IESO Engagement

From: John Stephenson
Sent: May 5, 2021 8:39 AM
To: IESO Engagement
Subject: Questions on Gas Phase-Out Impact Assessment

1) Will the base case be APO Dec 2020?

2) Will the assessment examine the cost and implications of
reducing emissions to various levels by 2030 (to align with the date for the national greenhouse gas reduction target): e.g., to zero, <= 2 million tonnes/year (Mt/y), <= 4 Mt/y, <=6 Mt/y, and so on?

3) Will it examine possibilities beyond 2030?

4) Will the results be presented transparently revealing the
tonnes of emissions reduced from the base case by each option in each year of the study period and the Incremental cost in those years, hence clearly indicating the cost per tonne of CO2e reduced in each year?

5) Similarly, will the results be presented transparently
revealing the increase in total electricity cost per kilowatt-hour over the base cost, hence the % increase?

6) Will the model simulate wind and solar potential according to
wind speed and solar capacity factors by MERRA Grid Cell, similar to the study by Dolter and Rivers?
https://www.researchgate.net/publication/313119973_The_Cost_of_Decarbonizing_the_Canadian_Electricity_System/link/5890d688458515aeac92cc99/download

7) Will the assessment optimize the full true costs, including pollution?

(using the federal carbon price, i.e., $40/tonne this year, rising annually over the next decade to $50, $65, $80, $95, $110, $125, $140, $155, $170, bearing in mind this should increase further with more ambitious federal emission reduction targets)

8) Am I correct in estimating the average emission intensity of
gas/oil plants in Ontario 2022-2040 to be 387 tonnes/GWh from the APO Dec 2020, Figures 24 and 37?

9) Am I correct in my reading of the Clean Energy Supply contract as providing gas plants with about the same net revenue regardless of their operating hours?

10) Am I correct in estimating the average running cost of gas plants at about 3 cents/kWh?

11) How will you value surplus power?

12) Will you value reactive power from solar power inverters at night?

13) On what basis do the plants pay for station power when not operating? Could an even lower price be justified for PEM electrolysers making and storing hydrogen for their own use when not generating power on the basis that input power could be curtailed quickly by the IESO, like demand response?

Might this not be taken a step further as follows? The IESO could control the flow of energy to the electrolysers and power generated from the hydrogen and retain title to the compressed and stored hydrogen, with no settlement for the energy. The spread between the value of energy used off-peak and generated on-peak could more than offset conversion losses such that the average HOEP could decrease.
Capital and O&M paid to the gas plants for the energy conversion and diurnal storage service could add to the Global Adjustment. The net could be plus or minus. Even if minus, the implicit emissions abatement cost in $/tonne could be lower than the carbon price, thereby minimizing societal costs by avoiding the higher cost of equivalent reductions in other sectors. Providing this service could be a condition of contract renewal.