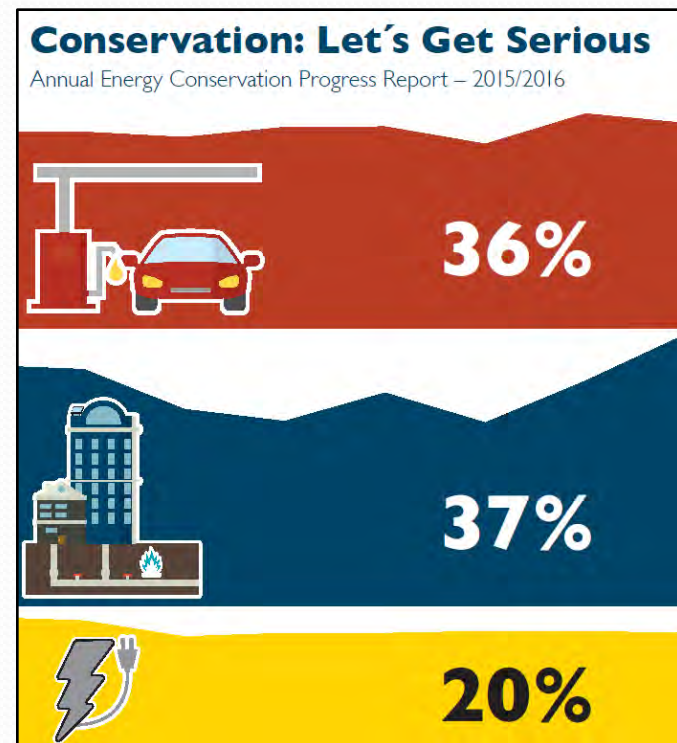


Conservation: Let's Get Serious

Sept. 20, 2016, Sustainable Buildings Canada

Dianne Saxe

Environmental Commissioner



Environmental
Commissioner
of Ontario

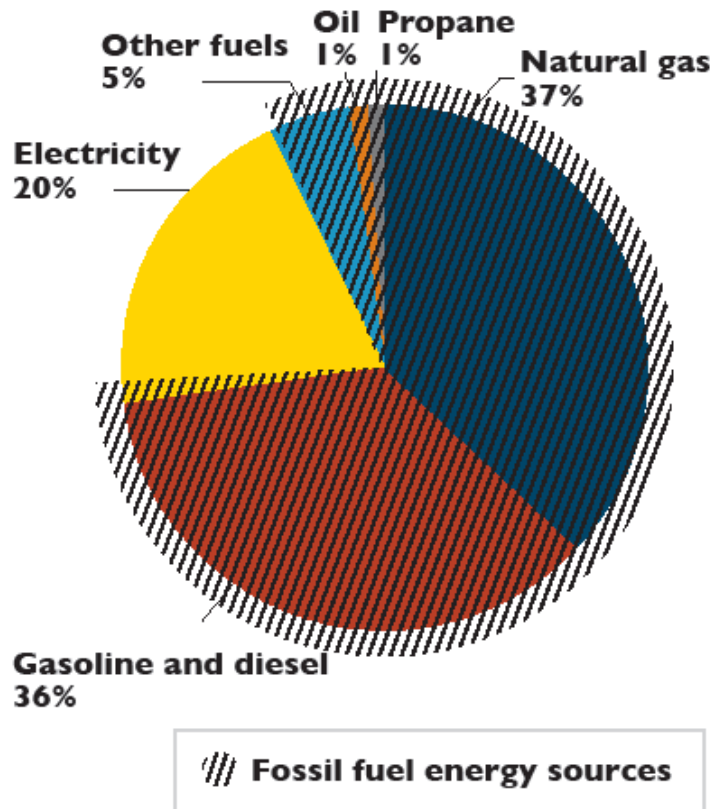
Who is the Environmental Commissioner?

- Guardian of *Environmental Bill of Rights*
 - EBR compliance by 15 prescribed ministries
- Watchdog on:
 - Energy conservation
 - Greenhouse gas emissions (climate)
 - Environmental protection
- Few exact equivalents

Overview

- Ontario Energy Facts
- Energy Efficiency Opportunities in Buildings
- There's More to Sustainability

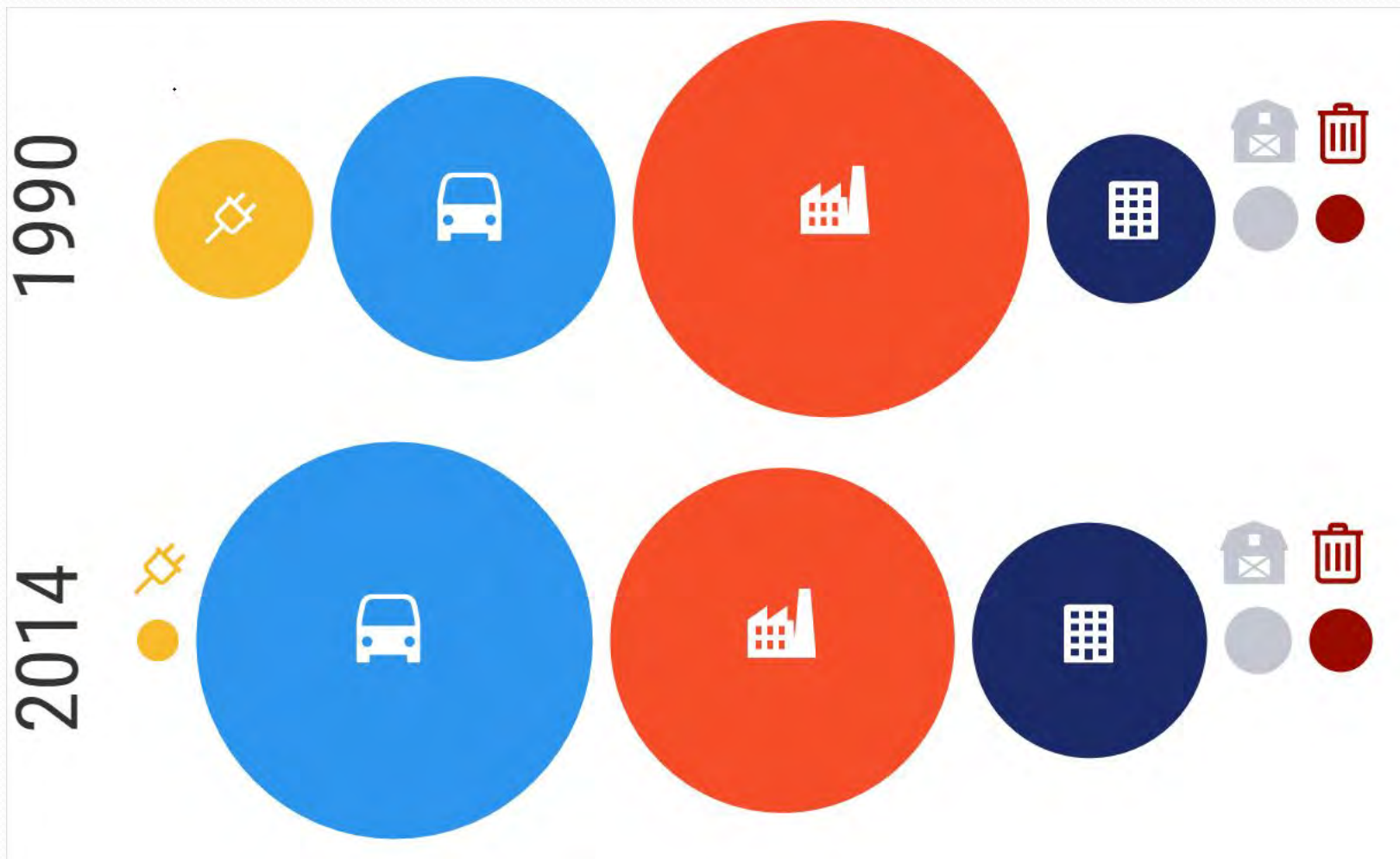
80% Fossil Fuel Dependence



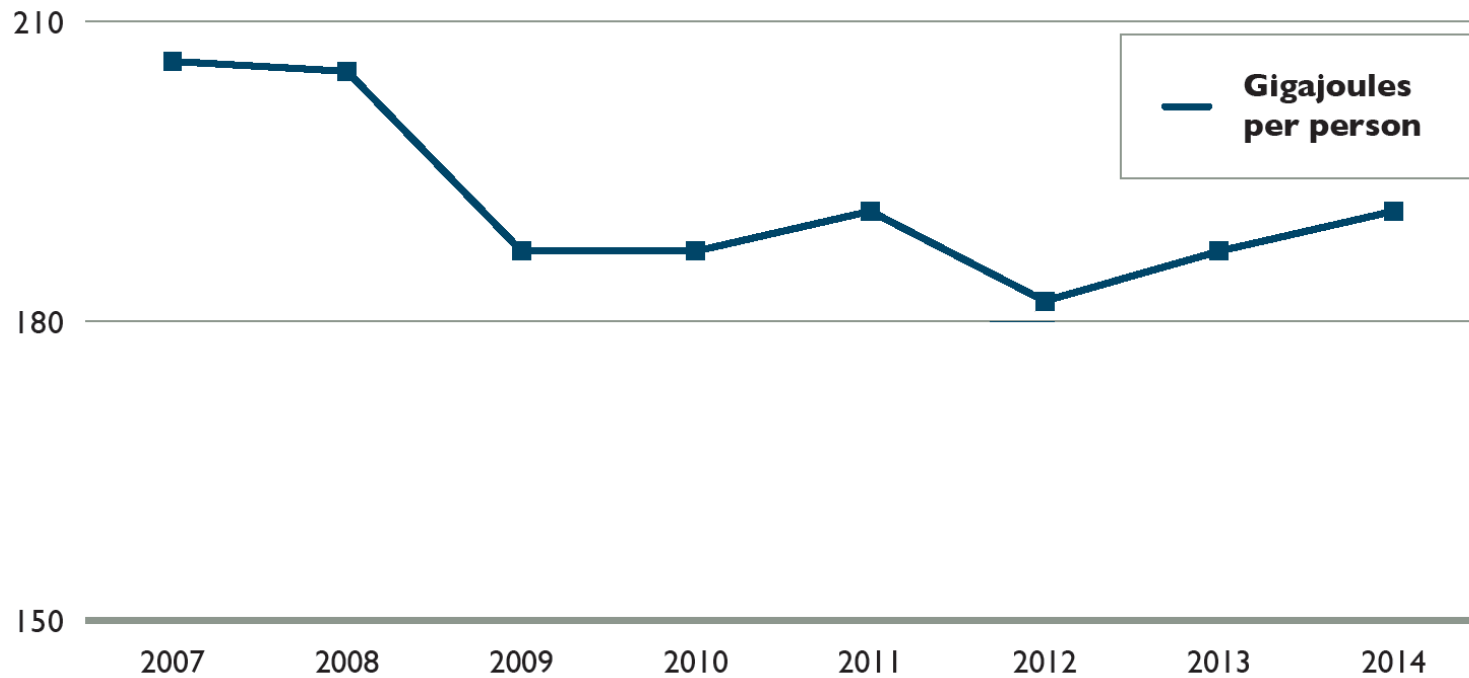
- Every fossil fuel, except coal, is up since 2007

Ontario's energy use by fuel type in 2014

24 years of Ontario GHG emissions



Some decoupling



- Total energy use is flat
- Energy use per capita (all fuels) down 7% from 2007 to 2014

Mostly from Electricity

- Use down 6% from 2007 (8% excluding embedded gen.), summer peak down 17%
 - 90% low emission in 2015
- LDCs: 109% of energy target, 70% of peak demand target

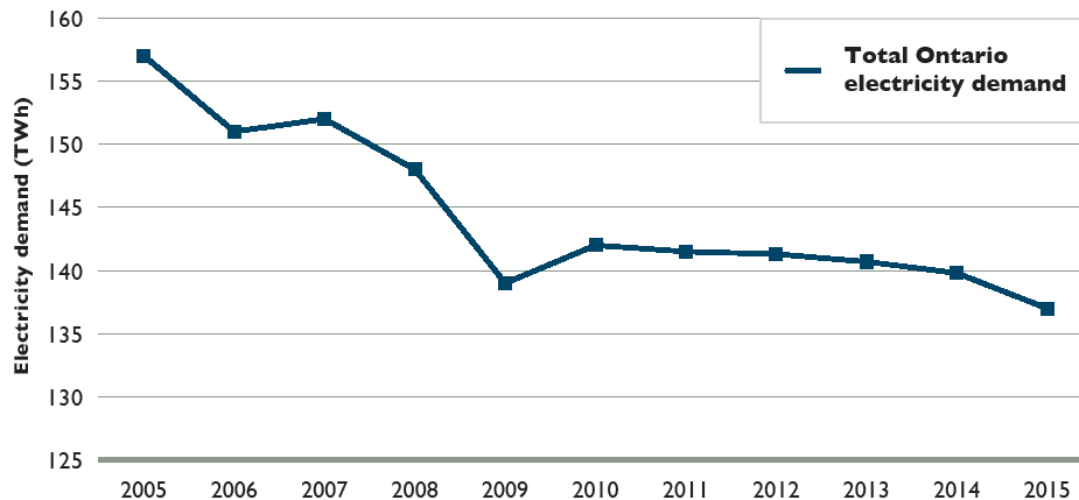
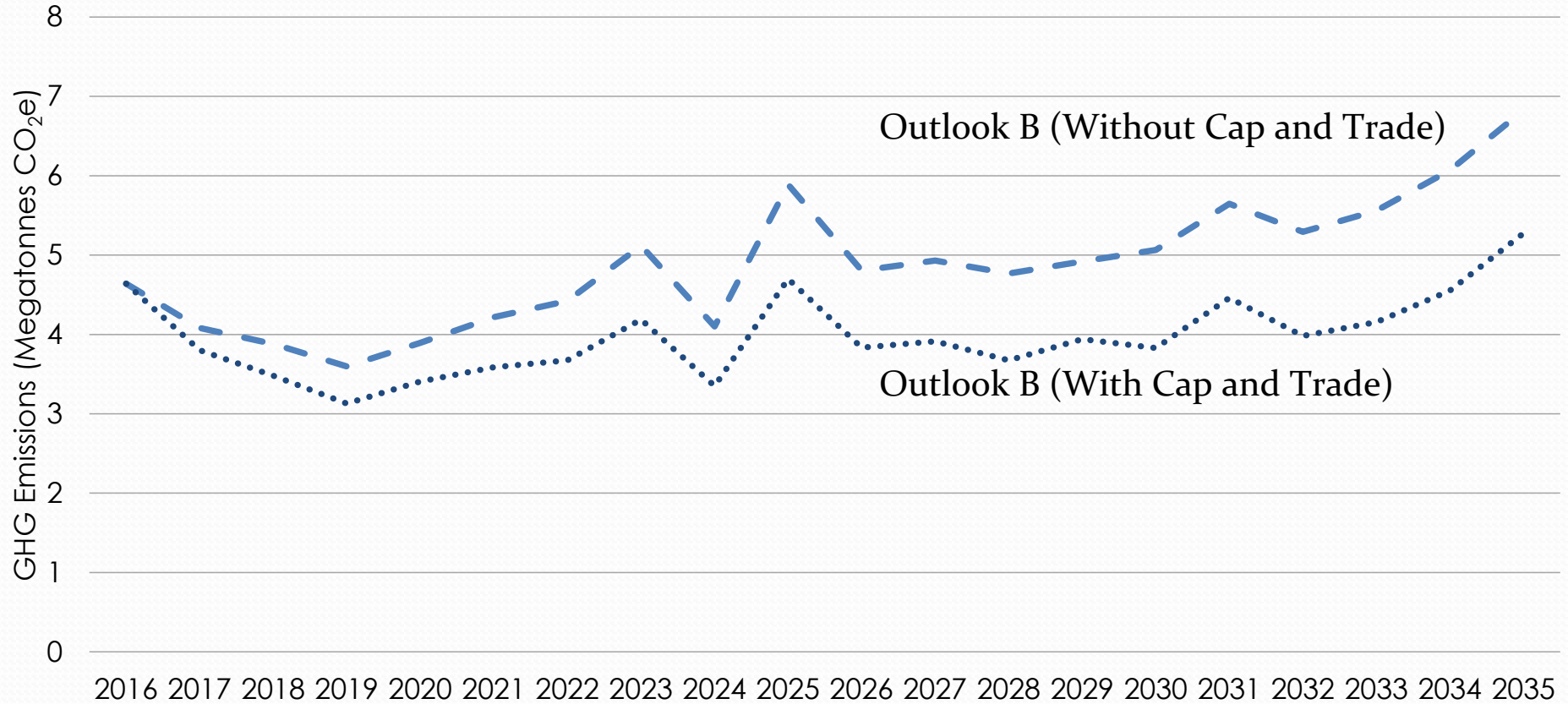


Figure 2.13: Ontario annual electricity demand, 2003-2015

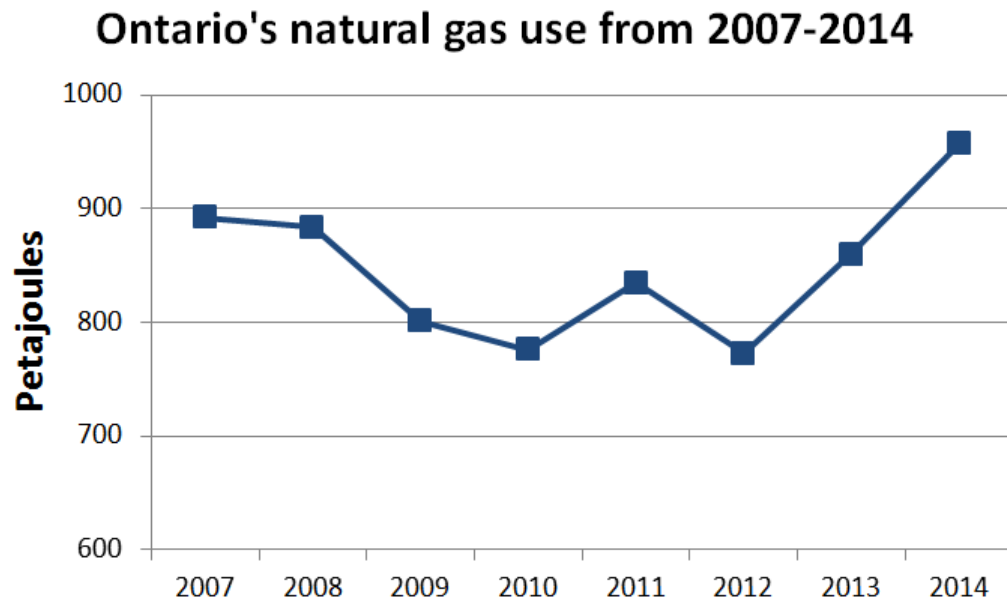
Source: IESO

Cap and trade will make electricity even cleaner- IESO



Natural gas: use is up

- Twice as much energy use as electricity, but 1/6 the conservation spending (\$66M in 2014)
- Weather? Price? Replacing coal?



Transportation fuel: use is up

- No dedicated conservation funding
- Government targets: no action (10% Low Carbon Fuel Standard), or poor performance (land use; only 1% of the way towards 2020 EV target)

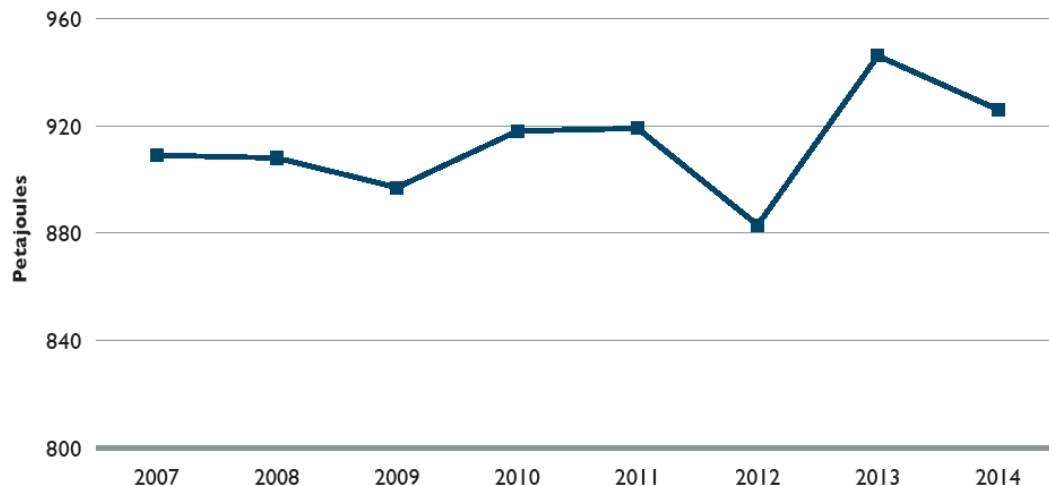


Figure 2.5: Ontario's transportation fuel use from 2007-2014

Source: Statistics Canada – Catalogue no.57-003-X.

Overview

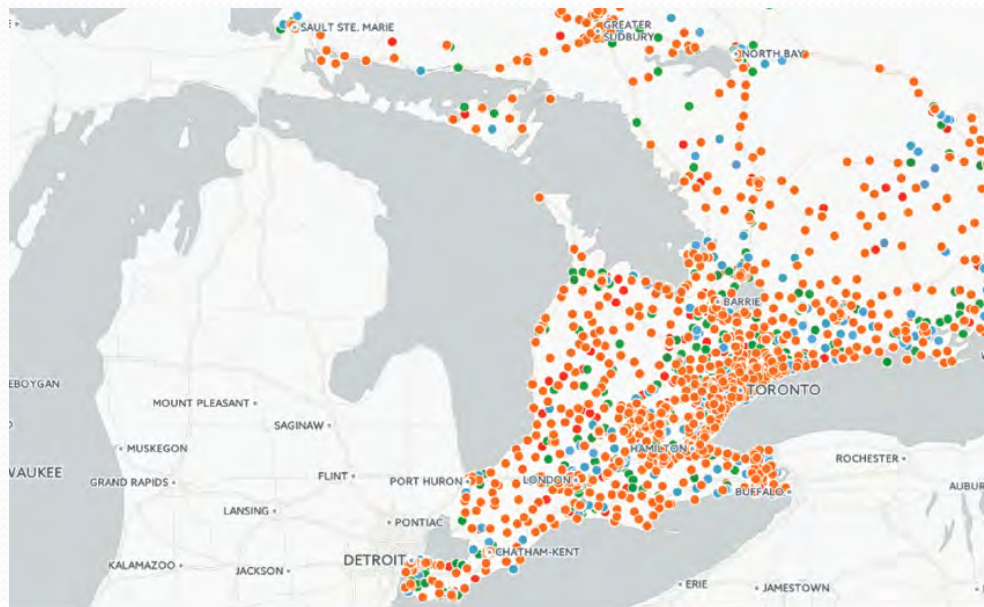
- Ontario Energy Facts
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Efficiency/ conservation?

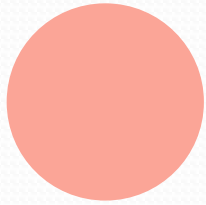
- Most building and water heating is from fossil fuel,
 - Usually natural gas
- IEA: About 40% of the reductions we need by 2050 can come from efficiency and conservation
- Let's go get them!

Where are the Energy Hogs?

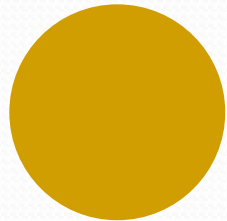
- Poor energy use data
- Mandatory reporting by 15,000 buildings in the Broader Public Sector (O. Reg. 397/11)



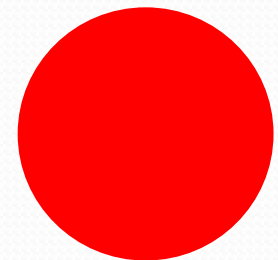
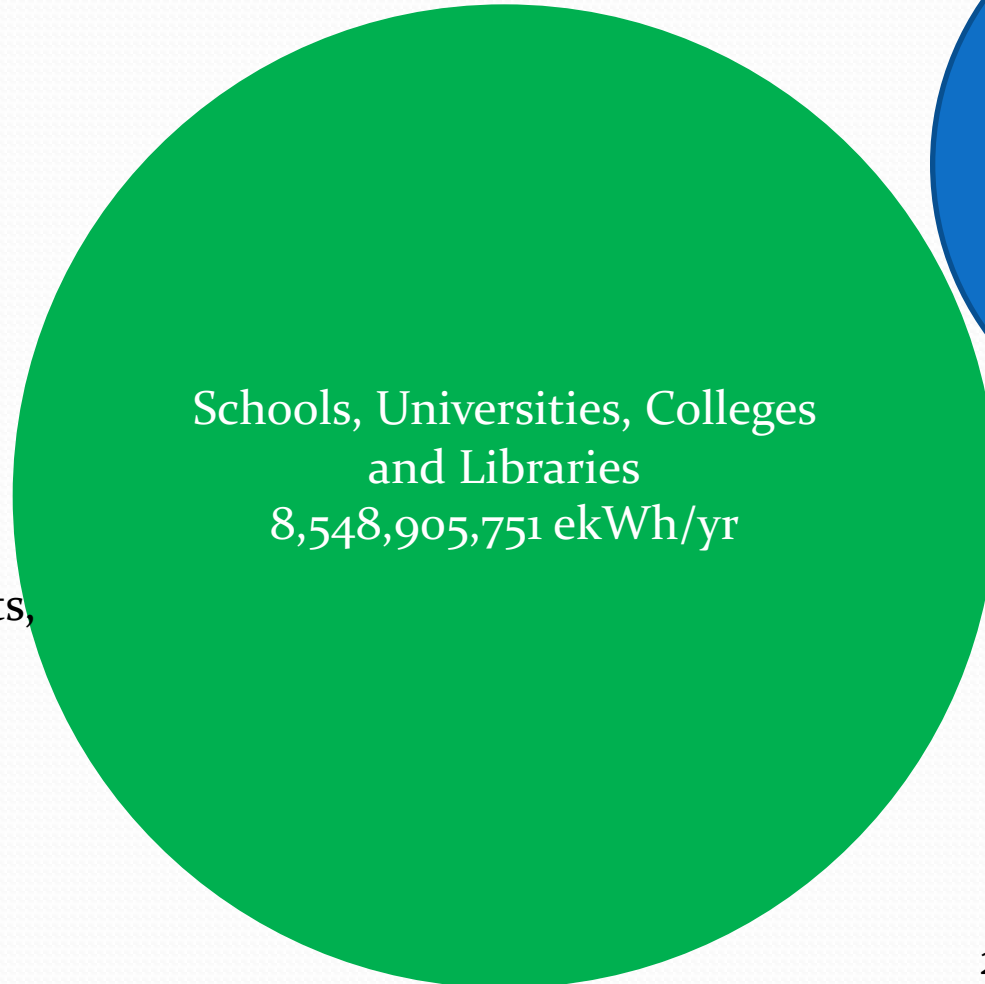
Energy in the BPS



H₂O & Sewage
1,595,722,106
ekWh/yr



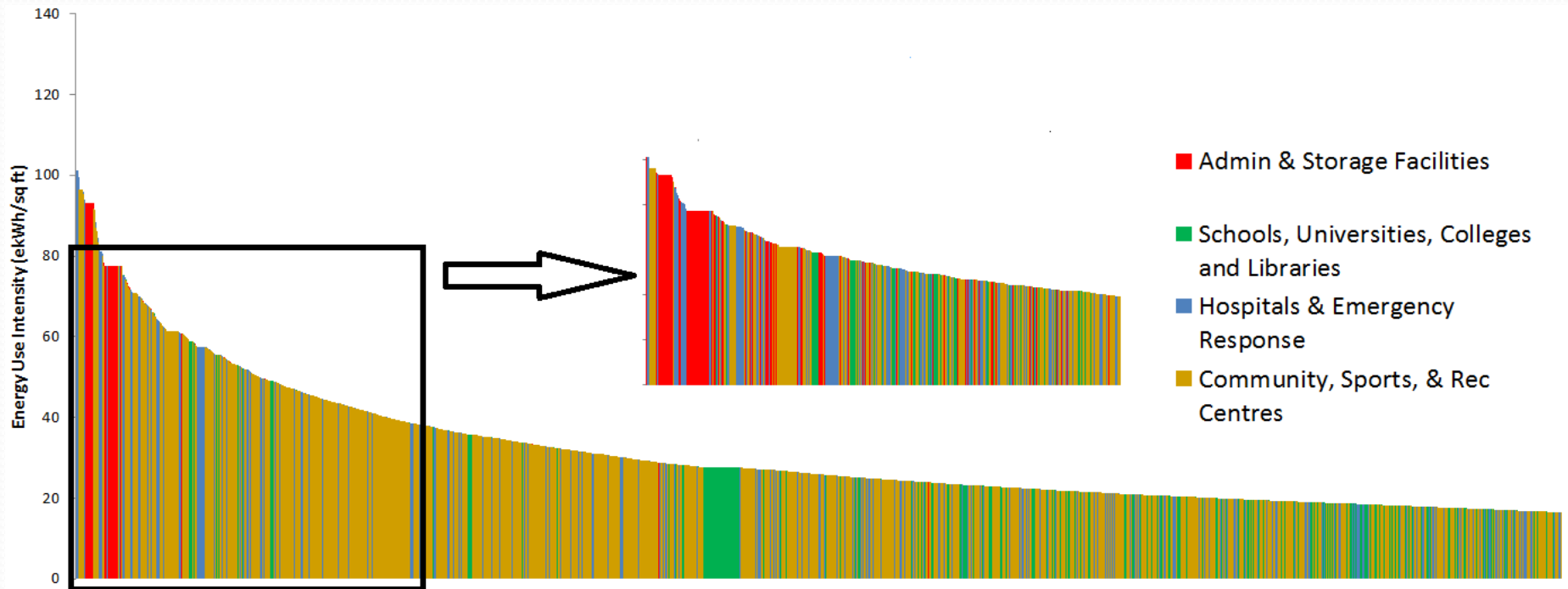
Community, Sports,
& Rec Centres
1,774,408,680
ekWh/yr



Admin & Storage
Facilities
2,057,002,060 ekWh/yr

Energy Use Intensity in BPS Buildings

- Good and bad performers in all categories of buildings.



Large variations in energy intensity

- Buildings with the same function perform very differently...

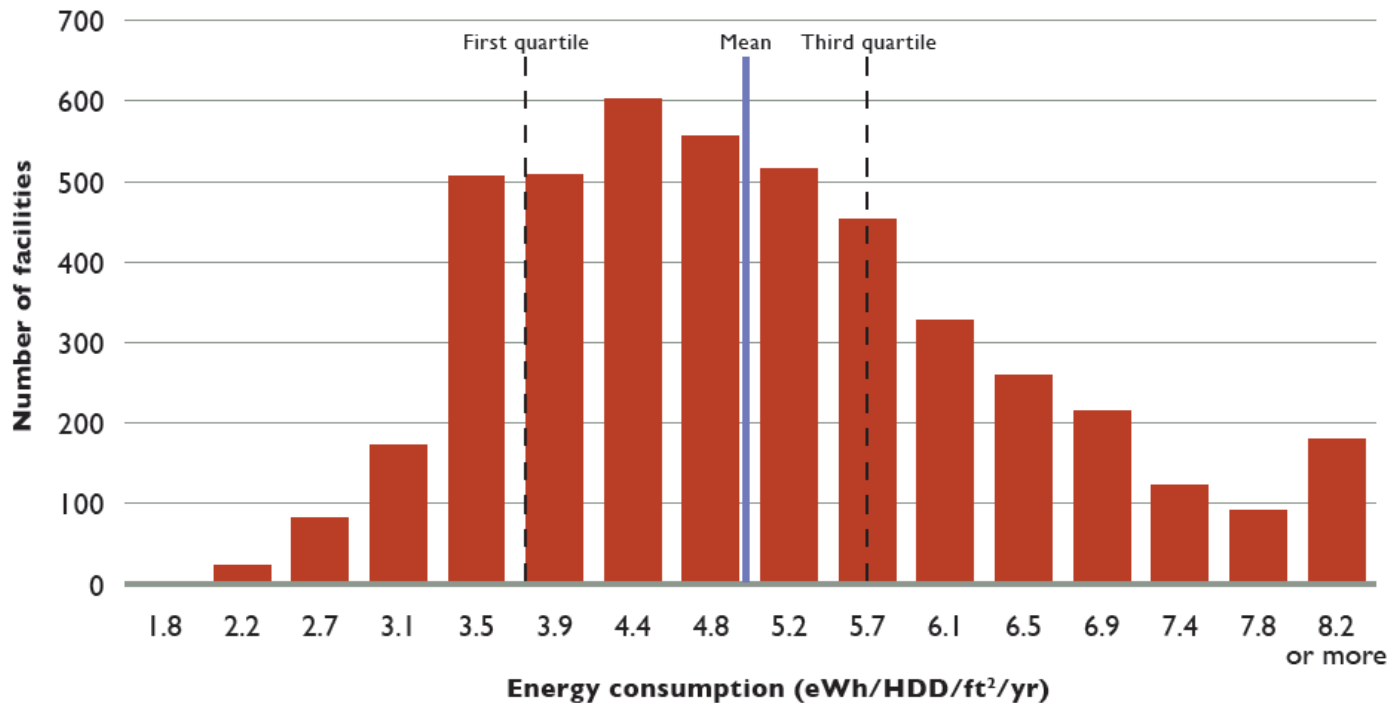
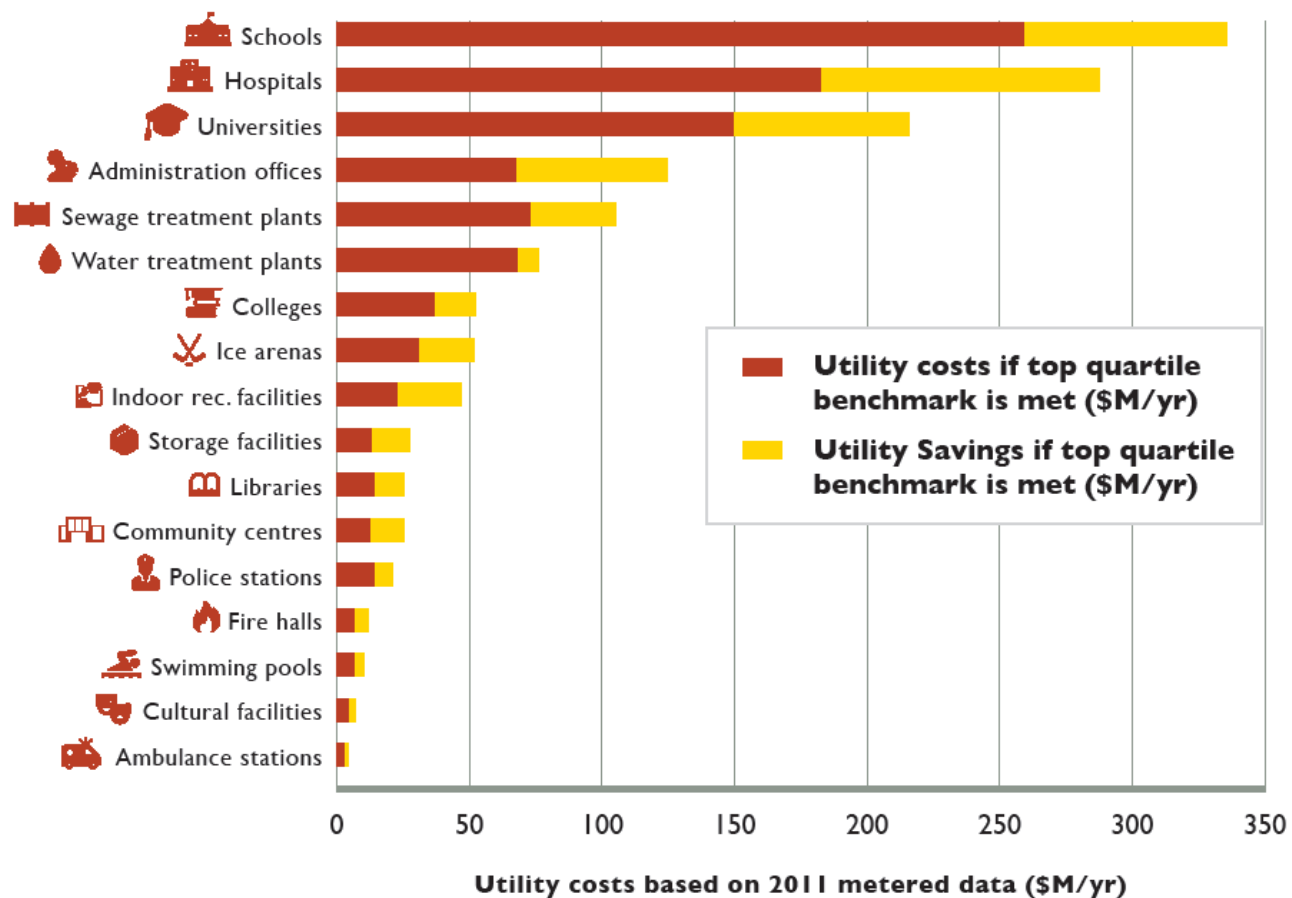


Figure 4.3: Energy consumption curve for Ontario schools – 2011

Huge potential savings

- 35% energy savings; 1 MT/yr GHG reduction; \$450M in utility bills.

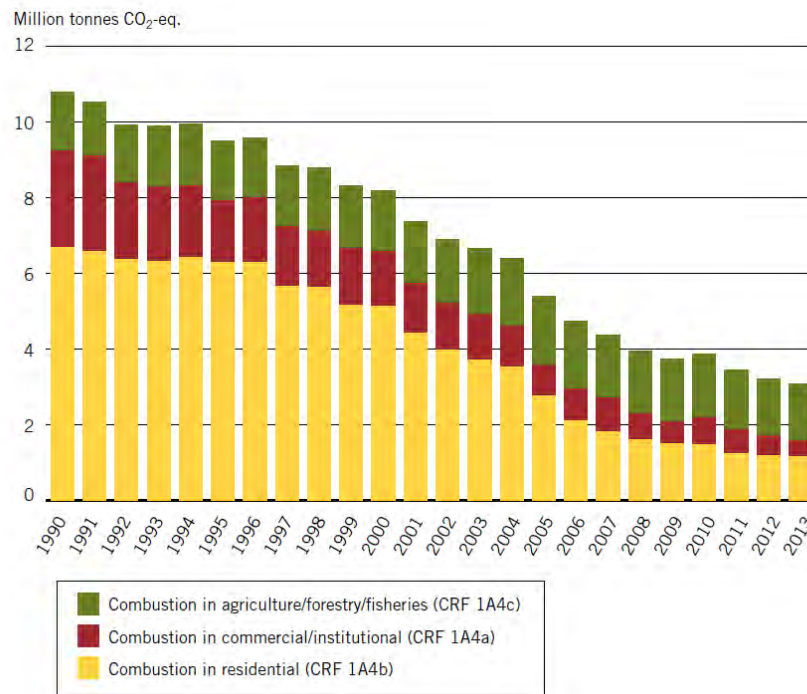


Overview

- Ontario Energy Facts
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- **There's More to Sustainability**

It's cold in Sweden too

- 80% reduction in combustion emissions in residential and commercial buildings since 1990



For Decarbonization

- Energy efficiency by individual buildings not enough
- For deep decarbonization:
 - Get off fossil fuels
 - Heat pumps using low-carbon grid electricity
 - Recovery and reuse of waste heat (particularly in sites with multiple buildings)
 - District energy for heating/cooling using low-carbon energy sources
- Embodied energy

More to sustainability than building energy!

- Transportation
- Urban Form
- Water Use
- Stormwater Management
- Heat Island Effect
- Biodiversity
 - Birds!



Huge Opportunity

- Individual building improvements are essential
 - New and retrofit
- But only a first step towards sustainability
- We're all counting on your vision, energy and commitment

Thank you!

eco.on.ca/reports/2016-lets-get-serious/

Dianne Saxe

Environmental Commissioner

eco.on.ca

