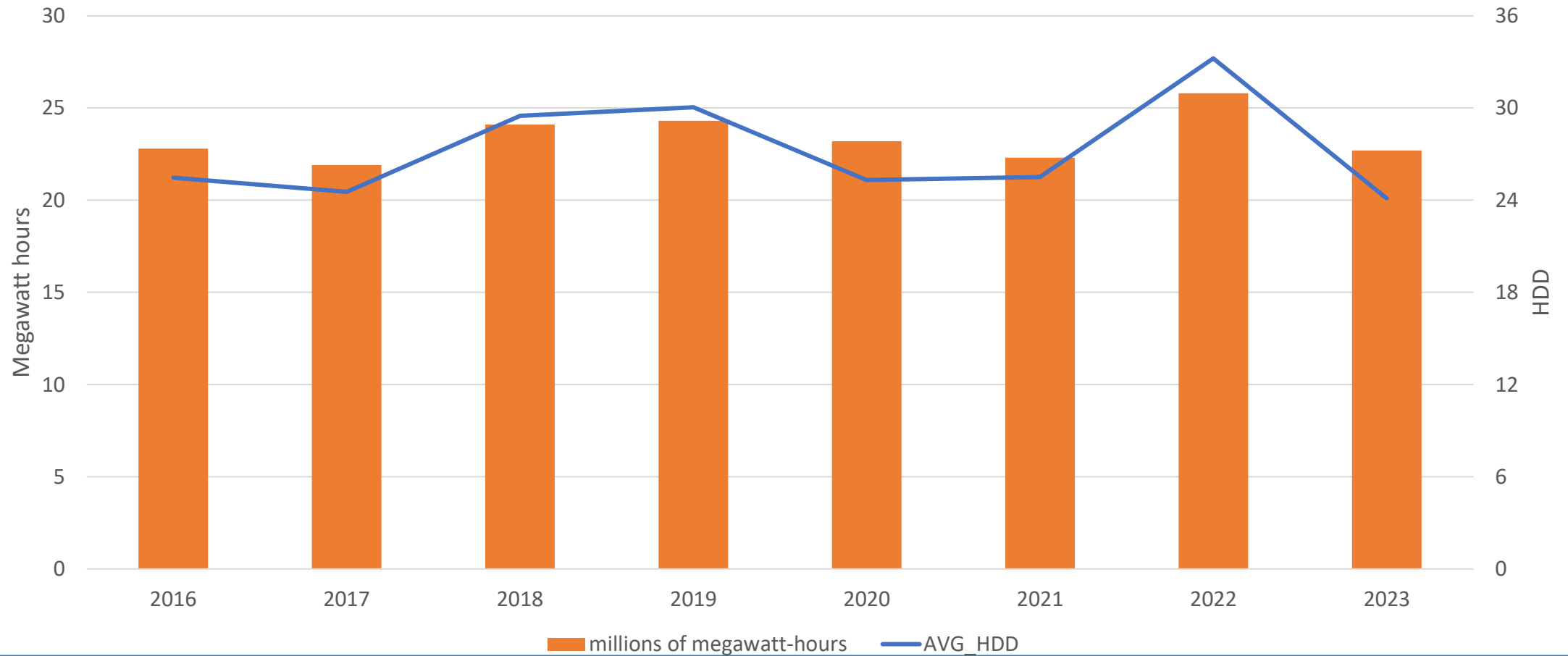
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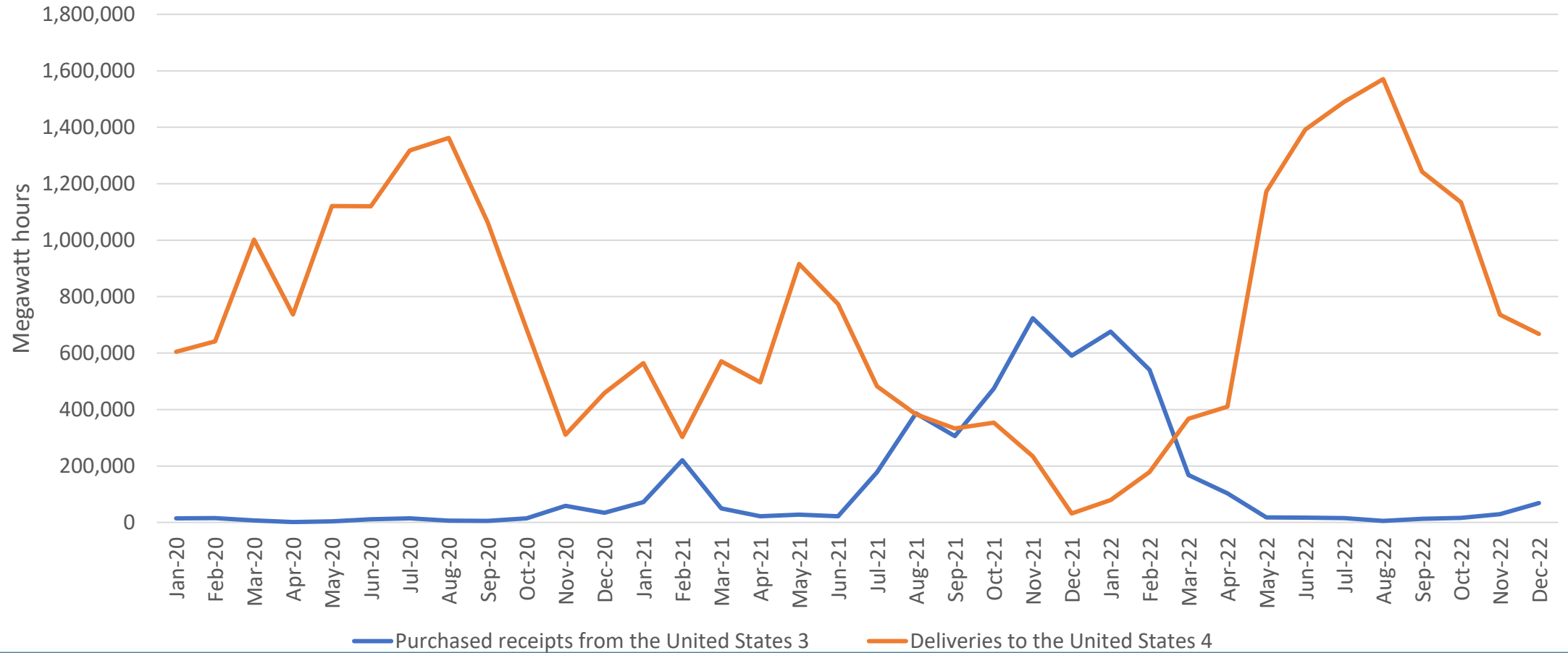
## Supply and disposition of natural gas, monthly (Table 25-10-0055) Ontario



Quebec - January  
 electricity consumption (Table: 25-10-0016-01)  
 And average Heating degree days



Electric power generation, monthly receipts, deliveries and availability,  
 Table: 25-10-0016-01  
 Manitoba





## Next steps

- Engagement with federal-provincial-territorial partners and stakeholders on energy priorities and work plan deliverables.
- Expanding networks with data user community, including academia, researchers, and modellers.
- Ongoing work to improve quality, timeliness, coherence of energy data and indicators to track progress towards government policy objectives, such as the transition to net zero, and increasing awareness of the CCEI brand.
- Data reconciliation and integration of new external data sets into the CCEI portal; integration of new tools and features.



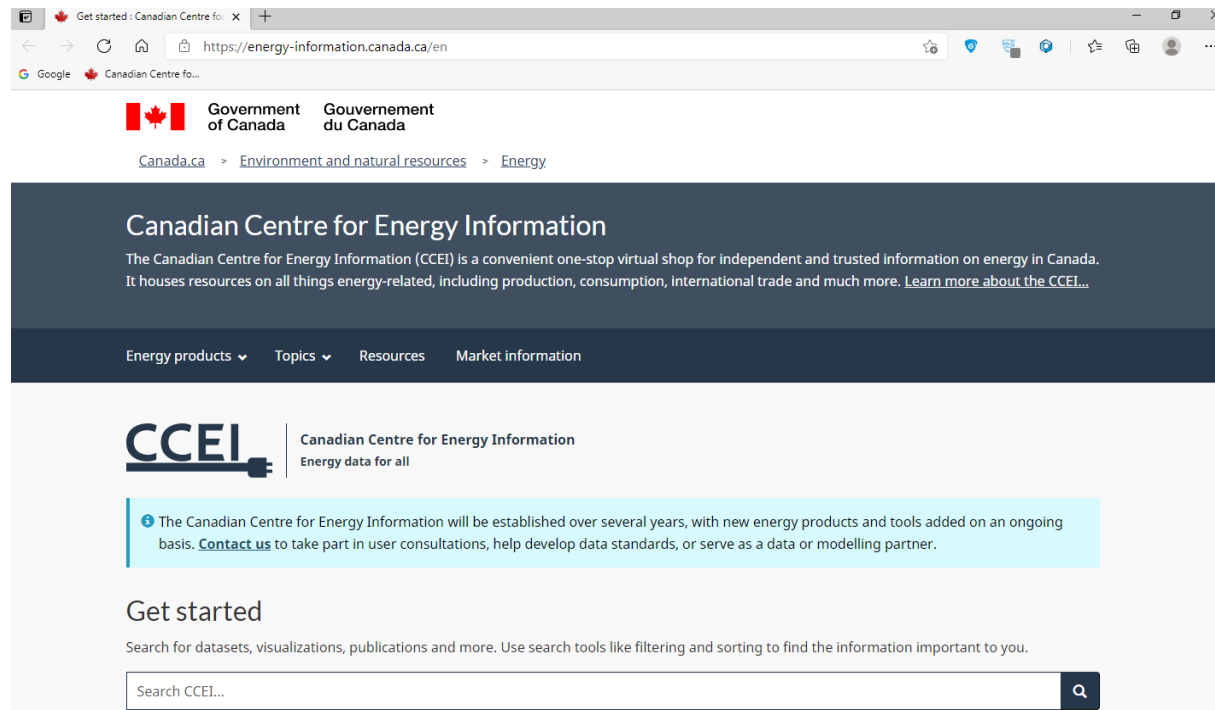
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# Learn more about the CCEI



Visit the website at: <https://energy-information.canada.ca/en>

Contact us: [statcan.ccei-ccie.statcan@statcan.gc.ca](mailto:statcan.ccei-ccie.statcan@statcan.gc.ca)

Follow us on social media:  
**#energynews**



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## Presenters

- Should you have any questions about this presentation, please contact one of the presenters:
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