AESO Discussion - May 13, 2015

LLG Discussion Outline

Request to Review Need for CRRCR

- LLG has reviewed the SATR approval for CRRCR and AESO's current logic for proceeding with the CRRCR transmission line.
- In light of this evaluation and understanding regulatory and needs approval process, LLG respectfully requests AESO to initiate a review of "need" for CRRCR transmission line.
- AESO, as a publicly funded agency and with a mandate to act in best interests of Albertans, has an obligation to ensure major investments represent the best use of money to provide a reliable electrical system.

Request to Review Need for CRRCR, cont'd

- SATR was developed in 2007/8 and formalized in late 2008. Assumptions and conditions of that plan have materially changed and a review is warranted.
- It will be patently obvious over time that investing $500M - $750M in this line will be seen as unnecessary and short-sighted.

- ***AESO would be seen as a responsible steward of our electricity system and show leadership by initiating a review of an out of date plan.***

Why Should AESO Initiate Review of CRRCR? *9 good reasons:*

- 600MW of generation in the "queue" used as the "trigger" is fictitious
- Economics of wind generation in Pincher Creek are not conducive to any new projects
- New turbine technology make Pincher Creek an unfavorable location for new wind projects
- Project costs have increased by a factor of 3 since SATR was approved

Why Should AESO Initiate Review of CRRCR? *9 good reasons, cont'd:*

- Need for added reliability can be accomplished for less that one tenth of cost
- Transmission line is unnecessarily being put in an environmentally sensitive area
- SATR was approved prior to SSRP – SATR needs to take this into consideration
- SATR did not foresee where new generation has actually occurred
- AESO's basis for planning, 2014 LTO, is seriously flawed due to unforeseen oil price drop
- AltaLink appears unable to locate a transmission route that aligns with policy direction in South Saskatchewan Regional Plan (SSRP)

600 MW Milestone

- AESO has stated publicly in the open house sessions that the trigger for building the line is that there is 600MW or more of *new* wind generation in the Pincher Creek area "queue".

600 MW Milestone, cont'd

- "Queue" is fictitious and should not be a basis for a project of this magnitude and impact
  - 528 MW has been in queue for 9-10 years (Benign, Enel and Windy Point)
  - Current economics and conditions on Benign project (350MW) make this project totally unfeasible. It has lost its MD approval and has a crippling restriction that prevents operating at night due to noise. Heritage Wind Farm Development Inc. Decision 2012-029 Application No. 1607559 Proceeding ID No. 1379
  - Enel project (115 MW) has not begun and has a documented start date of Dec. 2015 – it is not feasible they will meet this date and again, economics make it unlikely it will be ever be undertaken.

600 MW Milestone, cont'd

- AESO has not fulfilled its obligations to ensure a need exists: Decision 2010-343 Application No. 1606274
- 6. Subsection 11(4) of Transmission Regulation describes statutory obligations that arise for AESO when it seeks approval from Commission for an NID that includes a preferred transmission option to be built at a future date

600 MW Milestone, cont'd

- That subsection reads as follows:
  - (4) If ISO's preferred option under subsection (3)(h) is to construct a transmission facility at a future date, ISO must
    - (a) be reasonably certain that, in future, a transmission facility is needed, and for purpose of determining certainty of need, ISO may specify milestones including
      - *(i) load growth, (ii) generation addition,*
      - *(iii) commitments by prospective owners of generating units to construct a unit,*
      - *(iv) receipt of payment of local interconnection costs under Part 5,*
      - *(v) issue of permits or approvals, or meeting other legal requirements, for construction of a generating unit, and*
      - *(vi) any other indicators prescribed by ISO determining certainty of need for construction of a transmission facility,*

Expected Wind Generation in Pincher Creek

- New projects are very unlikely to be initiated in this area:
  - Wind generation cost is $89/MWh (AESO Comparative Generation Cost)
    - Current discount from Average Pool Price for wind from Pincher Creek has gone from 25% in 2010 to 45% in 2012.
    - Federal subsidies are no longer available nor are carbon credits being increased.
    - To be economic, average pool price would need to be $89/MWh X 1.45 (discount factor from pool price) less $9MWh (carbon credit) or $120/MWh.
    - AESO forecasts (2014 Annual Market Statistics) state that Average Pool Prices were:

2012	2013	2014
64.32	80.19	49.42

AESO's own studies show that wind generation in Pincher Creek is not economically viable.

Technology / Project Costs

- Wind Turbine technology has changed
  - Current turbines in Pincher Creek are 1.7 -2.0MW and are outdated
  - New turbines are 6-8 MW and operate at lower, steadier wind speeds
  - **High wind speeds in Pincher Creek are actually a disadvantage for new wind development**
  - Original cost estimates for line (SATR 2008) was **$190M**; stated estimates are now **$500M - $700M**
  - *AESO has stated that this project will be reviewed based on SATR criteria and public presentations*

Technology / Project Costs, cont'd

- "(4) If ISO's preferred option under subsection (3)(h) is to construct a transmission facility at a future date, ISO must (a) be reasonably certain that, in future, a transmission facility is needed" (SATR)

> ***"In the case of the South Wind application, a multi staged project was defined subject to an ongoing assessment and verification of need."***
> Bill Strongman, Director Regional Transmission Planning, September 2009

- ***Material changes in technology and costs, since SATR was approved, necessitate an assessment.***

Reliability

- AESO has stated the proposed line "contributes"* to reliability
  - *Letter to LLG from AESO dated March 25, 2015 from Mr. Greg Retzer
    - Given big increase in generation closer to Calgary, power from Pincher Creek wind farms would not be needed to provide power in event of a failure of 955L/956L or 1037L/1038L
    - It would seem that with all of the new generation occurring outside of the Pincher Creek area, investment in reliability would occur where the new generation is in place or being developed.
    - Given that new development in the Pincher Creek area is not likely to occur, it would seem $750M for a "contribution" to reliability is horribly expensive.
    - For this level of expenditure a cost / benefit analysis would be appropriate given the dollar value of wind power produced from Pincher Creek.

Reliability, cont'd

- Experts have advised us that there are alternate means to provide same level of reliability at less than 10% of cost and avoid environmental and land impact

Environmental Issues and SSRP

- AltaLink's proposed routes are problematic
  - Cannot (per AL) be located on existing corridors
  - Creates new linear disturbances
  - Highly damaging to rare and important habitats
- Introduction of SSRP needs to be considered
  - SATR was pre-SSRP. It is a substantial change to development process and should cause a review
  - If there is an alternate going east to satisfy reliability with far less environmental impact and meets SSRP criteria, it should be examined

Environmental Issues and SSRP

- Introduction of SSRP needs to be considered
  - SSRP provides ***binding policy direction*** for new development in region
  - This includes:
    - 1. Maintain an agricultural land base by reducing the fragmentation and conversion of agricultural land.
    - 1.21. Work with municipal governments and other partners to identify, establish and promote scenic byways in and around areas with high-quality attractions and recreation and tourism features.
    - 3.7. Implement guidelines to avoid conversion and maintain intact native grasslands on public land (see Appendix G - Grasslands).
    - 5.1 All land-use planners and decision-makers responsible for land-use decisions are encouraged to consider the efficient use of land principles in land-use planning and decision-making (see Appendix I - Efficient Use of Land Principles).

Environmental Issues and SSRP

- SATR was pre-SSRP
- It is a substantial change to the development process and should cause a review
- If there is an alternate going east to satisfy reliability with far less environmental impact and greater alignment with SSRP, it should be given priority over less favourable pre-SSRP approaches

New Generation in Southern Alberta

- New supply of electricity in Southern Alberta is abundant
  - *No new projects in Pincher Creek have been proposed since 2013 (one), remainder have been stalled since 2005/2006.*
- CALGARY, ALBERTA (NOVEMBER 27, 2014)
  - "The AESO connected over 1,400 MW of new generation to the system in 2014, more than 2012 and 2013 combined. The majority of generation added this year is fueled with natural gas. A large portion of that was from the Shepard Energy Centre that was energized this year and will contribute up to 873 MW to the system in the future. The next most significant source of generation was wind, with 300 MW of capacity added from what is now the largest wind farm in Canada, Blackspring Ridge. "This was a big year of added generation due to two large scale projects and really helps when we think about our forecast for generation over the next 20 years, which tells us we will require another 11,900 MW by 2034," Keating Erickson adds. The healthy supply, paired with low natural gas prices this year, affected downward pressure on the wholesale price of electricity. The average price year to date is $51.76 per megawatt hour. That is down 38% from 2013 when the average price was $80.19/MWh. The 10-year average price is $68/MWh."
  - -30-
  - *As an independent system operator, the AESO leads the safe, reliable and economic planning and operation of Alberta's interconnected power system. The AESO also facilitates Alberta's fair, efficient and openly competitive wholesale electricity market, which in 2014 had 184 participants and approximately $6 billion in energy transactions.*
  - For more information contact:
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2014 Long-Term Outlook

- AESO's key assumption in 2014 LTO:
  - *"The forecast's foundation is an economic outlook which considers global, U.S., Canadian and provincial factors that affect Alberta's economy. The 2014 LTO economic outlook assumes that throughout the forecast and especially over the next five to 10 years, global demand for crude oil will sustain prices and support strong investment in the oilsands, which will also drive strong Alberta economic growth."*
  - *AESO used the Conference Board of Canada to develop the 1024 LTO.*
  - They now say:

2014 Long-Term Outlook, cont'd

- Pedro Antunes, Deputy Chief Economist, The Conference Board of Canada
  - *Economic growth and government revenues for some provinces will be down sharply in 2015 as a result of lower oil prices. Alberta will experience the largest drop on GDP; total business investment could be down by $12 billion this year. A 40 per cent reduction in oil prices will lead to a $4.5 billion cut to royalty revenues in 2015—the lion's share of losses accruing to Alberta, Saskatchewan, and Newfoundland and Labrador. Economic growth and government revenues will also slow for the country as a whole.*
- **Based on this unforeseen change in economic conditions, AESO, as part of its obligations to serve Albertans needs to review its plans**

Summary

- Proposed transmission line has an estimated cost of up to $750M:
  - Using queue as basis for CRRCR is a flawed analysis
  - With no new wind generation likely to occur in Pincher Creek area, is this expenditure reasonable?
  - Given unforeseen changes to economic conditions and forecasts, is this the time to increase costs to consumers for very marginal benefit?
  - With major new generation projects in other locations being introduced would money be better spent supporting transmission capabilities for those very real locations?
  - If there is a much lower cost and far more environmentally acceptable means to enhance reliability should it not be investigated?

Summary

- The policy environment has changed substantially since approval of South Saskatchewan Regional Plan, even while above changes were taking place
- LLG believes that AESO, as a responsible steward of Alberta's electricity system acting on behalf of all Albertans, should initiate a review of the need for this project

Proj No	Project Name	Phase	Queue Type	Planning Area	Gen MW	Load MW	MW Type	Stage	Planned ISD	Received
479	Naturener Wild Rose Wind Farm	1	Connection	4	210	6	Wind	4	Jul 17, 2017	May 12, 2005
515	Benign Energy Heritage Wind Farm	1	Connection	53	350	0	Wind	3	Dec 27, 2018	Sep 22, 2005
513	Pteragen Peace Butte 116 MW Wind Farm	1	Connection	4	116	0.1	Wind	5	Dec 31, 2016	Oct 14, 2005
524	Enel Alberta Riverview Wind Farm	1	Connection	53	115	1	Wind	4	Dec 6, 2016	Jan 25, 2006
580	Windy Point Wind Farm	1	Connection	53	63	0.6	Wind	4	Dec 1, 2015	May 12, 2006
635	Suncor Hand Hills Wind Energy Project	1	Connection	42	80	0	Wind	4	Oct 28, 2016	Oct 6, 2006
678	BluEarth Hand Hills Wind Project	1	Connection	42	80	1	Wind	4	Oct 1, 2016	Jan 15, 2007
693	Naturener Wild Rose Wind Farm Phase 2	1	Connection	4	189	6	Wind	4	Sep 19, 2016	Apr 3, 2007
937	Mainstream Wainwright Wind Project	1	Connection	32	150	0	Wind	3	Aug 8, 2017	Jun 11, 2009
1080	Old Elm + Pothole Creek Wind Farm	1	Connection	55	300	0	Wind	3	Aug 9, 2017	Apr 29, 2010
1250	E.ON Grizzly Bear Wind Facility	1	Connection	13	120	0	Wind	3	Dec 30, 2016	Aug 2, 2011
1500	Renewable Energy Service WAGF	1	Connection	53	47	0	Wind	3	Aug 16, 2017	Nov 18, 2013
1533	Joss MPC WAGF	1	Connection	48	120	0	Wind	3	May 24, 2018	Mar 1, 2014
1567	Sharp Hills Wind Farm New Facility Generator Capacity	1	Connection	42	300	0	Wind	2	Jan 4, 2018	Jun 4, 2014
1607	Fortis Bull Creek Phase 1 Generators Increase	1	BTF	37	10.8	0	Wind	2	Dec 23, 2015	Oct 3, 2014
1608	Fortis Bull Creek Phase 2 Generators Increase	1	BTF	37	16	0	Wind	2	Dec 23, 2015	Oct 3, 2014