

Message

From: George Pessione [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FE1264F59CB3428A90A73766E96EA517-GEORGE PESS]
Sent: 2017-11-29 10:46:21 PM
To: Joyce Poon [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3093c75378834fd195c6a07d2c0aded1-Joyce Poon]; Bashir Bhana [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f7ca92bb3384495d95f56b96eed74290-Bashir Bhan]; Conrad Fox [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bcd8236363bf4c4ab0a0042c8c16f612-Conrad Fox]
Subject: Re: Briefing DMO/MO - DER

That s why the added analysis we talked a boutique is needed.

Sent from my BlackBerry 10 smartphone on the Rogers network.

From: Joyce Poon
Sent: Wednesday, November 29, 2017 10:43 PM
To: Bashir Bhana
Cc: George Pessione
Subject: Re: Briefing DMO/MO - DER

Would like to be part of this conversation. The cross over may not be happening at 2020 since this is with OFHP rates. Also the rate design of rates matter so in full agreement the slide stays with system cost benefits.
Joyce

Sent from my iPhone

On Nov 29, 2017, at 8:28 PM, Bashir Bhana <Bashir.Bhana@ieso.ca> wrote:

Rob - I don't think you can get into the grid parity discussion without having a discussion around how rates are currently designed as the former depends on the latter. To discuss one without the other can also be quite misleading. Happy to chat tomorrow to better understand your concerns and to make sure we're all aligned. Thanks.

Bashir Bhana, P.Eng.
Manager, Resource Integration |
Planning, Acquisition, Operations | IESO

Sent from my BlackBerry

From: Robert.Sinclair@ieso.ca
Sent: November 29, 2017 7:07 PM
To: Bashir.Bhana@ieso.ca; Ali.Golriz@ieso.ca; Andrew.Pietrewicz@ieso.ca
Cc: George.Pessione@ieso.ca; Joyce.Poon@ieso.ca; David.Richardson@ieso.ca; Conrad.Fox@ieso.ca; Humphrey.Tse@ieso.ca
Subject: Re: Briefing DMO/MO - DER

The big question this slide is trying to answer is when will rooftop solar be economic based on NEM only. This slide shows that outcome will not happen before 2030. Therefore that would suggest that NEM deployment at least in the residential sector will be close to zero without a subsidy program or something offering higher than retail rates. Given we've told the MO for

several years that solar under NEM is likely to achieve parity in the early 2020s it seems like a significant change if true for the IESO.

In this meeting with the MO we are not going to get into how rates are or are not reflective of system value. We were just hoping to show a declining cost curve and a rising rate forecast that most people assume will cross in the 2020s.

In regards to the Class A sector, in the near future we are going to have to discuss the economic opportunity as it seems the developer sector believes there is a case for storage and potentially solar/storage. I know we can't complete that this week, but we should start working on it.

Regards,

Rob

Sent from my Bell Samsung device over Canada's largest network.

----- Original message -----

From: Bashir Bhana <Bashir.Bhana@ieso.ca>

Date: 2017-11-29 5:56 PM (GMT-05:00)

To: Robert Sinclair <Robert.Sinclair@ieso.ca>, Ali Golriz <Ali.Golriz@ieso.ca>, Andrew Pietrewicz <Andrew.Pietrewicz@ieso.ca>

Cc: George Pessione <George.Pessione@ieso.ca>, Joyce Poon <Joyce.Poon@ieso.ca>, David Richardson <David.Richardson@ieso.ca>, Conrad Fox <Conrad.Fox@ieso.ca>, Humphrey Tse <Humphrey.Tse@ieso.ca>

Subject: Re: Briefing DMO/MO - DER

Rob - I think this slide is sufficient to seed the concepts. There is a lot more work here we can do and we plan to do as part of another deck. I think for now, the main point is that rates are not designed in a way that gives customers a good indication of what costs are avoided/not avoided. This leads to suboptimal choices/outcomes. I think the chart does the job of explaining this.

I don't think we need to get too hung up here about aligning our numbers - this is less about numbers and again more about concepts. Our differences in outlooks likely rooted in our assumptions and we're happy to work with you on aligning these as part of a separate endeavour.

I don't think we need to get into all the variant cases - across customer types, connection configurations, with/without ICI as the point is already made above. The proportions avoided/not avoided would sure change but the point around aligning costs with value streams is the same.

Regarding ICI - might look good from a customer perspective but might not look good from a system perspective. Lucrative is a matter of perspective and we should not lose sight of that in our advice/intelligence to stakeholders including government.

I'm interested in seeing the direction the deck is taking. Can you please share? Thank you.

Bashir Bhana, P.Eng.
Manager, Resource Integration |
Planning, Acquisition, Operations | IESO

Sent from my BlackBerry

From: Robert.Sinclair@ieso.ca
Sent: November 29, 2017 5:43 PM
To: Bashir.Bhana@ieso.ca; Ali.Golriz@ieso.ca; Andrew.Pietrewicz@ieso.ca
Cc: George.Pessione@ieso.ca; Joyce.Poon@ieso.ca; David.Richardson@ieso.ca; Conrad.Fox@ieso.ca; Humphrey.Tse@ieso.ca
Subject: Re: Briefing DMO/MO - DER

Can we discuss the levelized cost assumptions? Our previous forecasts were lower I think. Also, we should think about how to model the benefits of ICI participation that could be delivered by DER, we think this will be the most lucrative market opportunity in the near term.

Rob

Sent from my Bell Samsung device over Canada's largest network.

----- Original message -----

From: Bashir Bhana <Bashir.Bhana@ieso.ca>
Date: 2017-11-29 5:31 PM (GMT-05:00)
To: Robert Sinclair <Robert.Sinclair@ieso.ca>, Ali Golriz <Ali.Golriz@ieso.ca>, Andrew Pietrewicz <Andrew.Pietrewicz@ieso.ca>
Cc: George Pessione <George.Pessione@ieso.ca>, Joyce Poon <Joyce.Poon@ieso.ca>, David Richardson <David.Richardson@ieso.ca>, Conrad Fox <Conrad.Fox@ieso.ca>, Humphrey Tse <Humphrey.Tse@ieso.ca>
Subject: Re: Briefing DMO/MO - DER

Rob - please find attached the charts. Slide 5 is all you have to include in the briefing deck - the rest is context that can help inform discussions.

Thanks Joyce and team for putting together.

Please share the full deck when ready. Thanks.

Bashir Bhana, P.Eng.
Manager, Resource Integration |
Planning, Acquisition, Operations | IESO

Sent from my BlackBerry

From: Robert.Sinclair@ieso.ca
Sent: November 29, 2017 3:10 PM
To: Bashir.Bhana@ieso.ca; Ali.Golriz@ieso.ca; Andrew.Pietrewicz@ieso.ca
Subject: RE: Briefing DMO/MO - DER

We circulated it at noon so that people could review it before our meeting at 4.

From: Bashir Bhana
Sent: November 29, 2017 3:06 PM
To: Robert Sinclair; Ali Golriz; Andrew Pietrewicz
Subject: RE: Briefing DMO/MO - DER

Sorry Rob – just saw this. I will follow-up with the folks putting it together. When did you plan on circulating the deck? If timing doesn't align, please include a placeholder slide in your main deck for now. Thanks.

Bashir Bhana, P.Eng. | Manager, Resource Integration

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From: Robert Sinclair
Sent: November 29, 2017 10:25 AM
To: Bashir Bhana; Ali Golriz; Andrew Pietrewicz
Subject: RE: Briefing DMO/MO - DER

Hi Bashir,

Any progress on the slide discussed below? We are trying to send the final draft out by noon today.

Rob

From: Bashir Bhana
Sent: November 23, 2017 4:45 PM
To: Robert Sinclair; Darryl Yahoda; Ali Golriz; David Barrett; Edward Arlitt; Andrew Pietrewicz; George Pessione
Cc: Richard Zaworski; Jordan Penic
Subject: RE: Briefing DMO/MO - DER

Thanks Rob. Those are good ideas. We will take a look to see what can be provided. Thanks.

Bashir Bhana, P.Eng. | Manager, Resource Integration

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From: Robert Sinclair
Sent: November 23, 2017 1:55 PM
To: Bashir Bhana; Darryl Yahoda; Ali Golriz; David Barrett; Edward Arlitt; Andrew Pietrewicz; George Pessione
Cc: Richard Zaworski; Jordan Penic
Subject: RE: Briefing DMO/MO - DER

Hi Bashir,

On the graph slide, it would be helpful to plot out the upward sloping rate trajectory over time, which will be affected in the near term by the fair hydro plan. To simplify the graphic and drive the idea home I'd also suggest removing lines that represent concepts that we are not discussing in this meeting such as the grid value of solar tariff. What could be helpful as an additional line is C&I customer costs if we believe they are materially lower. We have a tendency to assume the Net Metering is a residential program, but given the near term economics it is more likely that it is going to be a GAM avoidance strategy for C&I customers and in this framework storage may play a larger role than solar. If we can show 4 lines on this graph (listed below) that would highlight this bi-furcation it would be very powerful.

Declining project costs

1. Residential solar (already have)
2. C&I solar/storage

Rising rates

3. Retail rates with fair hydro factored in
4. Class A rates

From: Bashir Bhana
Sent: November 23, 2017 1:45 PM
To: Darryl Yahoda; Ali Golriz; David Barrett; Robert Sinclair; Edward Arlitt; Andrew Pietrewicz; George Pessione
Cc: Richard Zaworski; Jordan Penic
Subject: RE: Briefing DMO/MO - DER

Following up on our chat this morning, attached are slides on grid parity considerations.

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From: Darryl Yahoda
Sent: November 22, 2017 10:19 PM
To: Ali Golriz; David Barrett; Bashir Bhana; Robert Sinclair; Edward Arlitt
Cc: Richard Zaworski; Jordan Penic
Subject: RE: Briefing DMO/MO - DER

Thanks Ali. It's a good start.

A few initial suggestions for discussion

- 1) Add overview (probably match to bulleted list of information requested)
- 2) Perhaps slide 4 (DER definition) can move up front to set the discussion
- 3) Are the different DER installed capacities reconciled on slide 6 & 7 (assume footnotes were included for this purpose)
- 4) Slide 12 has a lot of text perhaps we can break into 3 slides or condense info down
- 5) Will need to discussion the last section of slide

From: Ali Golriz
Sent: November 22, 2017 5:14 PM

To: David Barrett; Darryl Yahoda; Bashir Bhana; Robert Sinclair; Edward Arlitt
Cc: Richard Zaworski; Jordan Penic
Subject: Re: Briefing DMO/MO - DER

Hi all,

Please find a very rough draft attached for discussion tomorrow. I'm glad the meeting was pushed back giving us time to refine.

Thank you both Bashir and Rob for the content provided. Please note that you had some conflicting input, which I have not attempted to reconcile yet.

Thanks,

Ali

From: David Barrett
Sent: Wednesday, November 22, 2017 11:59 AM
To: Darryl Yahoda; Bashir Bhana; Ali Golriz; Robert Sinclair; Edward Arlitt
Cc: Richard Zaworski; Jordan Penic
Subject: RE: Briefing DMO/MO - DER

Briefing was moved to Dec 6 so that gives us breathing room, deliverable now Dec 4. I'll still hold the coordination meeting for tomorrow though.

From: Darryl Yahoda
Sent: November 21, 2017 8:54 AM
To: Bashir Bhana; Ali Golriz; David Barrett; Robert Sinclair; Edward Arlitt; Adam Butterfield; Richard Duffy
Cc: Barbara Ellard; Richard Zaworski; Jeannette Briggs; Jordan Penic
Subject: RE: Briefing DMO/MO - DER

If anyone else has some good material to draw on please send to Ali. Based on the topics identified, as Ali mentioned, work on the DER Strategy has most of these covered (Bashir – could probably use some material on forecasts for net metering from potential studies).

Dave – are you going to schedule some time to have a quick group discussion – perhaps tomorrow afternoon as a check-in?

Thanks,

Darryl

From: Bashir Bhana
Sent: November 21, 2017 8:34 AM
To: Ali Golriz; David Barrett; Darryl Yahoda; Robert Sinclair; Edward Arlitt; Adam Butterfield; Richard Duffy
Cc: Barbara Ellard; Richard Zaworski; Jeannette Briggs; Jordan Penic
Subject: Re: Briefing DMO/MO - DER

That works for me. Happy to work with you on this. If you'd like to take a first stab at it, I can feed in content. Thanks.

Bashir

Bashir Bhana, P.Eng.
Manager, Resource Integration |
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Sent from my BlackBerry

From: Ali.Golriz@ieso.ca
Sent: November 21, 2017 8:26 AM
To: david.barrett@ieso.ca; Darryl.Yahoda@ieso.ca; Robert.Sinclair@ieso.ca; edward.arlitt@ieso.ca; Adam.Butterfield@ieso.ca; Richard.Duffy@ieso.ca; Bashir.Bhana@ieso.ca
Cc: Barbara.Ellard@ieso.ca; richard.zaworski@ieso.ca; jeannette.briggs@ieso.ca; jordan.penic@ieso.ca
Subject: RE: Briefing DMO/MO - DER

Hi all,

In developing the internal (draft) DER Strategy, we have lots of existing material to draw from for all of the items below, except for forecasts for net metering uptake which I understand Bashir and his team are working on.

Happy to put together the deck for the briefing, if that works for everyone.

Thanks,

Ali

From: David Barrett

Sent: November 21, 2017 8:10 AM

To: Darryl Yahoda; Ali Golriz; Robert Sinclair; Edward Arlitt; Adam Butterfield; Richard Duffy; Bashir Bhana

Cc: Barbara Ellard; Richard Zaworski; Jeannette Briggs; Jordan Penic

Subject: Briefing DMO/MO - DER

All, we've been asked to brief the DMO/MO on **Nov 27** on DERs, including :

- Setting context of what "DER" is
- What is currently installed in Ontario
- Challenges/opportunities for the IESO, Risks / Opportunities for increased uptake
- Jurisdictional scan – how Ontario compares to other jurisdictions in Canada / North America
- Forecasts for net metering
- Other implications or considerations we should prepare to advise the Ministry of

We can draw on existing materials used for the DER WG, Grid LDC Coord, Dx connected renewables, LTEP initiatives linkages, status of NM assessment, NERC DERTF, IRC ETTF, Dx connected storage under contract, etc. This is a foundational, no decisions needed, 45min

meeting, so should not require too much indepth for now. We should expect, however, that this is followed by a Minister's briefing.

I'm thinking it will be good to have a chat to coordinate as materials come together, including who takes the lead on compiling materials from all corners, and a tight group to attend a briefing. Materials, unfortunately, are **due Nov 23**.

Thanks,

David