



WHAT PRICE RENEWABLE ENERGY?

Wind Concerns Ontario Conference 2018

Parker Gallant

2017 power consumption

- IESO reported 2017 grid-connected (TX) consumption of power was: 132.1 terawatt hours (TWh)

2017 ...

- IESO claimed consumption of power decreased 4.5 TWh, or 3.6% from 2016

2017 ...

- IESO also reported 511 nuclear manoeuvres in 2017 resulting in steamed off generation of almost 1 TWh (959.2 GWh)
- Also reported 3 nuclear shutdowns

What they didn't tell us ...

- No report on distribution-connected (DX) generation, approximately 6.3 TWh
- Nuclear (90.6 TWh) and Hydro (37.7 TWh) totalled 128.3 TWh or 97.1% of Ontario's total TX demand
- OPG spilled about 6 TWh of Hydro
- Wind power generators curtailed 3.3 TWh
- Spilled Hydro, curtailed wind and steamed off nuclear = 10.3 TWh

What 1.1 MILLION average homes use annually

Capacity Factors

Fuel Type	Installed Capacity	Peak Capacity	Share of Peak	Actual Output	Share of Actual
	(MW)	(MW)		(TWH)	
Nuclear	13,009	10,660	82%	90.6	80%
Hydro	8,480	5,805	68%	37.7	51%
Gas/Oil	10,277	8,371	81%	5.9	7%
Wind	4,213	545	13%	9.2	25%
Biofuel	495	439	89%	.4	9%
Solar	380	380	10%	.5	15%
Total	36,853	25,845	70%	132.1	41%

Information Sources:

- **Installed capacity as of Nov 24, 2017**
- **IESO's 18 Month Outlook Jan 2018 to Jun 2019 Report**
- **2017 Year-end data media release**

COSTS to Ratepayers

- **Hydro** generation: 37.7 TWh cost \$44 million/TWh or \$1,658.8 million in 2017
- **Nuclear** generation: 90.6 TWh cost \$66 million/TWh or \$5,979.6 million in 2017
- TOGETHER nuclear and hydro = cost \$7.6B (5.9 cents/kWh)
- **But**, additional costs drove price up to 11.55 cents/kWh

Additional costs ...

- Spilled hydro 6 TWh, steamed off nuclear 1 TWh = \$330 million
- Conservation costs: \$400 million PLUS
- Generation from wind, solar, natural gas, biomass and loss on export sales (net of 12.5 TWh) of surplus generation → costs up to \$13.7 billion
- Extra \$6.1 billion is spilled hydro, steamed off nuclear \$730 million and...
- Costs from wind (9.2 TWh plus 3.3 TWh curtailed), solar .5 TWh, gas 5.9 TWh, biomass .4 TWh = \$5,727 million

COST: 34.6 cents/kWh