

DERs and Electricity Rates in Ontario

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PRESENTED BY

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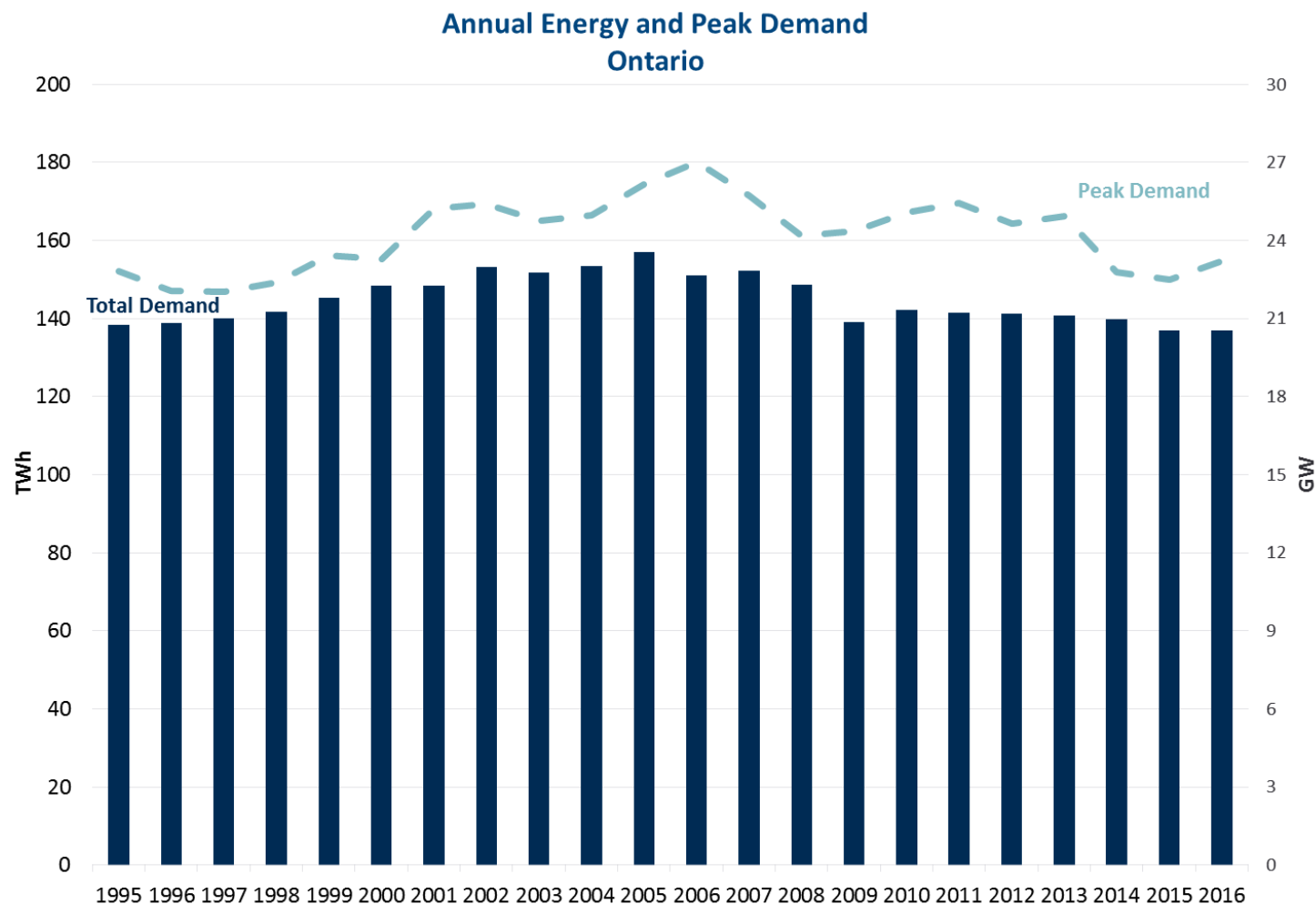


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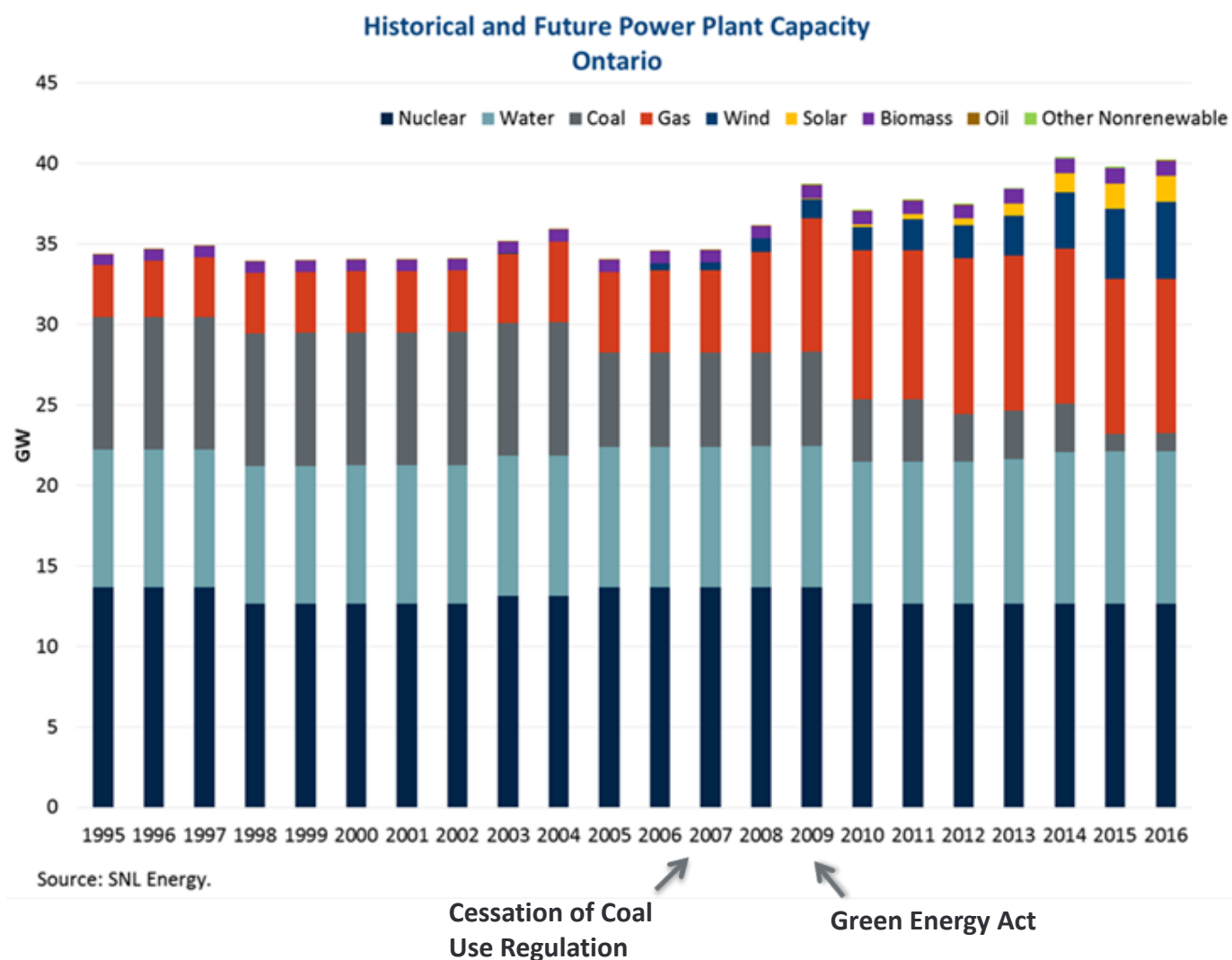
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Ontario electricity demand has declined for a decade

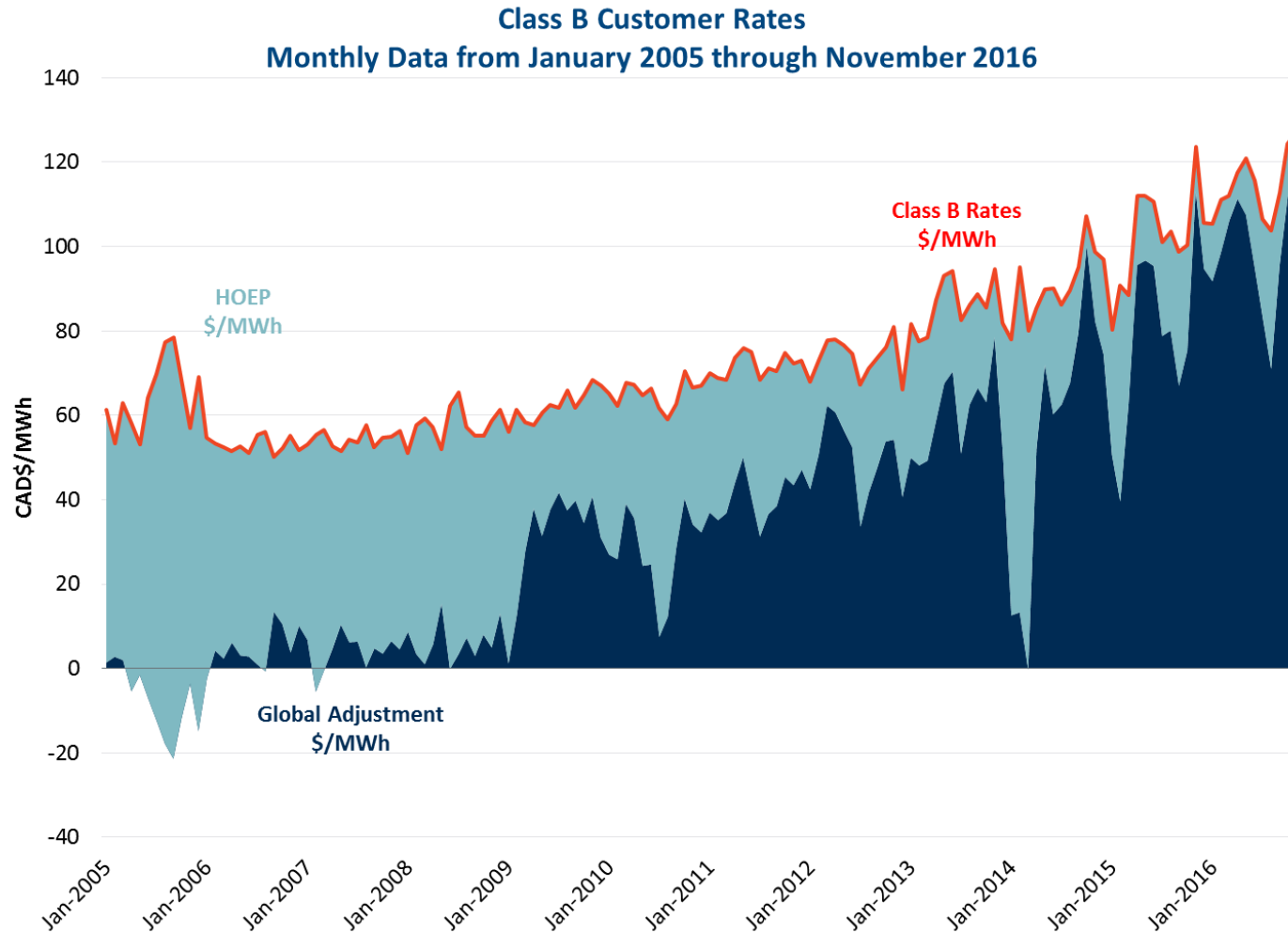


Source: IESO Data Directory.

Coal has been replaced by gas; wind/solar added



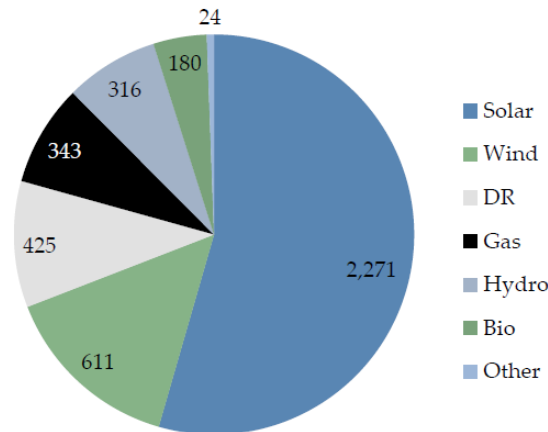
Wholesale prices have dropped, but customers pay very high rates due to the cost of gas contracts and the FIT



Source: IESO Data Directory. Class B customers pay the Global Adjustment rate plus the HOEP.

We expect DER development to continue in Ontario

- Ontario has 4,200 MW of DERs under contract or installed.

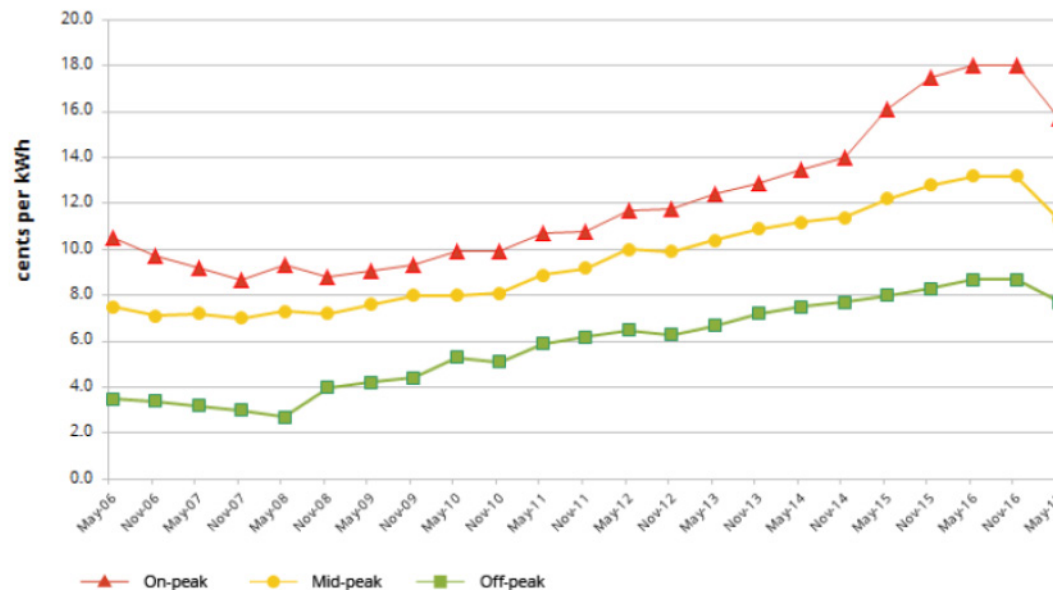


Source: IESO, "Distributed Energy Resources – An IESO Perspective," March 9th, 2017.

- Declining DER costs and evolving consumer preferences will likely increase DER penetration.
- Most importantly, very high retail rates and the availability of MicroFIT contracts (31.1 cents/kWh for a typical rooftop PV installation) make DERs very attractive.

Current Ontario retail rate structure supports DERs, but results in cost-shifting to non-DER customers

- Energy prices inclusive of the GA have an off-, mid- and on-peak pricing structure for customers with smart meters.



Source: Ontario Energy Board

- Distribution and transmission charges are recovered through volumetric charges
 - The OEB is moving to fixed distribution (but not transmission) charges for residential customers to “decouple” distribution revenue from volume consumed.

Three-part rates support cost-effective DER deployment

- Three-part rates have been adopted in a number of US jurisdictions, replacing volumetric rates.
- Three-part rates usually have the following components:
 - Energy
 - Demand (distribution, transmission, generation capacity)
 - Fixed (metering/billing/customer care).
- Three-part rates promote:
 - Economic Efficiency
 - Equity
 - Revenue adequacy.
- Three-part rates support DERs while limiting cross subsidies.
 - The owner of a DER is compensated for the DER's actual reduction in energy usage as well as for the actual reduction in generation, transmission and distribution fixed costs associated with energy delivery.

DER can have significant value to the electric system

- A DER's value depends on where it is located.
 - Distribution value in avoided/deferred upgrades and reduced substation loading
 - Transmission/generation benefits if congestion is relieved
 - BUT, potential costs if distribution system requires upgrades to support the DER.
- This suggests a three-part rate with locational energy and locational demand components.
- Allowing the Ontario distributors to deploy or support DER deployment can be incentivized via Performance Based Rates.

Presenter Information



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Dr. Shavel is an energy economist with over 30 years of experience in the energy industry, specializing in the economics and operations of the U.S. electric power system, generation and transmission investment, and environmental strategy. He has performed work for a wide range of clients, including generation and transmission companies, natural gas pipelines, marketers, developers, industry research groups, and as federal agencies. Recently he co-authored a study for the Texas Clean Energy Coalition on the future of renewable and natural gas generation in ERCOT.

Dr. Shavel has broad experience developing models of North American power systems, including the Integrated Planning Model by ICF International. He has also directed significant assignments for major electric utilities, independent transmission companies, RTOs, independent power producers and private equity on matters such as coal plant retirements, fuel price forecasting, the benefits of new transmission lines and power plant valuation. Dr. Shavel has testified before the Federal Energy Regulatory Commission (FERC), state regulatory agencies, and the Ontario Energy Board. Prior to joining Brattle, Dr. Shavel was a Vice President at Charles River Associates (CRA). While at CRA, he led the development of the National Energy and Environment Model (NEEM) and contributed to its integration with the Multi-Region National Macroeconomic Model.

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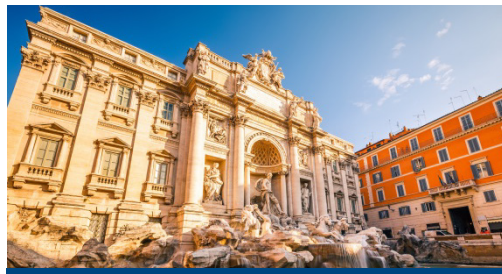
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