Electricity glossary

Acronyms

AESO	Alberta Electric System Operator	AIES	Alberta Interconnected Electric System
BAU	Business as usual	CANsia	Canadian Solar Industries Association
CanWEA	Canadian Wind Energy Association	CCUS	Carbon capture, utilization and storage
CCIR	Carbon Competitiveness Incentive Regulation	CLP	Climate Leadership Plan
CO_2e	Carbon dioxide equivalent	GHG	Greenhouse gas
IPPSA	Independent Power Producers Society of Alberta	kWh	Kilowatt hour
LCOE	Levelized cost of electricity	Mt	Megatonne
MWh	Megawatt hour	NERC	North American Electric Reliability Corporation
O&M	Operation and maintenance costs	PCF	Pan-Canadian Framework on Clean Growth and Climate Change
PPA	Power purchase agreement	PV	Solar photovoltaic (solar energy panel)
REC	Renewable Energy Certificate	REP	Renewable Electricity Program
SGER	Specified Gas Emitters Regulation	TWh	Terawatt hour

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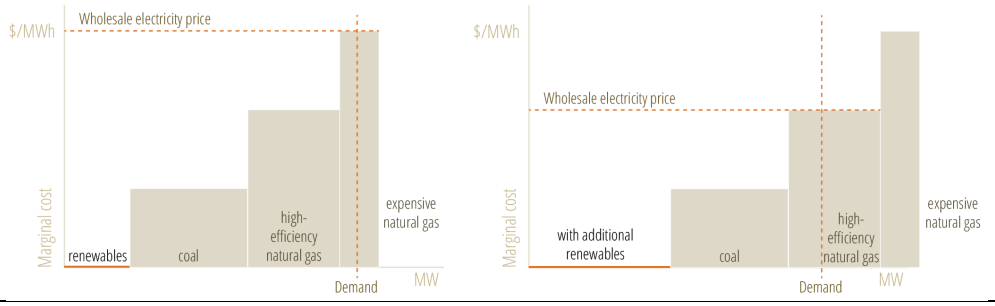
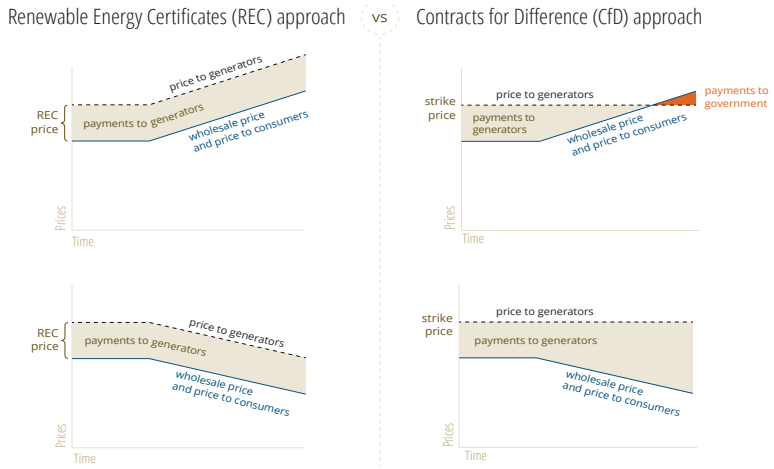
Definitions

Balancing Pool	The Balancing Pool is a separate statuary corporation that was established to manage some financial accounts and some Power Purchase Agreements (PPAs) when Alberta transitioned to a competitive generation market. It passes its costs and savings to the consumers.
baseload power	Baseload refers to power plants capable of operating 24/7 to meet the ongoing electricity minimum demand. With the incorporation of more variable generation such as wind and solar and the increased need for flexibility, the grid's the definition of baseload power is becoming less clear and relevant.
capacity	Generation capacity is the maximum amount of electricity a power plant can theoretically produce at any given time.
capacity factor	An indicator of how often a power plant supplies electricity at its maximum capacity within a year. In 2017 in Alberta, the capacity factors for generating technologies were: coal – 67%, combined cycle gas – 49%, wind – 35%, cogeneration – 26%, simple cycle gas – 12%.
carbon capture, utilization and storage (CCUS)	Technology that captures waste or exhaust carbon dioxide (CO_2) produced through the use of fossil fuels in electricity generation and industrial processes. *Capture* prevents CO_2 from entering the atmosphere. *Utilization* is the use of this captured CO_2.
CCIR and SGER	The previous and current regulations on greenhouse gas emissions from large facilities, including electricity generation plants. The Carbon Competitiveness Incentive Regulation (CCIR) replaced the Specified Gas Emitters Regulation (SGER) in 2018. CCIR requires facilities to reduce their emission intensities based on an industry-wide benchmark. For electricity, this benchmark is the emission intensity of an efficient natural gas power plant.
cogeneration	Capturing and using the heat electricity generation produces as a byproduct.
deregulated vs. regulated	In regulated electricity markets, a single utility company procures and delivers electricity to consumers. Every Western province except Alberta operates regulated markets. In deregulated markets, electricity generation is provided through competitive markets, while regulated utilities still deliver the electricity. Alberta operates a deregulated market.
dispatched	When the System Operator instructs a power plant to supply electricity to the grid for a set period of time
distribution	The movement of electricity to consumers. Often refers to lower voltage lines close to consumers.
efficiency	Decreasing the energy used for each unit of output.
energy storage	Technologies that allow electricity storage (including pumped water, compressed air and batteries).

feed-in-tariff	Any mechanism that establishes a guaranteed price for anyone who wants to sell renewable electricity to the grid.
generation	The amount of electricity produced.
grid reliability	An electricity grid's ability to deliver electricity in the quantity and quality demanded by users
levelized cost of electricity	LCOE is a figure used to summarize the price of electricity a given technology can generate.
load	Anything that consumes electricity. The *system load* is the total demand for electricity in the system.
microgeneration	Small-scale electricity or heat generation, typically for domestic or small-scale community use.
pool price	The price of a MWh of electricity paid to generators in the wholesale market. Retailers often purchased and electricity and supply it to consumers. When additional renewables are added, prices will be set by lower-cost generation 
Power Purchase Agreement (PPA)	A long-term contract between an electricity generator and a buyer.
ramping & ramp rate	Generating facilities often have a range of power outputs they can produce, depending on the fuel and technology. Changing the plant output is known as ramping. Ramp rate indicates how fast the ramping happens.
reserve margin	The electricity supply, minus the average peak demand. The minimum reserve margin must be maintained for reliability purposes.
reliability	The electricity system's ability to deliver electricity in the quantity and quality demanded. Grid regulators have strict requirements for grid reliability.
resilience	The electricity system's ability to recover from damaging conditions, such as black outs, resulting from events such as extreme weather or cyber and physical attacks.
retail price of electricity	The price the retailer charges consumers for electricity. Retailers need Alberta Utilities Commission approval for rate changes.

simple cycle vs combined cycle (natural gas)	Natural gas-fired power station technologies. A simple cycle gas facility has a gas turbine that burns gas to generate electricity and can ramp up and down rapidly. A combined cycle plant also has a steam turbine. Waste heat from the gas turbine is used to convert water to steam, which is used to turn the steam turbine and generate electricity. This plant is more efficient but is slower to ramp.
strike price	The winning price developers bid into an auction, determining the guaranteed price for the electricity they produce. When the wholesale price of electricity is lower than the strike price the government will pay the difference to the developer. When the wholesale price is higher than the strike price the developer will pay the government. This is known as ***contract for difference***, or *indexed renewable energy credit*. 
transmission	The movement of large amounts of electricity from generators to distribution networks. This occurs over higher voltage lines than electricity *distribution*.
vertically integrated utility	A single utility company that both procures and delivers electricity to consumers.
virtual power plants	The strategic control through remote communication technology of large numbers of small machines or appliances with the aim of temporarily slowing or deferring power consumption. It could displace up to 10% of electricity use at peak times.

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