# Atura Power's Low-Carbon Hydrogen Plans

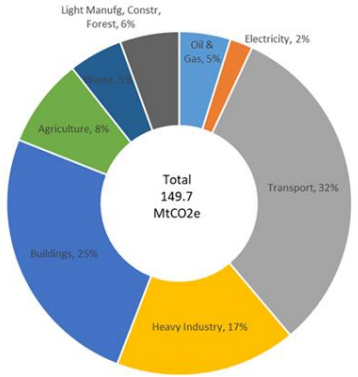
## Atura Power is leading the way to produce low-carbon hydrogen in Ontario

- Leveraging Ontario's clean electricity to enable decarbonization through electrification
- Using electricity to produce low-carbon hydrogen to help lower GHGs across the economy
- Leading the development and adoption of a key clean-energy source

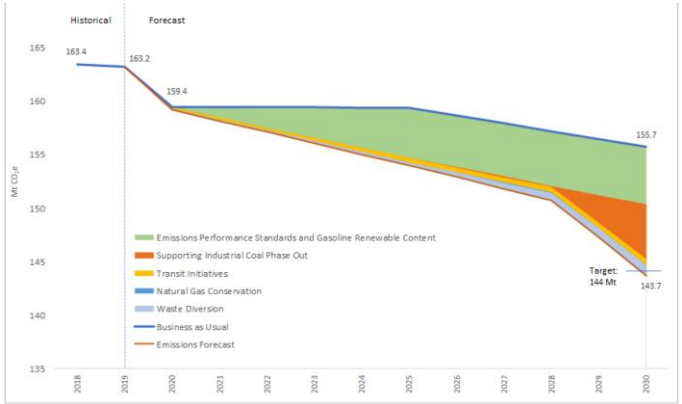
Applications include:

- Blending hydrogen with natural gas to reduce carbon impact
- Energy substitute for high-emitting industrial facilities
- Powering fuel cells in vehicles to help replace transport truck diesel engines

**2020 Ontario GHG Emissions by Sector**

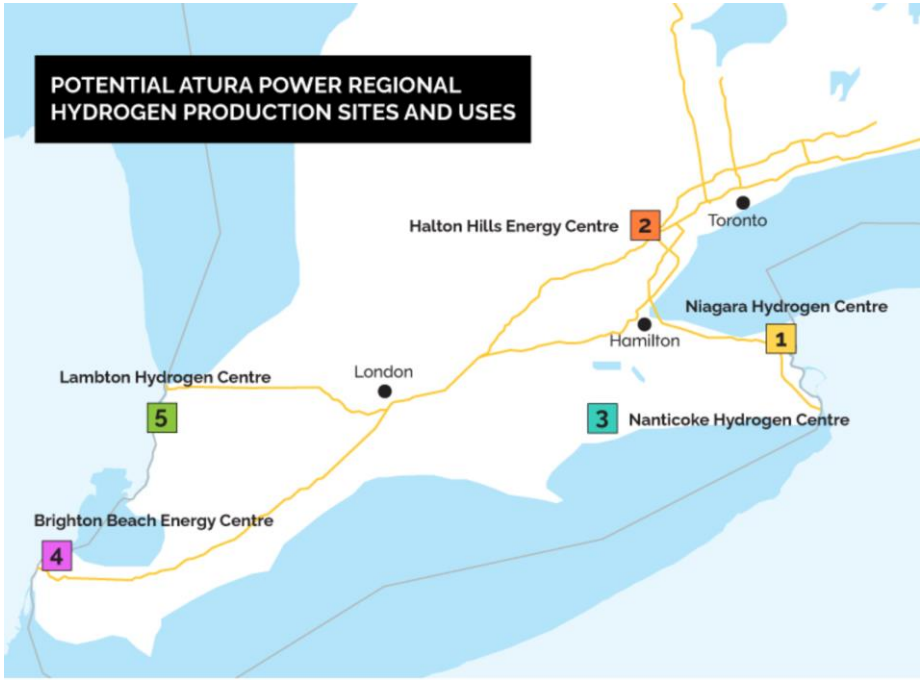



**Ontario Emissions Forecast as of March 25, 2022**



# Ontario's Low-Carbon Hydrogen Strategy

## Announced in Niagara Falls on April 7, 2022




**1 NIAGARA HYDROGEN CENTRE**

- Grid balancing, power generation
- Industry (feedstock, fuel)
- Heavy-duty trucking

**2 HALTON HILLS ENERGY CENTRE**

- Power generation
- Heavy-duty trucking

**3 NANTICOKE HYDROGEN CENTRE**

- Industry (feedstock, fuel)

**4 BRIGHTON BEACH ENERGY CENTRE**

- Storage: Salt Cavern
- Power generation

**5 LAMBTON HYDROGEN CENTRE**

- Industry (feedstock, fuel)



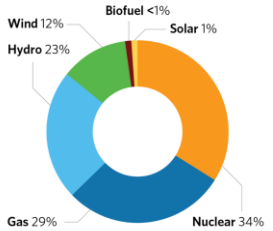

https://www.ontario.ca/page/ontarios-low-carbon-hydrogen-strategy

# Natural Gas Generation

## Flexible assets enable renewable energy

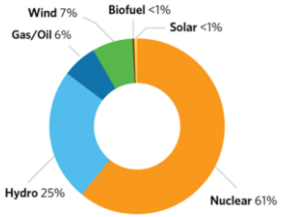
- Natural gas generation critical to our electricity system where supply and demand must be continuously balanced
- Renewable energy sources like wind and solar are intermittent and require backup
- Flexible natural gas generating stations fill this gap as they're ready when needed
- Natural gas generation is ~30% of Ontario's installed capacity while its energy output is only ~6%
- Future breakthroughs in energy storage may reduce need for gas generation backup

**Installed Capacity**

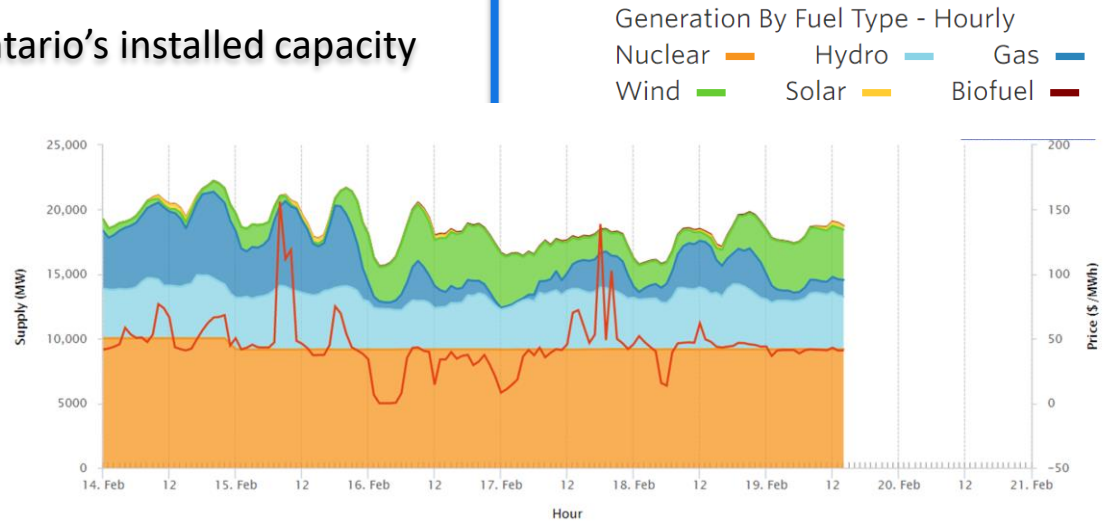



| | |
|---|---|
| Nuclear | 13,009 MW or 34% |
| Gas/Oil | 11,317 MW or 29% |
| Hydro | 9,060 MW or 23% |
| Wind | 4,486 MW or 12% |
| Biofuel | 295 MW or <1% |
| Solar | 478 MW or 1% |

**Energy Output**



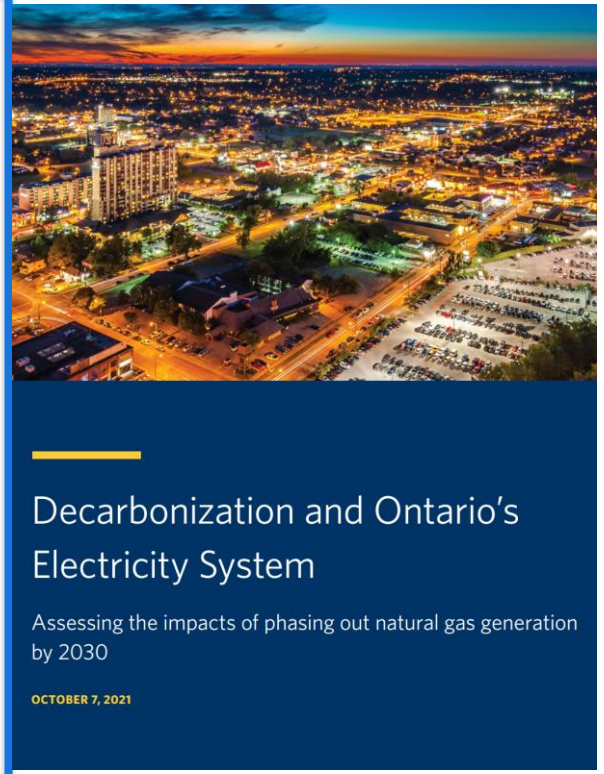

| | |
|---|---|
| Nuclear | 90.4 TWh or 61% |
| Hydro | 36.4 TWh or 25% |
| Gas/Oil | 9.5 TWh or 6% |
| Wind | 11.0 TWh or 7% |
| Biofuel | 0.4 TWh or <1% |
| Solar | 0.7 TWh or <1% |



# IESO Gas Phase-Out Study

www.ieso.ca/en/Learn/Ontario-Supply-Mix/Natural-Gas-Phase-Out-Study

- Conclusions, released October, 2021:
  1. Ontario's electricity grid is only responsible for roughly 3% of the province's total GHG emissions and is well positioned to support the electrification of other sectors.
  2. A phase-out of gas by 2030 would lead to blackouts.
  3. It would cost over $27 billion to replace gas (and install >17,000 MW of new non-emitting sources of supply and upgrade transmission infrastructure), resulting in an electricity bill increase of 60%.
  4. The Ontario electricity system cannot support further electrification to support GHG reductions and economic growth if gas generation is phased out by 2030.
  5. Hydro Quebec is not a realistic alternative – as you need to be able to rely on year-round electricity supply (Quebec imports electricity in the winter).
- Ministry asked the IESO to evaluate a moratorium on new natural gas generating stations and develop a pathway to zero emissions in the electricity sector.

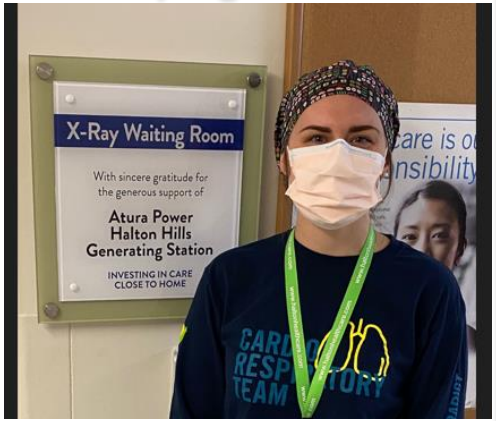


# Community Outreach & Support

## Committed to a strong social licence and community support

Atura Power annually donates more than $100,000 to charities and community organizations:

- $35,000 over 3 years to Georgetown Hospital
- 2 x $2,000 post-secondary scholarships for students studying trades or engineering
- Providing more than 800 healthy food packages to 97 area schools via Food4Kids
- Hosted 13 Garth Webb S.S. STEM students interested in energy




FOOD4KIDS Halton