

Message

---

**Sent:** 2017-11-17 4:57:10 PM  
**To:** Michael Boll [/o=ExchangeLabs/ou=Exchange Administrative Group  
(FYDIBOHF23SPDLT)/cn=Recipients/cn=4811917e15054407b665fe16d12ff415-Michael Bol]  
**Subject:** RE: EXTERNAL – RE: “In Ontario, hydro’s future gets murkier as costs of leaving the grid decline”

*Regards,*

*Jeannette Briggs* Director, Settlements - Corporate Services  
Independent Electricity System Operator (IESO) | T: 905-855-6364 | C: 416-997-6364  
Station A, Box 4474, Toronto, ON, M5W 4E5  
Web: [www.ieso.ca](http://www.ieso.ca) | Twitter: [IESO\\_Tweets](https://twitter.com/IESO_Tweets) | LinkedIn: [IESO](https://www.linkedin.com/company/ieso)  
Conservation: [www.saveONenergy.ca](http://www.saveONenergy.ca) | Twitter: [saveONenergyOnt](https://twitter.com/saveONenergyOnt) | LinkedIn: [saveONenergy](https://www.linkedin.com/company/saveONenergy)

*Corporate Services collaborates with you to deliver solutions and expertise that enable the IESO to achieve its goals*

---

**From:** Michael Boll  
**Sent:** November 17, 2017 4:53 PM  
**To:** Jeannette Briggs  
**Subject:** RE: EXTERNAL – RE: “In Ontario, hydro’s future gets murkier as costs of leaving the grid decline”

---

**From:** Jeannette Briggs  
**Sent:** November 17, 2017 4:09 PM  
**To:** Michael Boll  
**Subject:** RE: EXTERNAL – RE: “In Ontario, hydro’s future gets murkier as costs of leaving the grid decline”

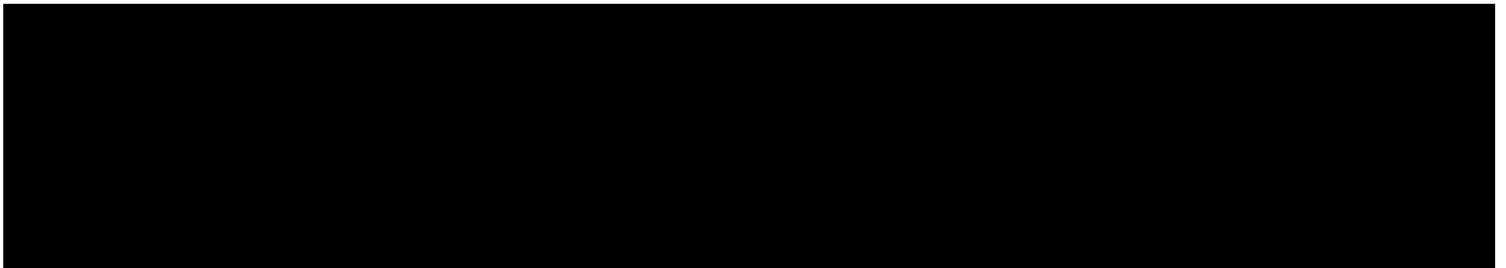
*Regards,*

*Jeannette Briggs* Director, Settlements - Corporate Services  
Independent Electricity System Operator (IESO) | T: 905-855-6364 | C: 416-997-6364  
Station A, Box 4474, Toronto, ON, M5W 4E5  
Web: [www.ieso.ca](http://www.ieso.ca) | Twitter: [IESO\\_Tweets](https://twitter.com/IESO_Tweets) | LinkedIn: [IESO](https://www.linkedin.com/company/ieso)  
Conservation: [www.saveONenergy.ca](http://www.saveONenergy.ca) | Twitter: [saveONenergyOnt](https://twitter.com/saveONenergyOnt) | LinkedIn: [saveONenergy](https://www.linkedin.com/company/saveONenergy)

*Corporate Services collaborates with you to deliver solutions and expertise that enable the IESO to achieve its goals*

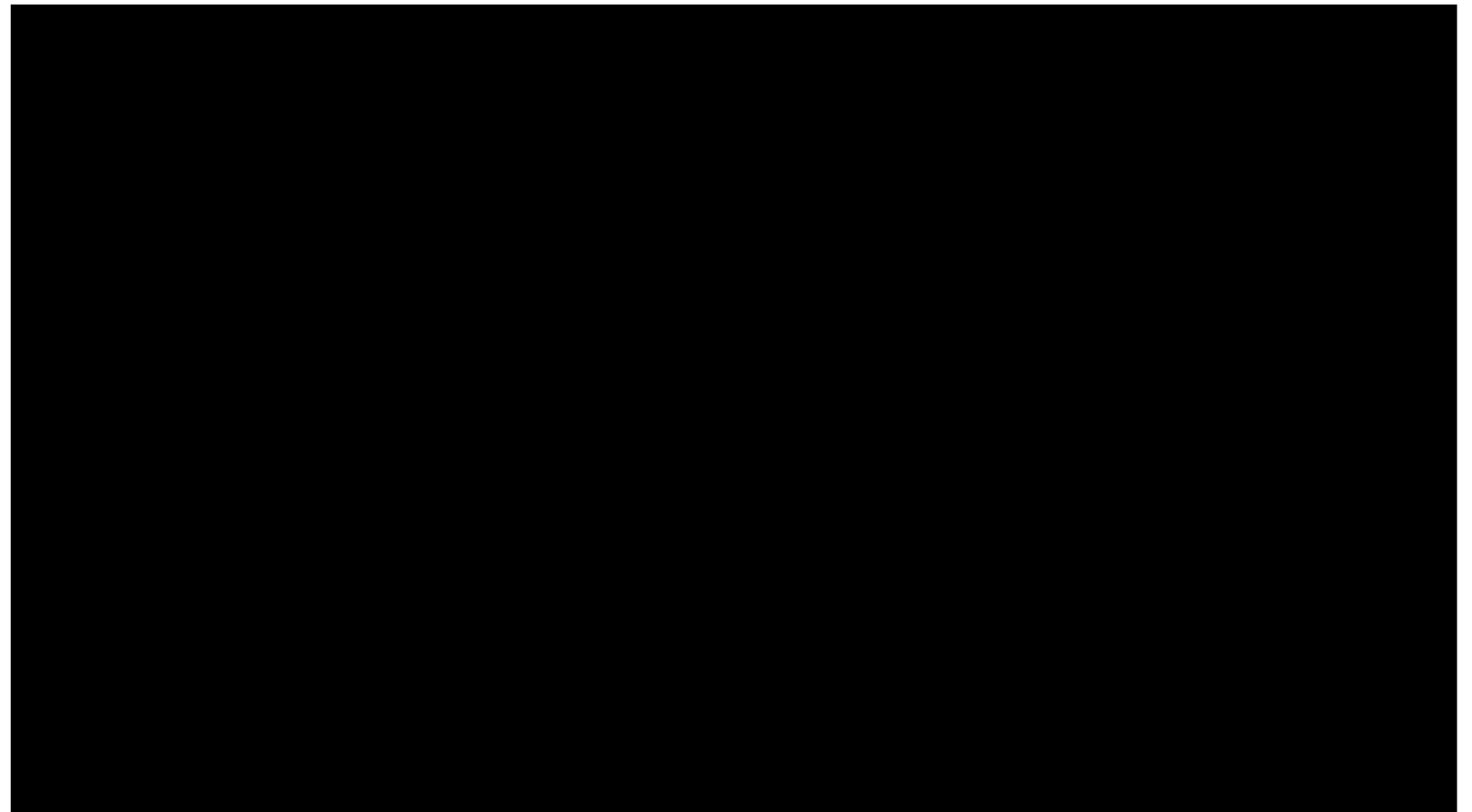
---

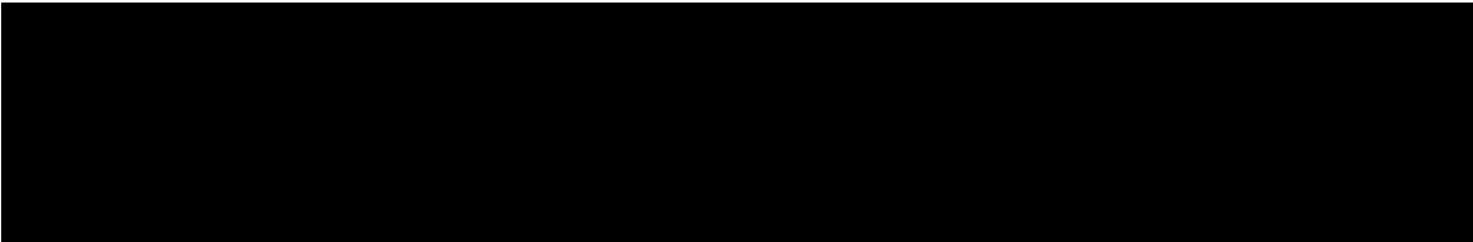
**From:** Michael Boll  
**Sent:** November 17, 2017 3:50 PM  
**To:** Jeannette Briggs  
**Subject:** RE: EXTERNAL – RE: “In Ontario, hydro’s future gets murkier as costs of leaving the grid decline”



---

**From:** Jeannette Briggs  
**Sent:** November 17, 2017 2:28 PM  
**To:** Michael Boll  
**Subject:** RE: EXTERNAL – RE: “In Ontario, hydro’s future gets murkier as costs of leaving the grid decline”





Happy to chat about this on Monday. JB

*Regards,*

*Jeannette Briggs* Director, Settlements - Corporate Services

Independent Electricity System Operator (IESO) | T: 905-855-6364 | C: 416-997-6364

Station A, Box 4474, Toronto, ON, M5W 4E5

Web: [www.ieso.ca](http://www.ieso.ca) | Twitter: [IESO\\_Tweets](https://twitter.com/IESO_Tweets) | LinkedIn: [IESO](https://www.linkedin.com/company/ieso)

Conservation: [www.saveONenergy.ca](http://www.saveONenergy.ca) | Twitter: [saveONenergyOnt](https://twitter.com/saveONenergyOnt) | LinkedIn: [saveONenergy](https://www.linkedin.com/company/saveONenergy)

*Corporate Services collaborates with you to deliver solutions and expertise that enable the IESO to achieve its goals*

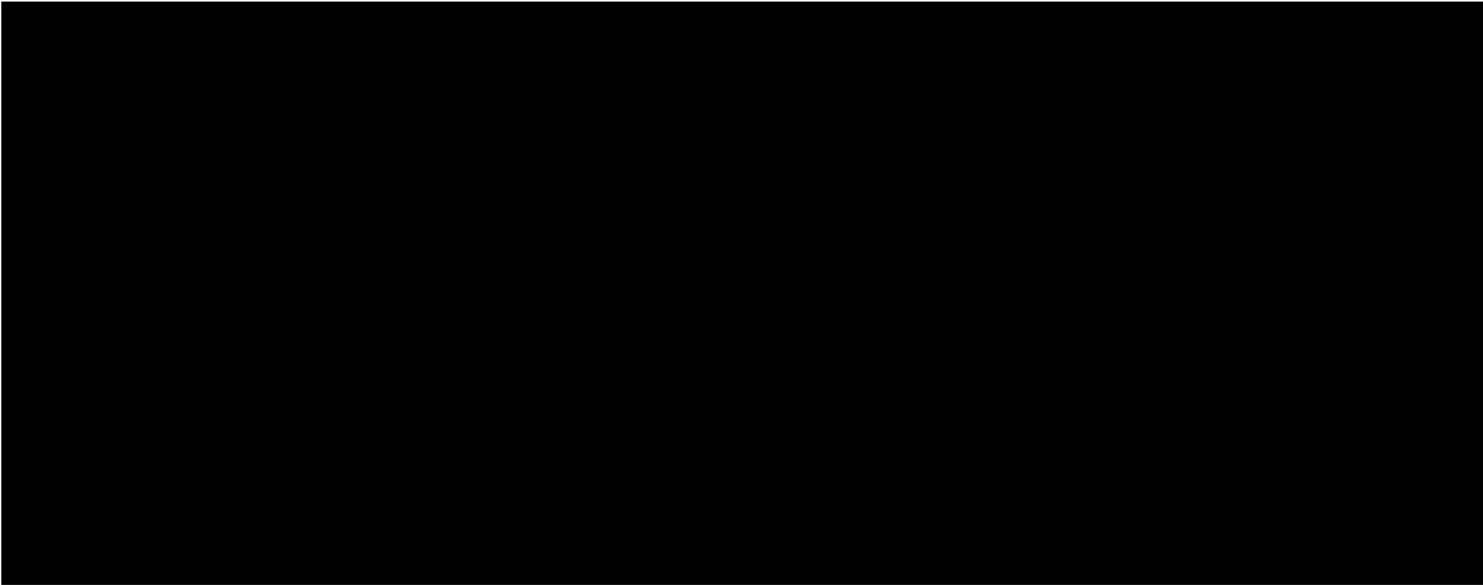
---

**From:** Michael Boll

**Sent:** November 17, 2017 1:58 PM

**To:** Jeannette Briggs

**Subject:** RE: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"



---

**From:** Jeannette Briggs

**Sent:** November 17, 2017 1:41 PM

**To:** Michael Boll

**Subject:** RE: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

Okay – I am in the Director's MRP meeting and I will listen when back at my desk.

*Regards,*

*Jeannette Briggs* Director, Settlements - Corporate Services

Independent Electricity System Operator (IESO)| T: 905-855-6364 | C: 416-997-6364  
Station A, Box 4474, Toronto, ON, M5W 4E5  
Web: [www.ieso.ca](http://www.ieso.ca) | Twitter: [IESO Tweets](#) | LinkedIn: [IESO](#)  
Conservation: [www.saveONenergy.ca](http://www.saveONenergy.ca) | Twitter: [saveONenergyOnt](#) | LinkedIn: [saveONenergy](#)

*Corporate Services collaborates with you to deliver solutions and expertise that enable the IESO to achieve its goals*

---

**From:** Michael Boll  
**Sent:** November 17, 2017 1:40 PM  
**To:** Jeannette Briggs  
**Subject:** RE: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

I just left you a message.

---

**From:** Jeannette Briggs  
**Sent:** November 17, 2017 1:14 PM  
**To:** Anthony Martinello; Michael Boll  
**Subject:** FW: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"

Assume you are both okay with this response. Please provide any other nuance you think I missed. I received a call from Ken and he agreed this is what is being asked and thought it is an unreasonable ask, really.

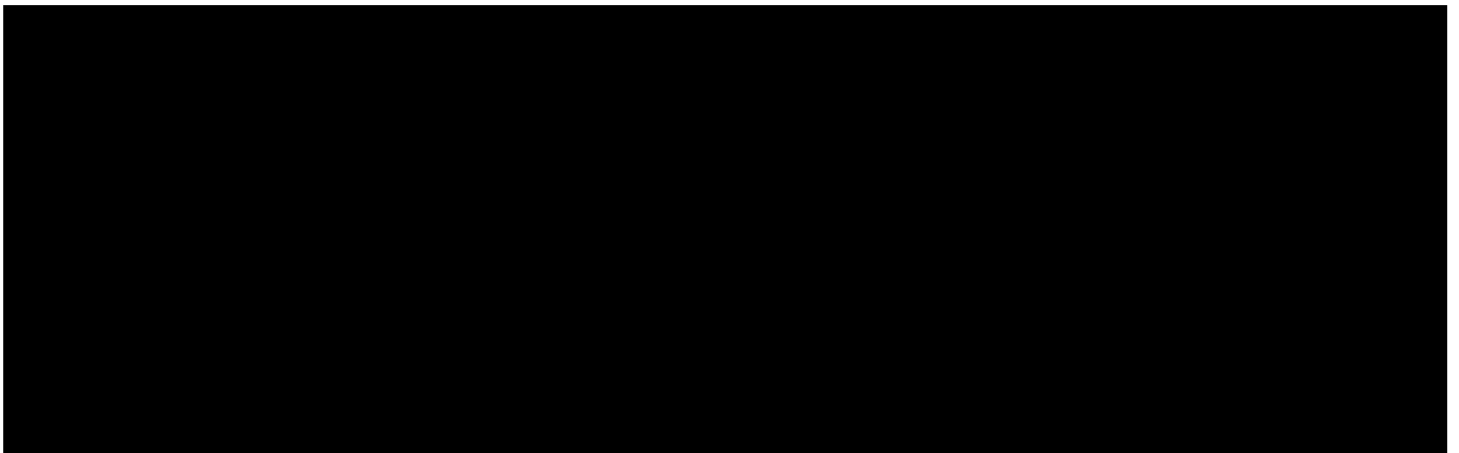
*Regards,*

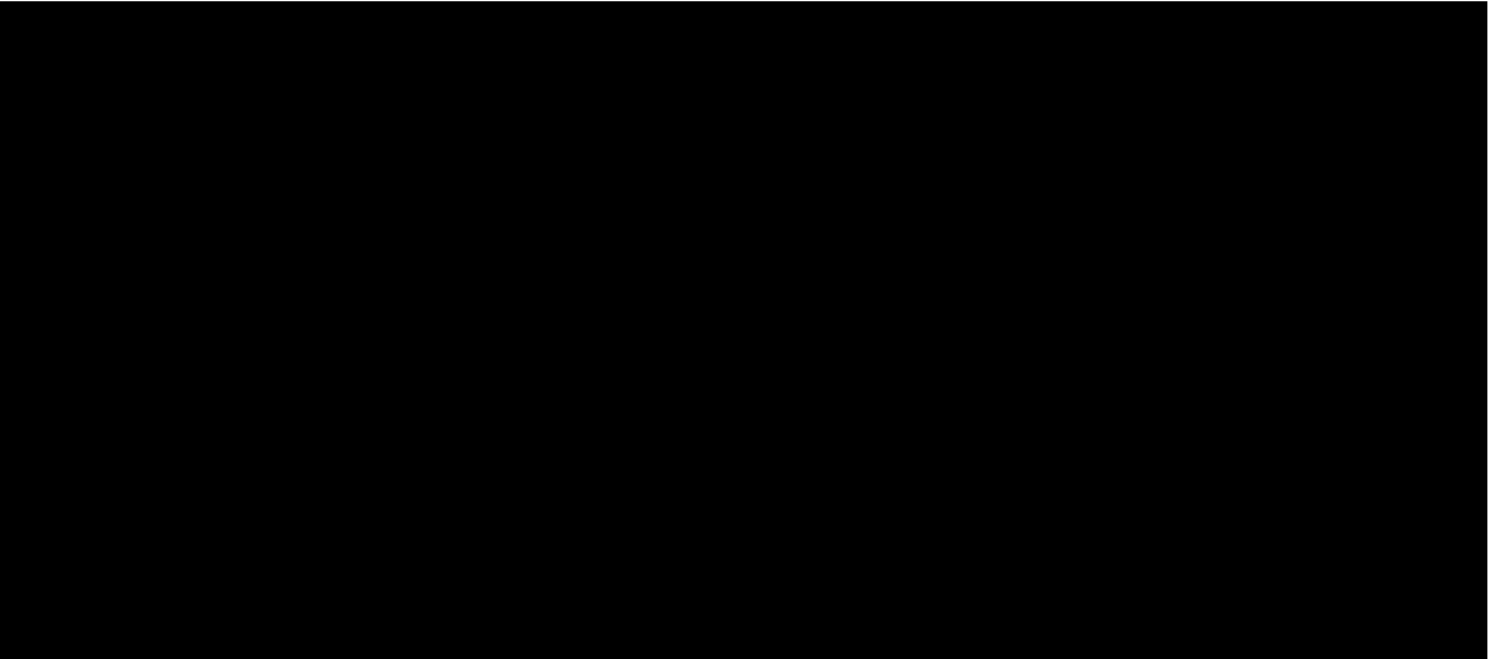
*Jeannette Briggs* Director, Settlements - Corporate Services  
Independent Electricity System Operator (IESO)| T: 905-855-6364 | C: 416-997-6364  
Station A, Box 4474, Toronto, ON, M5W 4E5  
Web: [www.ieso.ca](http://www.ieso.ca) | Twitter: [IESO Tweets](#) | LinkedIn: [IESO](#)  
Conservation: [www.saveONenergy.ca](http://www.saveONenergy.ca) | Twitter: [saveONenergyOnt](#) | LinkedIn: [saveONenergy](#)

*Corporate Services collaborates with you to deliver solutions and expertise that enable the IESO to achieve its goals*

---

**From:** Jeannette Briggs  
**Sent:** November 17, 2017 12:12 PM  
**To:** Leonard Kula; Kim Marshall; Terry Young; Michael Lyle; Peter Gregg; George Pessione  
**Cc:** Michael Boll; Anthony Martinello  
**Subject:** RE: EXTERNAL – RE: "In Ontario, hydro's future gets murkier as costs of leaving the grid decline"





*Regards,*

*Jeannette Briggs* Director, Settlements - Corporate Services  
Independent Electricity System Operator (IESO) | T: 905-855-6364 | C: 416-997-6364  
Station A, Box 4474, Toronto, ON, M5W 4E5  
Web: [www.ieso.ca](http://www.ieso.ca) | Twitter: [IESO\\_Tweets](https://twitter.com/IESO_Tweets) | LinkedIn: [IESO](https://www.linkedin.com/company/ieso)  
Conservation: [www.saveONenergy.ca](http://www.saveONenergy.ca) | Twitter: [saveONenergyOnt](https://twitter.com/saveONenergyOnt) | LinkedIn: [saveONenergy](https://www.linkedin.com/company/saveONenergy)

*Corporate Services collaborates with you to deliver solutions and expertise that enable the IESO to achieve its goals*

---

**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](mailto: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](mailto:ian.benaiah@rbccm.com)>; Khan, Nur <[nur.khan@rbccm.com](mailto:nur.khan@rbccm.com)>; Taylor, Brent R <[brent.r.taylor@rbccm.com](mailto:brent.r.taylor@rbccm.com)>; Malhi, Harman <[harman.malhi@rbccm.com](mailto:harman.malhi@rbccm.com)>; Katrina Niehaus <[Katrina.Niehaus@gs.com](mailto:Katrina.Niehaus@gs.com)> <[Katrina.Niehaus@gs.com](mailto:Katrina.Niehaus@gs.com)>; Brian Delaney <[brian.delaney@gs.com](mailto:brian.delaney@gs.com)> <[brian.delaney@gs.com](mailto:brian.delaney@gs.com)>; Donnie Persaud <[Donnie.Persaud@cibc.com](mailto:Donnie.Persaud@cibc.com)> <[Donnie.Persaud@cibc.com](mailto: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 <jfeeheley@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



DBRS Limited  
DBRS Tower 181 University Avenue, Suite 700  
Toronto, ON M5H 3M7 Canada  
TEL +1 (416) 597 7477  
FAX +1 (416) 593 8432  
[toneil@dbrs.com](mailto:toneil@dbrs.com)  
<http://www.dbrs.com>

-----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](mailto:Katrina.Niehaus@gs.com)); Brian Delaney ([brian.delaney@gs.com](mailto:brian.delaney@gs.com)); Donnie Persaud ([Donnie.Persaud@cibc.com](mailto:Donnie.Persaud@cibc.com)); Adalja, Sunil ([Sunil.Adalja@cibc.com](mailto:Sunil.Adalja@cibc.com)); Maciel, Andrew ([Andrew.Maciel@cibc.com](mailto:Andrew.Maciel@cibc.com)); John Lee ([john.s.lee@opg.com](mailto:john.s.lee@opg.com)); Ken Ryfa ([ken.ryfa@opg.com](mailto: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 2<sup>nd</sup> Floor, please contact [REDACTED] will take you through the security doors and to the meeting room.

**Conference Call Details:**



This email is intended only for the use of the individual(s) to whom it is addressed and may be privileged and confidential. Unauthorised use or disclosure is prohibited. If you receive this e-mail in error, please advise immediately and delete the original message. This message may have been altered without your or our knowledge and the sender does not accept any liability for any errors or omissions in the message. Ce courriel est confidentiel et protégé. L'expéditeur ne renonce pas aux droits et obligations qui s'y rapportent. Toute diffusion, utilisation ou copie de ce message ou des renseignements qu'il contient par une personne autre que le (les) destinataire(s) désigné(s) est interdite. Si vous recevez ce courriel par erreur, veuillez m'en aviser immédiatement, par retour de courriel ou par un autre moyen.

This email is intended only for the party to whom it is addressed, and may contain information which is privileged or confidential. Without the sender's authorization, any dissemination, distribution or copying of this email and the information it contains is strictly prohibited. If you have received this email in error, please notify me immediately by return e-mail and please delete this e-mail from your system. [www.dbrs.com](http://www.dbrs.com), DBRS Limited

---

**THIS MESSAGE IS ONLY INTENDED FOR THE USE OF THE INTENDED RECIPIENT(S) AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, PROPRIETARY AND/OR CONFIDENTIAL.** If you are not the intended recipient, you are hereby notified that any review, retransmission, dissemination, distribution, copying, conversion to hard copy or other use of this communication is strictly prohibited. If you are not the intended recipient and have received this message in error, please notify me by return e-mail and delete this message from your system. Ontario Power Generation Inc.