Message

From: Kim.Marshall@ieso.ca [Kim.Marshall@ieso.ca]
Sent: 2017-11-20 7:23:47 AM
To: Leonard Kula [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4621532d1b5d4c539f6ccefe5979e389-Leonard Kul]
Subject: Fwd: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

Perhaps this is something that could be handled by a call with the rating agency, opg andJeannette and George? OPG would like to get you on a call but I think they can handle? Of course would need a prep call with opg to ensure alignment?
Thx
Sent from my iPad

Begin forwarded message:

> **From:** George Pessione <George.Pessione@ieso.ca>
> **Date:** November 17, 2017 at 11:43:36 AM EST
> **To:** Leonard Kula <leonard.kula@ieso.ca>, Kim Marshall <Kim.Marshall@ieso.ca>, Terry Young <terry.young@ieso.ca>, Michael Lyle <Michael.Lyle@ieso.ca>, Peter Gregg <Peter.Gregg@ieso.ca>
> **Cc:** Michael Boll <Michael.Boll@ieso.ca>, Anthony Martinello <Anthony.Martinello@ieso.ca>, Jeannette Briggs <jeannette.briggs@ieso.ca>
> **Subject: RE: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"**
>
> Here is what our involvement has been in this regard.
> In the course of supporting the government on the development of the plan we were asked to provide OPG with some history regarding OPA/IESO previous forecasts, the historical actuals outcomes and "projections" beyond our normal 20 year view. Their analysis was already based on the OPO reference case that was posted by the IESO which extended out the usual 20 years to 2035. We accompanied our input with the caveat below.
>
> In general our planning process does look at a number of scenarios to test the sensitivity of the demand/supply picture for reliability, overall costs, environmental etc. These scenarios represent a number of factors that alone and in combination could lead to higher or lower forecasts. These scenarios contribute to informing the recommendations that are made to manage the resource base and risks around those key factors.
>
> **Our input was caveated** with the following (per advice from Michael Boll):
> Please be aware that the IESO does not perform forward monthly forecasts, nor do we have any kind of projections out beyond 2035. The IESO does however perform 20-year projections on an annual (not monthly) basis. I enclose the IESO's most recent projection for the period to 2035. Please note that the IESO's 20-year projections and its other projections are prepared for electricity system planning purposes, not for commercial or other purposes, and are premised on a number of material assumptions. The IESO is not providing an opinion, nor any representation or warranty, regarding the accuracy or reasonableness of the projections, nor any of the assumptions underpinning the projections. Similarly, with respect to actual data, the IESO has not reviewed such data for accuracy and has generated it for the IESO's own internal purposes. We therefore make no representation or warranty regarding the accuracy or completeness of such data.

Accordingly, we are providing the enclosed data and projections to OPG for informational purposes only and OPG and others, including banks, other financial institutions and rating agencies, are not permitted to rely, or make any claim of reliance, upon the projections or data for any purpose whatsoever. OPG specifically confirms that the projections and data are not being provided to OPG to induce it to invest in, or enter into any transaction with the IESO, or to pursue any commercial or financial activities that do not relate to IESO. OPG acknowledges that it will be conducting its own independent reviews and investigations as it believes is prudent and that the projections are not a substitute for such reviews and investigations. OPG further acknowledges and agrees that the IESO has no liability or obligation to OPG whatsoever by virtue of OPG receiving or reviewing the projections or data and that you will not hold the IESO responsible or liable (and OPG hereby waives any and all rights, claims or actions against the IESO) with respect to any loss, liability, damage or expense as a result of, in respect of, connected with, or arising out of, under or pursuant to such receipt or review.

OPG agrees that it will provide the above disclaimers and statements to any banks, other financial institutions or rating agencies to which this data or the projections are provided.

George Pessione | **Director, Resource Integration - Power System Planning**
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From: Leonard Kula
Sent: November 16, 2017 7:55 PM
To: Kim Marshall; Terry Young; Michael Lyle; Peter Gregg; George Pessione
Cc: Michael Boll; Anthony Martinello; Jeannette Briggs
Subject: RE: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

Planning has previously provided load forecast data to OPG related to this. George – can you comment?

To be clear, I said ""In the past, the job of a system operator was simple and straightforward," said Leonard Kula, the chief operating officer of Ontario's Independent Electricity System Operator, the agency that controls the power system. Those easy days are now gone and the future promises to be ever more complicated. "

Leonard

From: Jeannette Briggs
Sent: November 16, 2017 7:27 PM
To: Kim Marshall; Leonard Kula; Terry Young; Michael Lyle; Peter Gregg
Cc: Michael Boll; Anthony Martinello
Subject: Re: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

I have just provided OPG details on historical RPP MWs too because Moody 's wants confidence in the numbers used in OPG modelling for similar reasons. They want sensitivity analysis to reflect what happens if prescribed consumers are significantly reduced in the future.

Regards

Jeannette Briggs
416 997-6364

From: Kim.Marshall@ieso.ca
Sent: November 16, 2017 7:14 PM
To: leonard.kula@ieso.ca; terry.young@ieso.ca; Michael.Lyle@ieso.ca; Peter.Gregg@ieso.ca
Cc: Michael.Boll@ieso.ca; jeannette.briggs@ieso.ca; Anthony.Martinello@ieso.ca
Subject: Fw: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

for ELT consideration on how and when to respond. Leonard I can reach out to you for first consideration of next steps. Will have to get back re timing and how.

From: LADAK Lubna -TREASURY <lubna.ladak@opg.com>
Sent: November 16, 2017 6:01 PM
To: Kim Marshall
Cc: Jeannette Briggs; Michael Boll; RYFA Ken -TREASURY
Subject: FW: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

Welcome back Kim. Please spread some of the Bahamas' sunshine in TO!

I don't know if you've seen the email below from DBRS, but they are asking for OPG and the IESO's strategies for collecting the CEA if electricity demand decreases. They're referencing comments made by Leonard Kula and a Senior Advisor at EY regarding the impact of technology on electricity demand. Do you know the context around Leonard's comments? How is the IESO treating the impact of technological changes on its demand forecast?

Lubna Ladak | VP Treasury | Ontario Power Generation
700 University Avenue, Toronto, Ontario M5G 1X6 | 416-592-5419 | Cell 416-578-0219 |
lubna.ladak@opg.com

From: Tim O'Neil [mailto:toneil@dbrs.com]
Sent: Thursday, November 16, 2017 10:15 AM
To: Benaiah, Ian <ian.benaiah@rbccm.com>; Khan, Nur <nur.khan@rbccm.com>; Taylor, Brent R <brent.r.taylor@rbccm.com>; Malhi, Harman <harman.malhi@rbccm.com>; Katrina Niehaus (Katrina.Niehaus@gs.com) <Katrina.Niehaus@gs.com>; Brian Delaney (brian.delaney@gs.com) <brian.delaney@gs.com>; Donnie Persaud (Donnie.Persaud@cibc.com) <Donnie.Persaud@cibc.com>; Adalja, Sunil (Sunil.Adalja@cibc.com) <Sunil.Adalja@cibc.com>; Maciel, Andrew (Andrew.Maciel@cibc.com) <Andrew.Maciel@cibc.com>; LEE John -TREASURY <john.s.lee@opg.com>; RYFA Ken -TREASURY <ken.ryfa@opg.com>; LADAK Lubna -TREASURY <lubna.ladak@opg.com>; GO Matthew -TREASURY <matthew.go@opg.com>; Chen, Zhidang <Zhidang.Chen@rbccm.com>; Papp, David <david.papp@rbccm.com>; Green, Lesley <lesley.green@rbccm.com>; Jamie Feehely <jfeehely@dbrs.com>; King Lam <KLam@dbrs.com>; Justin Tsang <JTsang@dbrs.com>; Arthi Sambasivan <ASambasivan@dbrs.com>; Dal Bello, David <david.dalbello@rbccm.com>

Cc: WONG Leslie -LAWDIV <leslie.wong@opg.com>; Anthony Martinello <Anthony.Martinello@ieso.ca>; Michael Boll <Michael.Boll@ieso.ca>; Jeannette Briggs <jeannette.briggs@ieso.ca>; Antonios, Paul <Paul.Antonios@gs.com>; Sabri, Salina <Salina.Sabri@gs.com>
Subject: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Good morning,
Once again, thank you to IESO representatives for the opportunity to understand your role in the Ontario Hydro market and specifically as it relates to the Fair Hydro Act. Prior to the meeting I mentioned to some of you an article that was published (attached) earlier Tuesday morning discussing the future of hydro in Ontario.
Follow up question for IESO and OPG:
While we recognize that the semi-annual true-up is a significant mitigant to demand forecast error our sensitivity and stress analysis needs to incorporate the potential for a loss of ratepayers which will potentially over-burden any remaining ratepayers. Of particular interest is the rapid technological changes that are anticipated (including by Leonard Kula, Chief Operating Officer of IESO) and the potential for a significant loss of ratepayers as the article's title suggests "costs of leaving the grid decline".
Given the timing of the transaction which contemplates all of the borrowing up front, our stress needs to incorporate the potential changes to the market as the bonds are issued. This results in a significant exposure to technological change (and consequently rate payers leaving the grid) given the very long repayment horizon which needs to be considered as part of our initial rating analysis.
Request: Please provide additional information on IESO and OPG strategies to manage the technological changes with respect to maintaining an acceptable scale of ratepayers over the repayment period and how these risks are incorporated into the repayment (demand) forecast in the financial modeling. And the impact on the LDC's.

https://www.theglobeandmail.com/news/national/in-ontario-hydros-future-gets-murkier-as-costs-of-leaving-the-grid-decline/article36962354/

Once an idea limited to isolated cottages and the environmentally zealous, making your own electricity and storing it in your garage could be cheaper than the traditional way of buying power within a decade. Benoit Laclau, Ernst and Young's adviser on power and utilities, has guidance for politicians and utility leaders around the world who employ the accounting firm: Exercise caution on any big projects that will require more than a decade to pay off.
On a piece of paper, he can draw a graph with two lines. One starts low and represents the slowly increasing cost of electricity provided by a traditional electricity company; the second starts higher but is going down "really rapidly" and reflects the cost of people producing power on their own roof. "Those two lines cross, and they are going to cross soon, a lot sooner than we had expected," he said.

Tim O'Neil
Senior Vice President, CDN ABS
Global Structured Finance

<image001.jpg>

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-----Original Appointment-----
From: Benaiah, Ian [mailto:ian.benaiah@rbccm.com]
Sent: Friday, November 10, 2017 4:30 PM
To: Benaiah, Ian; Khan, Nur; Taylor, Brent R; Malhi, Harman; Katrina Niehaus (Katrina.Niehaus@gs.com); Brian Delaney (brian.delaney@gs.com); Donnie Persaud (Donnie.Persaud@cibc.com); Adalja, Sunil (Sunil.Adalja@cibc.com); Maciel, Andrew (Andrew.Maciel@cibc.com); John Lee (john.s.lee@opg.com); Ken Ryfa (ken.ryfa@opg.com); 'LADAK Lubna -TREASURY'; GO Matthew -TREASURY; Chen, Zhidang; Papp, David; Green, Lesley; Tim O'Neil; Jamie Feehely; King Lam; Justin Tsang; Arthi Sambasivan; Dal Bello, David
Cc: WONG Leslie -LAWDIV; Anthony Martinello; Michael Boll; Jeannette Briggs; Antonios, Paul; Sabri, Salina
Subject: OPG/IESO Servicing Review (DBRS) *** Presentation Attached, Dial-in Available ***
When: Tuesday, November 14, 2017 1:00 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Royal Bank Plaza (200 Bay Street), South Tower, 2nd Floor, Room S1

When you arrive on the 2nd Floor, please contact Lesley Green at 416-842-4810. Lesley will take you through the security doors and to the meeting room.

Conference Call Details:
Dial-in: (866) 305-1457 / (416) 620-5357
Access Code: 8423820
BB Friendly: 14166205357x8423820#