



# Alberta's New Carbon Tax, Coal Fired Generation Policy & Other Utility Impacts

April 21, 2016

# About Solution 105 Consulting Ltd.

- Headquartered in Edmonton
- In business since 1999
- Working mainly with larger users of energy/utilities
- Helping clients save time and money through expertise in:
  - Procurement and Contract Negotiation
  - Budgeting and Budget Variance Reporting
  - Submetering and Real-Time Metering/Alarming
  - Benchmarking and Bill Auditing
  - Corporate Sustainability Reporting (carbon footprint)



# Presentation Topics

- The latest on the carbon tax implementation schedule
- How/when will the coal fired generation phase-out affect you?
- Other government related policies to watch for (federal cap-and-trade system)
- Impacts on a typical office, retail mall and multi-residential property
- BOMA efforts to be proactive in energy intensity reporting

# Carbon Tax

- Carbon Tax is set to be \$20/tonne in 2017 and \$30/tonne in 2018 and beyond.
- The Climate Change Advisory Panel had proposed that the carbon price should increase over time. However, the government will not increase the price further until the economy is stronger and the actions of other jurisdictions, including the federal government, are better known.

<b>Year</b>	<b>Tax/Tonne</b>	<b>Nat Gas (\$/GJ)</b>	<b>Gasoline (\$/L)</b>
2017	\$20.00	\$1.011	\$0.0449
2018	\$30.00	\$1.517	\$0.0673
2019	\$35.00	\$1.769	\$0.0785
2020	\$40.00	\$2.022	\$0.0897
2021	\$45.00	\$2.275	\$0.1009
2022	\$50.00	\$2.528	\$0.1122
2023	\$55.00	\$2.780	\$0.1234
2024	\$60.00	\$3.033	\$0.1346
2025	\$65.00	\$3.286	\$0.1458
2026	\$70.00	\$3.539	\$0.1570
2027	\$78.00	\$3.943	\$0.1750
2028	\$85.00	\$4.297	\$0.1907
2029	\$93.00	\$4.701	\$0.2086
2030	\$100.00	\$5.055	\$0.2243

Not likely, but something like this could be coming.

- Carbon Tax will be felt by businesses and consumers.
  - Likely buried within the \$/L rate in gasoline.
  - Likely a \$/GJ line item on a natural gas bill.
  - Would be buried in the commodity charges for electricity. Generators to pass through costs. The regulated Balancing Pool credit may turn negative.

---

### Carbon Levy Rates – Major Fuels

Type of Fuel	January 1, 2017 Rate (\$20/tonne)	January 1, 2018 Rate (\$30/tonne)
Diesel	5.35 ¢/L	8.03 ¢/L
Gasoline	4.49 ¢/L	6.73 ¢/L
Natural Gas	1.011 \$/GJ	1.517 \$/GJ
Propane	3.08 ¢/L	4.62 ¢/L

**Source:** Alberta Treasury Board and Finance

---

# Electricity

- Carbon tax will affect the marginal cost of electricity generation, so electricity prices will rise. This increase has already been reflected in the forward market rates.

FORWARD RATES	7x24 \$/MWh	AECO \$/GJ
Balance of 2016	\$29	\$1.60
2017	\$34	\$2.60
2018	\$45	\$2.75
2019	\$51	\$2.90
2020	\$54	\$3.10

- The Balancing Pool's regulated credit may turn from a \$3.25/MWh credit to an extra cost. This may be compounded by the return of some PPAs. The BP may now hold around 3,780 MW of PPAs.

(\$/MWh)	High	Mid	Low	Very Low
Spread (PPAcost – Pool Price)	\$25	\$15	\$5	-\$5 /MWh
Estimated Charge Required	\$13	\$8	\$3	-\$3 /MWh

# Supply Mix (MW)

	Max	Current*
Coal	6,299	4,468
Gas	7,227	4,332
Hydro	894	197
Wind	1,445	46
Biomass and Other	<u>437</u>	<u>148</u>
TOTAL	16,302	9,191
*As of April 19, 4pm		
<b>Import Capability</b>	<b>Max</b>	
BC	1,200	
Montana	310	
Sask	<u>153</u>	
	1,663	

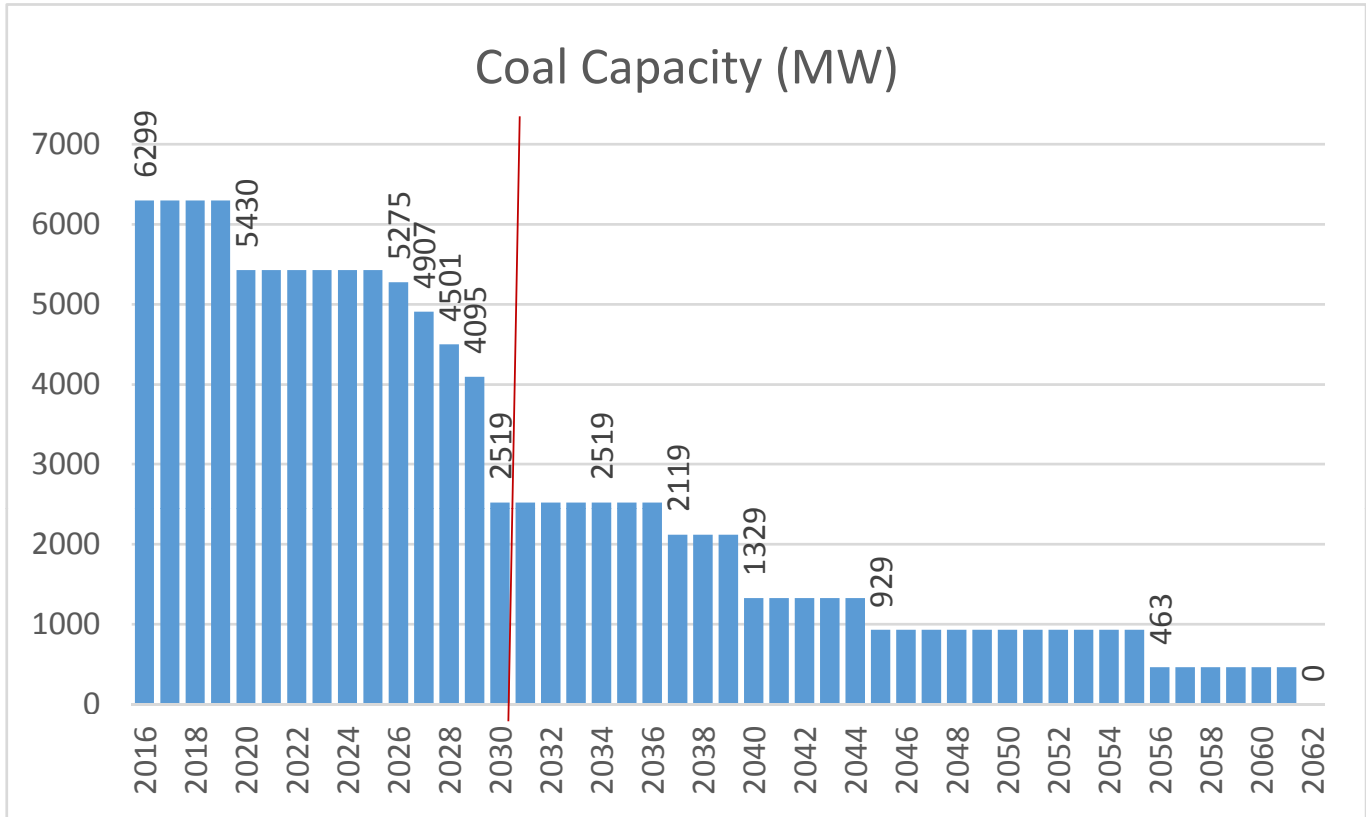


# Coal-Fired Generation

- Starting in 2018, coal-fired generators will pay \$30/tonne of CO<sub>2</sub> on emissions above what Alberta's cleanest natural gas-fired plant would create to produce the same MWh.
  - Clean nat gas plant = 0.35 tonnes of CO<sub>2</sub>/MWh
  - Coal = 0.95 tonnes of CO<sub>2</sub>/MWh
  - Then coal plant to pay extra  $0.6 \times \$30 = \$18/\text{MWh}$
- Some coal plants may become uneconomical to run and we may see more retirements in the 2018-2024 period than expected.

# Coal-Fired Generation Phase Out

- In 2014, 55% of electricity was coal-fired.
- By 2030, either this will be 0%, or the coal-fired GHG (Green House Gas) emissions will drop to zero through technology advances.
  - 1/3<sup>rd</sup> converted to natural gas
  - 2/3<sup>rds</sup> converted to renewables



Generating Unit	Federal Regulation	MW Capacity
Keephills 3	2061	463
Genesee 3	2055	466
Genesee 1	2044	400
Sheerness 2	2039	390
Genesee 2	2039	400
Sheerness 1	2036	400
Keephills 2	2029	395
Keephills 1	2029	395
Battle River 5	2029	385
Sundance 6	2029	401
Sundance 5	2028	406
Sundance 4	2027	406
Sundance 3	2026	368
Battle River 4	2025	155
Sundance 2	2019	288
HR Milner	2019	144
Sundance 1	2019	288
Battle River 3	2019	149

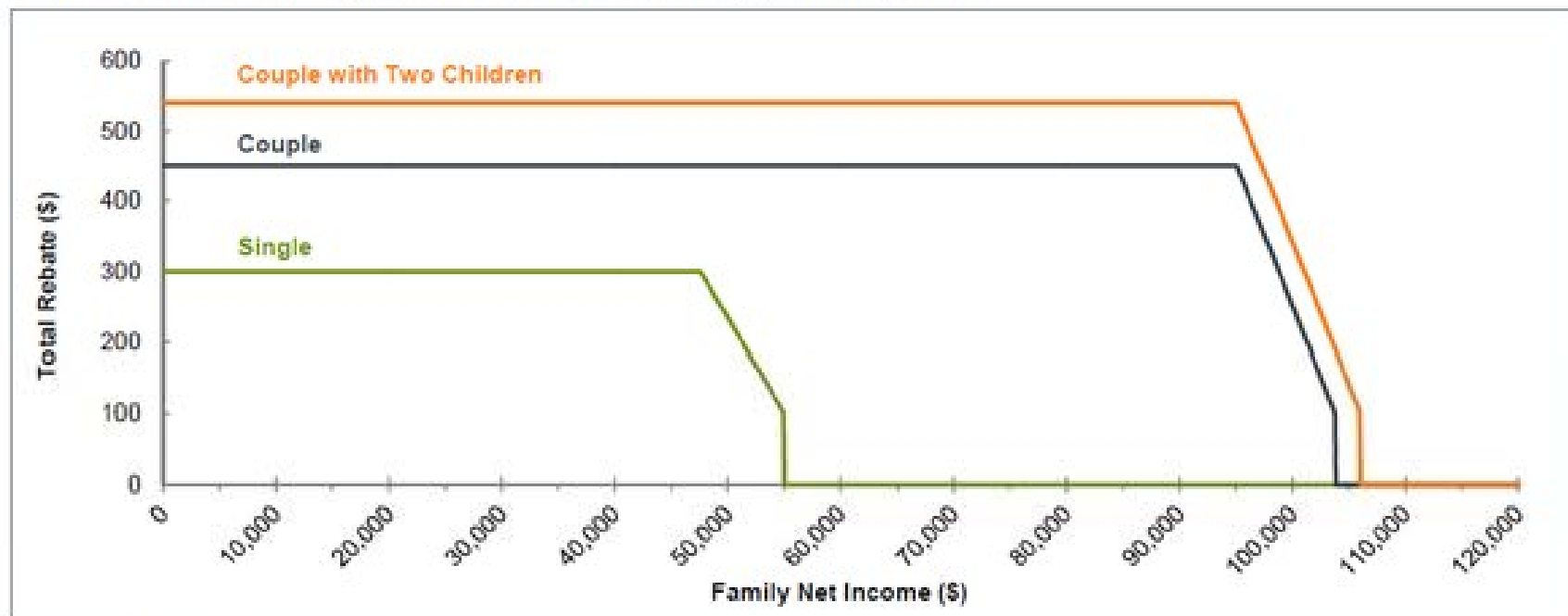
Using assumption of 50 year coal plant lifespan.

# Government Related Policies

- In AB, Carbon Tax to raise \$9.6B over 5 years
  - \$3.4B renewable energy, bioenergy, technology
  - \$2.2B for green infrastructure like transit
  - \$0.6B to support energy efficiency
  - \$2.3B in rebates to low and middle income
  - \$0.9B to cut small business tax from 3% to 2%
  - \$0.2B to assist coal communities, Indigenous, others

# Rebates for Individuals/Households

Climate Leadership Adjustment Rebate Benefits by Income, 2018



Source: Alberta Treasury Board and Finance

# Federal Government

- Much is unknown
  - Set a national target
  - \$2B to fund projects that reduce carbon
  - Fulfill G20 commitment
  - Phase out subsidies for the fossil fuel industry.

# Estimated Cost Impacts

(For electricity, it is assumed that the cost impacts are priced into the forward market)

<u>Electricity Increase of \$10/MWh</u>	<u>Office</u>	<u>Retail</u>	<u>Condo</u>
Cost per sqft	\$0.02	\$0.03	\$0.01
Cost on 100,000 sqft	\$2,000	\$3,000	\$1,000
Cost per suite			\$8
<u>Gas Tax of \$1/GJ</u>	<u>Office</u>	<u>Retail</u>	<u>Condo</u>
Cost per sqft	\$0.06	\$0.08	\$0.10
Cost on 100,000 sqft	\$6,000	\$8,000	\$10,000
Cost per suite			\$80
<u>Gas Tax of \$1.50/GJ</u>	<u>Office</u>	<u>Retail</u>	<u>Condo</u>
Cost per sqft	\$0.09	\$0.12	\$0.15
Cost on 100,000 sqft	\$9,000	\$12,000	\$15,000
Cost per suite			\$120

# BOMA Efforts

- BOMA BEST
- Education (energy efficiency)
- Advocacy (civic, provincial, federal)
- Resources



Questions?