# Fair Prices and Debt-Free Operation for Alberta's Electricity Market

## Background

- Returned Power Purchase Arrangements (PPAs) have left the Balancing Pool with a significant liability to the PPA Owners (the owners of coal plants) which will ultimately be funded by residential, commercial and industrial electricity consumers in Alberta
- The PPA liability is a result of certain terms and conditions in the PPAs and is partially reduced by the settlements the government has negotiated or is negotiating with each PPA Buyer and its partners
- The government has chosen, for political reasons, to permit the Balancing Pool to borrow funds to cover the liability and amortize the repayment by consumers over a long period of time, potentially to the end of 2030
- Amortizing the liability will reduce "out-of-pocket" payments for consumers each month but the interest expense associated with the borrowed funds will increase the overall cost of electric energy
- The Regulated Rate Option (RRO) calculation can be changed to benefit residential, farm and small business consumers by using the weighted average Pool price instead of forward market prices
- The calculation change will benefit residential, farm, and small business consumers by reducing the monthly cost of electricity which will offset the cost of the PPA liability and could be used to avoid inflicting debt on future generations[1]

## History and Justification for the current RRO[2]

Section 103(1) of the *Electric Utilities Act* (EUA), SA 2003, c E-5.1, mandates that each owner of an electric distribution system must make available a "default rate" for electricity to its customers. The default rate is available to all customers; however, a customer has the option to choose a product offered by a competitive retailer if that product better meets a customer's preferences.[3] Alberta's "default rate" for electricity, generally referred to as the Regulated Rate Option (RRO), is established by the Regulated Rate Option Regulation (RROR).

[1] The proposed RRO calculation change is based on a detailed analysis prepared by Nicolaas Jansen as part of his thesis requirement for a Master of Public Policy degree. See *Nicolaas Jansen, "A Review of Alberta's Default Rate for Electricity", The School of Public Policy, University of Calgary, September 13, 2016*.

[2] Jansen.

[3] For example, competitive retailers offer fixed price contracts over periods ranging from 1 to 5 years.

There are three major electricity retailers[4] - EPCOR Energy Alberta (EPCOR), ENMAX Energy Corporation (ENMAX), and Direct Energy Regulated Services (DIRECT) - that serve approximately 95% of RRO "sites" in Alberta.[5] Since 2006, the RROR has required RRO providers to base their monthly energy rates on forward market prices. This "monthly forward market price setting" is conducted pursuant to individual Energy Price Setting Plans (EPSP) that are regulated by the Alberta Utilities Commission (AUC).

The "monthly forward market price setting" methodology[6] of rate design was chosen by the government to achieve two "overriding objectives:"

1) Appropriate protection; and,
2) Retail market development.

The first objective was largely related to reducing RRO customers' exposure to wholesale market (Pool) price volatility. The second objective, "retail market development," was intended to facilitate the entry of unregulated competitive retailers into the retail market, and allowing RRO customers to switch to those retailers.

## Key Considerations[7]

The price of all electricity transacted in the Alberta wholesale market is the "Pool" price.[8] The Pool price is the actual market price for electricity and the cost of electricity consumed by RRO customers. All other electricity prices are derivatives of the Pool price. Basing RRO rates on forward market prices rather than wholesale market prices has the following consequences:

- Forward market price setting is extremely complex, and this complexity is reflected in each RRO provider's Energy Price Setting Plan. Creating and implementing these plans imposes a significant regulatory burden on retailers, intervenors and the Alberta Utilities Commission.
- It is costly for the RRO providers to carry out monthly forward market price setting, and these costs are paid by RRO customers through various adders included in the Energy Price Setting Plans.
- Charging RRO customers a price that differs from the actual cost of the electricity they consume exposes each RRO provider to financial risk for which they require compensation;

[4] There are a number of smaller retailers such as municipalities and Rural Electrification Associations.
[5] Sites are equivalent to "meters" and may have more than one customer at a particular site such as an apartment building.
[6] Under the "monthly forward market price setting" the RRO is determined in the period 120 days in advance of the month of consumption, based on the purchase of financial contracts in the forward market. Using forward market contracts is equivalent to hedging the price of electricity.
[7] Jansen.
[8] The Pool price is the average of 60 one-minute system marginal prices accumulated over an hour and is calculated by the Alberta Electric System Operator.

this risk is paid for by RRO customers through various cost adders included in the Energy Price Setting Plans.

- For any given month, RRO customers can be over or under-charged for the electricity they consume relative to its actual cost to the RRO provider.

## Cost of Past RRO Pricing[9]

Over the decade from July 2006 to June 2016, RRO customers were "over-charged" for their electricity by approximately $452 million relative to its actual market cost. In addition, RRO customers were charged an additional $570 million for the costs and risks attributable to forward market price setting. Therefore, monthly forward market price setting cost RRO customers a total of approximately $1.022 billion over the past decade. Table 1 summarizes the RRO over-charge for the period decade commencing July 1, 2006.

**Table 1: Summary of Additional RRO Costs Due to Forward Pricing (July 1, 2006 to June 30, 2016)**

| | Energy Cost ($Million) | Risk, Credit and Other Costs ($Million) | Total ($Million) |
|---|---|---|---|
| EPCOR | 262 | 327 | 589 |
| ENMAX | 82 | 124 | 206 |
| DIRECT | 108 | 119 | 227 |
| Total | 452 | 570 | 1,022 |

The Energy Costs identified in Table 1 represent the difference between Pool prices and the forward prices over the period. Risk, Credit and Other Costs represents costs such as compensation for commodity risk, NGX[10] trading and other charges, credit charges with hedge suppliers, energy return margin,[11] plan administration costs, and non-commodity risks including counter-party or credit risk, settlement related risks, risk of errors as well as operating risks.

[9] Jansen.
[10] NGX is a recognized trading and clearing house in Alberta.
[11] The RRLO retailers are allowed to earn a reasonable return. The energy return margin is a component of the reasonable return and has been include in the EPSPs and collected as part of the RRO providers' $/MWh Energy Charge. (See Jansen, page 46.)

Table 2 summarizes the average monthly RRO "overcharge" for the two Energy Price Setting Plans (EPSPs) that were in effect over the period.

**Table 2: Average Monthly RRO Over-Charges ($/Month)**

| | First EPSP (July 1, 2006 to June 30, 2011) | Second EPSP (July 1, 2011 to June 30, 2016) |
|---|---|---|
| EPCOR | 4.05 | 9.18 |
| ENMAX | 4.24 | 8.54 |
| DIRECT | 7.05 | 11.31 |
| Total | 4.56 | 9.40 |

## Explanation of the Proposed Liberal Flow-Through Structure

The Alberta Liberal Party proposes amending the RROR to discontinue the use of forward pricing and instead base the cost of electricity on the weighted average wholesale Pool price for each month. The weighted average would be based on the customer load profile for each RRO retailer in the province.[12] The weighted average wholesale price would be "flowed through" to a retailer's customers plus related management and administration costs including a rate of return as approved by the Alberta Utilities Commission.

Table 3 illustrates the estimated future savings if the RRO was calculated using the Weighted Average Wholesale Pool Price.[13]

[12] "Customer load profile" refers to the aggregate volume of electricity used by all customers supplied by a particular retailer in each hour of the month. Since different retailers service different customer bases, the customer load profiles are unique and proprietary to each retailer.

[13] Preparation of the forecast was based on a comparison of the new EPSPs which are expected to be in place for the 2016 to 2018 period to the 2011 to 2014 EPSPs. The forecast reflects the cost disallowances that were achieved by the Utilities Consumer Advocate and other interveners during AUC Proceeding 2941.

**Table 3: Estimated Savings if the RRO was Determined Using the Weighted Average Wholesale Price**

| | Base Year July 1, 2015 to June 30, 2016 | Forecast 2017 to 2020 | Forecast 2017 to 2030 |
|---|---|---|---|
| Total Estimated Savings ($ Million) | 203 | 630 | 2,600 |
| Average Annual Savings per Customer[1] ($/Year) | 188.00 | 146.00 | 160.00 |
| Average Monthly Savings per Customer[1] ($/Month) | 15.70 | 12.00 | 13.50 |

Notes:
1 Residential, farm, and small business.

Amending the RROR to use electricity prices based on the Weighted Average Wholesale Pool price is forecast to save RRO customers approximately $670 Million between 2017 and 2020 and up to $2.8 Billion between 2017 and 2030.

## Key Considerations

There are several key considerations concerning the Alberta Liberal proposal:

- The change will have minimal impact on RRO retailers as the savings are related to the cost of electricity, and not management and administration costs applicable to each retailer.
- The Alberta Liberal proposal protects the operation of the competitive retail market.
- The proposal does not deal with price volatility because consumers have the option to enter into fixed price contracts.[14]
- The Alberta Liberal proposal does not rely on price caps to protect consumers. Price caps inhibit the "price signal" and distort policy making by the government, and consequently

[14] The government's proposal to move to a capacity market could help to reduce monthly price volatility. However, price volatility could be virtually eliminated by moving to the competitive procurement of long term electricity supply contracts.

effective decision making by consumers.[15] In the event consumers, particularly vulnerable consumers, require protection from excessive price levels or volatility, the Alberta Liberals would rely on subsidies and rebates. These can be used without jeopardizing the effectiveness of the price signal.

## Estimated Costs of the Balancing Pool Liability

In response to amendments to the *Specified Gas Emitters Regulation* and the Climate Change Management Fund in 2015, the PPA Buyers triggered the "Change in Law" provisions of the Power Purchase Arrangements[16] (PPAs) between the PPA Buyers (the purchasers of the coal plant electricity generation) and PPA Owners (the owners of the coal generating plants). PPA Buyers purchase electricity generated by the coal plants at prices that were previously approved by the Alberta Energy Utilities Board and resell the electricity at market prices. For the past several years, the cost of producing electricity at the coal plants has been greater than the Pool price, resulting in a net loss to the PPA buyers. As a result, the PPA Buyers terminated the PPAs and returned them to the Balancing Pool, the agency responsible for managing PPAs without buyers. It is worth noting is that the six of the seven existing PPAs were set to expire by 2020, with one expiring at the end of 2017. The government rejected the terminations and commenced legal action and settlement negotiations. Negotiated settlements have been reached with Capital Power, ASTC Power Partnership (a partnership consisting of AltaGas Ltd and TransCanada Energy Ltd) and TransCanada Energy. To date, however, no settlement has been reached with ENMAX Corporation.

Once the PPAs were terminated and transferred to the Balancing Pool, it became responsible for subsidizing the revenue shortfall. This shortfall is ultimately covered by Alberta residential, commercial and industrial electricity consumers.

The estimated PPA liability for the period January 1, 2017 to December 31, 2020 ranges from $2.5 to $3.5 Billion and will depend on the actual price of electricity over this period. The most likely amount is about $2.4 Billion. The preceding amounts do not include the financial impact of the recent settlements with Capital Power, ASTC Power Partnership and TransCanada Energy Ltd. See following section.

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[15] For example, consumers need an effective price signal to know when to reduce consumption and consider investment in new technology such as solar panels to produce electricity and or reduce GHG emissions. A price cap reduces a consumer's incentive to reduce consumption and distorts consumer decision making regarding investing alternate technology.

[16] The PPAs were the mechanism used to mitigate the potential for market power abuse when the Alberta wholesale electricity market was deregulated.

Table 4 illustrates the estimated PPA liability excluding negotiated settlements and indicates the financial impact on Alberta consumers.

**Table 4: Estimated PPA Liability (Excluding Negotiated Settlements)**

| | Worst Case | Most Likely Case |
|---|---|---|
| Total PPA Liability ($ Billion)[1] | 3.5 | 2.5 |
| Financial Impact | | |
| All Consumers ($/MWh)[2] | 14.00 | 10.00 |
| Residential Consumers | | |
| Average Annual Cost ($) | 100.00 | 72.00 |
| Average Monthly Cost ($) | 8.00 | 6.00 |

Notes:

1 Estimates for the remaining term of the PPAs.

2 Includes residential, commercial and industrial consumers.

Assumes continued low pool prices due to oversupply of generating capacity and low natural gas prices.

Amount required to pay off the liability by December 31, 2030.

The PPA liability consists of two basic costs: 1) the difference between the cost of the PPAs and wholesale market price of electricity; and 2) amounts related to the Specified Gas Emitters Regulation / Climate Change Management Fund. Commencing January 1, 2017, the carbon charge is set at $20/tonne increasing to $30/tonne in 2018 which could potentially increase by inflation thereafter. These amounts are costs that must be borne by the coal plants and because the coal plants are regulated units the costs are flowed through to consumers.

The cost to retire the PPA liability by December 31, 2020 will likely range from $8/MWh to $14/MWh. The most likely amount is about $10/MWh. The annual cost to residential consumers is expected to range from $64 to $72 per year. This represents the costs of paying off the PPA liability that has been transferred to the Balancing Pool. It is noteworthy that the financial impact on residential consumers resulting from repaying the PPA liability can be more than offset by cost savings resulting from changing the RRO pricing methodology.

## How will the negotiated settlements impact the value of the PPA Liability?

Settlements have been negotiated with all the PPA Buyers except ENMAX Corporation.[17] The Capital Power amount is a cash settlement and the ASTC Power Partnership and TransCanada settlements involve cash and/or carbon offset credits. AltaGas settled for $6 Million in cash paid over three years starting in 2018 and 391,879 self-generated carbon offsets and the TransCanada settlement has not been specified.[18] It is extremely difficult to put a value on the ASTC and TransCanada settlements because of the challenge of determining the value of the carbon offsets. AltaGas noted in its 2015 Annual Report that there is no market for the carbon credits and, as a result, the offset are recorded at cost.[19] It is likely the value of the carbon offsets will reduce the PPA liability, the question is by how much, and when?

Table 5 shows the PPA liability adjusted by the cash values of the Capital Power and AltaGas settlements. The table does not reflect the AltaGas offset credits and the TransCanada offset credits at this time. However, it is reasonable to assume that the value of the offsets will reduce the PPA liability and hence the amounts that must be paid by consumers.

[17] As of January 16, 2017.
[18] If the Altagas carbon offsets are valued at $20/tonne, the carbon levy for 2017, the settlement is worth about $14 Million.
[19] AltaGas 2015 Annual Report, page 88.

**Table 5: Estimated PPA Liability (Including Negotiated Settlements)**

| | Worst Case | Best Case |
|---|---|---|
| Total PPA Liability ($ Billion)[1] | 3.4 | 2.4 |
| Financial Impact | | |
| All Consumers ($/MWh)[2] | 13.80 | 9.80 |
| Residential Consumers | | |
| Average Annual Cost ($) | 99.00 | 70.00 |
| Average Monthly Cost ($) | 8.00 | 5.90 |

Notes:

1 Estimates for the remaining term of the PPAs.

2 Includes residential, commercial and industrial consumers.

Assumes continued low pool prices due to oversupply of generating capacity and low natural gas prices.

Amount required to pay off the liability by December 31, 2030.

## What happens if the Balancing Pool borrows funds to stretch out the repayment period to the end of 2030?

Table 6 illustrates the cost impact to consumers if the Balancing Pool borrows money to fund the PPA liability and repays the amount over the period 2017 to 2030 using monies collected from consumers. The analysis is based on indicative interest rates published by the Alberta Capital Finance Authority.[20]

Borrowing funds has the benefit of reducing the immediate "out of pocket" cost each month for consumers but increases the overall cost due to interest expense. In this regard, the total cost of the PPA liability will increase by about $350 to $500 million over the repayment period. The annual cost to residential consumers ranges from about $22 to $25 per year depending on the interest rate.

[20] http://www.acfa.gov.ab.ca/nav/rates.html

## Summary

The PPA liability will increase average monthly costs to residential consumers by about $6 to $8 per month. Borrowing funds will increase costs to consumers by about $350 to $500 Million, depending on future interest rates. The increased costs associated with the PPA liability can be more than offset by changing the RRO pricing methodology. It is possible to reduce RRO costs by as much as $10 to $14 per month. Furthermore, the cost RRO cost reduction could mitigate the need to borrow funds which would increase the cost of the PPA liability and burden future generations.