Manitoba Hydro

Book of Documents

MMF - WRA

WRA

LCA's Plan 17 Looks Promising

Plan 17, the LCA No New Generation scenario is a new scenario developed in the reports and testimony of La Capra. Because of Plan 17's low cost, low risk and substantial economic benefits, La Capra makes a strong case for refining this option into a full-fledged plan or an early stage of a long-term plan in order to reduce risk and cost. LaCapra recognizes that Plan 17 is not a fully fleshed out plan, but asserts that its benefits are so significant that its elements warrant serious consideration by the PUB. Transcript at 6071-78.

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effort does it take to move -- move the year of need up to that point in time. And -- and it -- it's -- it manifested in this plan, and it's obviously shown up in the -- in the level 2 DSM analysis that Hydro has since put together.

The other thing we learned is the -- the potential drought hedge value of increased import limits. In these cases, whether it's the Preferred Development Plan that we saw or the -- or in comparing it to the -- to the plan that we have with -- with the added import capabilities, we didn't really see as much -- you know, it -- it gives an opportunity to take more advantage of the market during dry conditions with added import capability.

It illustrates the impact of DSM and imports on thermal generation. So the -- the other thing was, by adding this amount of DSM and fuel switching, we saw that it largely mitigated the need to run internal thermal generation for quite some time.

And the -- while -- while it is a hypothetical plan, the results do point to the potential for added elements. DSM, import -- import limit cap -- capabilities are all elements of -- of a plan that -- that may be some -- may be of some promise, either by themselves or in some combination.

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And, you know, the fact that the -- the end -- the end result of this exercise came up with a present value that was more or less akin to what was in the current Preferred Development Plan indicates that -- that, you know, there's a lot of interesting elements from this -- from this analytical exercise that -- that might suggest that we should -- that, you know, it would be worth looking at -- at more -- more -- in more detailed fashion, some of these alternatives, and how they might play out in a -- in an alternative strategy.

THE CHAIRPERSON: You -- you haven't discussed the -- the drought hedge as part of what we've seen up to now. I guess that's embodied in some other --

MR. DANIEL PEACO: Yeah, let me go back --

THE CHAIRPERSON: Okay.

MR. DANIEL PEACO: -- and tell you why I -- the -- and I guess there really was -- kind of going back to this one, because when we looked at this plan and we compared in this particular -- and I'm on slide 30.

And part of what -- what I said about the drought hedge, really had to -- what I -- what we learned about put -- when we were doing the comparison

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of this plan to the Preferred Development Plan; and we said, Oh, look at that. In the dry years, the Preferred Development Plan is importing, and that was not something that we'd really sort of thought about before.

But when you -- when we look at it this way, you could say the transmission line, even in that case, clearly is being used in dry years, and would -- would mitigate the cost you would otherwise have by running internal -- more expensive internal thermal generation, and so even in the Preferred Development Plan, you're seeing in -- in dry conditions, some utilization of that export transmission line for import purposes.

Is that -- so that -- that was kind of the clue to me that said, If it -- if it works as a drought hedge for the Preferred Development Plan, it's got to work for -- for other plans as well. Does that -- does that make sense?

(BRIEF PAUSE)

THE CHAIRPERSON: Now, you also indicate the -- the -- sorry, the last -- the -- the slide before this one (1), thirty-three (33) --

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MR. DANIEL PEACO: All right. Okay, thirty-three (33).

THE CHAIRPERSON: -- you indicated, While it's a hypothetical plan. Now, why would you say that?

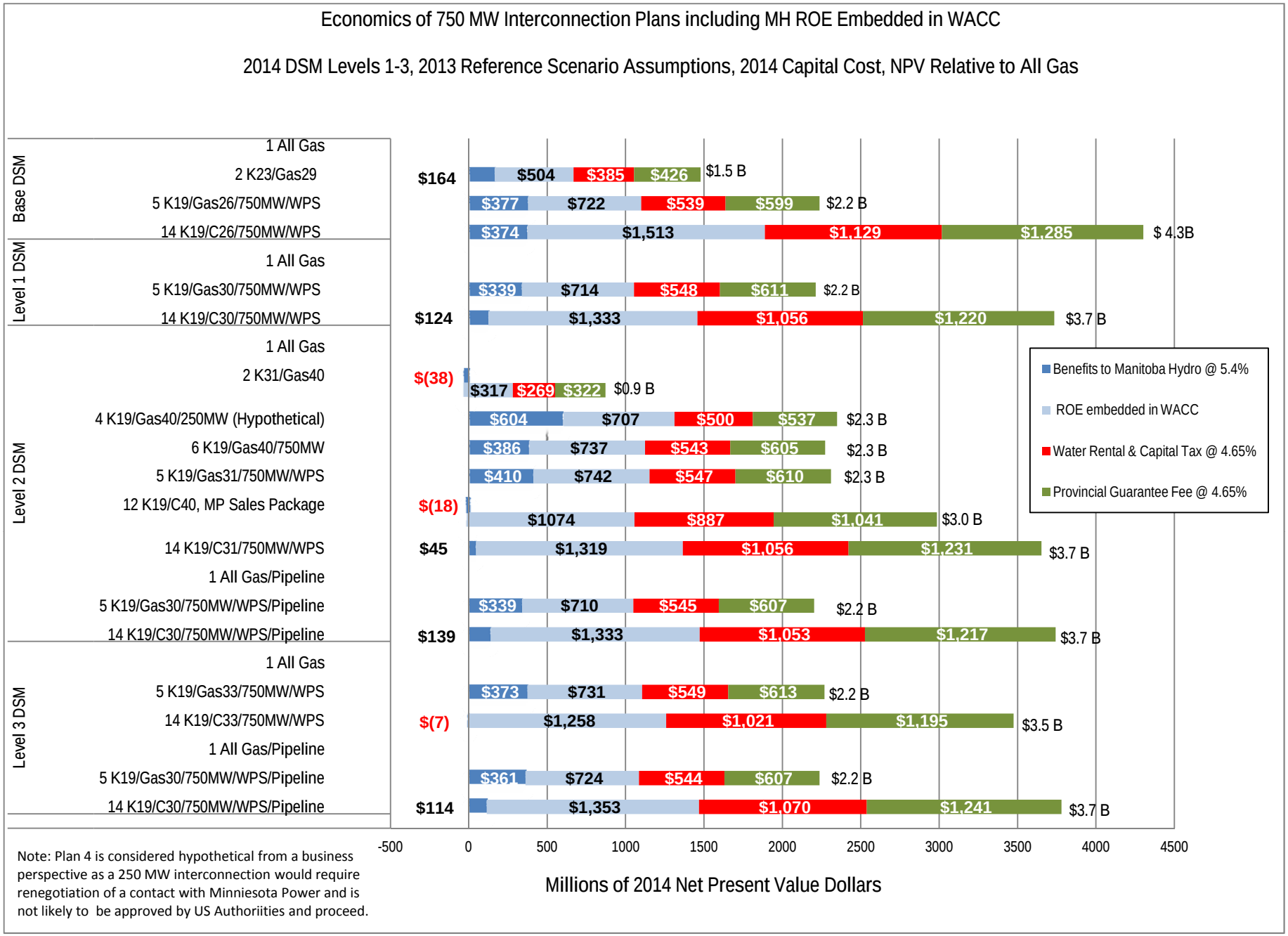
MR. DANIEL PEACO: Well, the -- the -- you know, and I -- and I'm sure we'll hear Hydro say, Hydro says we can't build the transmission line solely for import. And they would, you would, so we -- the way I view this plan, is I say I'd like to sort of postulate this thing, these are things I think that we could do, and we could at least -- at least do some serious planning on, but the first thing you want to do is to sort of just, let's -- let's postulate this with some plausible numbers.

And, you know, if the -- if the answer was, It was a clear loser, and we'd say, Well, we don't even need to -- we don't need to do any more work, so -- but I -- I feel like this was sort of a -- a test to see whether -- whether the -- any of these concepts are worth sort of investing planning time into them, to see whether you could actually develop a specific plan to implement this.

You wouldn't necessarily have to build the transmission line to Minnesota, and in fact, I

Update to MH Exhibit 171, Page 2
Plan 12 K19/C40/750MW with Level 2 DSM is added to the chart

Note: Plan 4 is considered hypothetical from a business perspective as a 250 MW interconnection would require renegotiation of a contract with Minnesota Power which would not be expected to result in the same level of benefits given that the entire economic analysis is now in the public forum. MP has taken the position in its Certificate of Need filing on October 21, 2013 (Section 7.4.2.1 page 77) that "such a project would not meet the long-term needs of the region and would not prove to be cost-effective for customers or environmentally preferable over the long-term." The 250MW interconnection is not likely to be approved by US authorities and proceed.


Economics of 750 MW Interconnection Plans including MH ROE Embedded in WACC
2014 DSM Levels 1-3, 2013 Reference Scenario Assumptions, 2014 Capital Cost, NPV Relative to All Gas
Base DSM
Level 1 DSM
Level 2 DSM
Level 3 DSM
1 All Gas
2 K23/Gas29
5 K19/Gas26/750MW/WPS
14 K19/C26/750MW/WPS
1 All Gas
5 K19/Gas30/750MW/WPS
14 K19/C30/750MW/WPS
1 All Gas
2 K31/Gas40
4 K19/Gas40/250MW (Hypothetical)
6 K19/Gas40/750MW
5 K19/Gas31/750MW/WPS
12 K19/C40, MP Sales Package
14 K19/C31/750MW/WPS
1 All Gas/Pipeline
5 K19/Gas30/750MW/WPS/Pipeline
14 K19/C30/750MW/WPS/Pipeline
1 All Gas
5 K19/Gas33/750MW/WPS
14 K19/C33/750MW/WPS
1 All Gas/Pipeline
5 K19/Gas30/750MW/WPS/Pipeline
14 K19/C30/750MW/WPS/Pipeline
$164
$504
$385
$426
$1.5 B
$377
$722
$539
$599
$2.2 B
$374
$1,513
$1,129
$1,285
$ 4.3B
$339
$714
$548
$611
$2.2 B
$124
$1,333
$1,056
$1,220
$3.7 B
$(38)
$317
$269
$322
$0.9 B
$604
$707
$500
$537
$2.3 B
$386
$737
$543
$605
$2.3 B
$410
$742
$547
$610
$2.3 B
$(18)
$1074
$887
$1,041
$3.0 B
$45
$1,319
$1,056
$1,231
$3.7 B
$339
$710
$545
$607
$2.2 B
$139
$1,333
$1,053
$1,217
$3.7 B
$373
$731
$549
$613
$2.2 B
$(7)
$1,258
$1,021
$1,195
$3.5 B
$361
$724
$544
$607
$2.2 B
$114
$1,353
$1,070
$1,241
$3.7 B
Benefits to Manitoba Hydro @ 5.4%
ROE embedded in WACC
Water Rental & Capital Tax @ 4.65%
Provincial Guarantee Fee @ 4.65%
-500
0
500
1000
1500
2000
2500
3000
3500
4000
4500
Millions of 2014 Net Present Value Dollars
Note: Plan 4 is considered hypothetical from a business perspective as a 250 MW interconnection would require renegotiation of a contact with Minniesota Power and is not likely to be approved by US Authoriities and proceed.

LIST OF UNDERTAKINGS (Con't)

--- Upon commencing at 9:01 a.m.

THE CHAIRPERSON: Good morning. I believe that everybody is in position, so we will start today's proceedings. Go ahead, please.

IEC LA CAPRA ASSOCIATES PANEL CONTINUED:
DANIEL PEACO, Previously Affirmed (Qual.)
JOHN ATHAS, Previously Affirmed (Qual.)
MARY NEAL, Previously Affirmed

MR. RICHARD BEL: Good morning, Mr. Peaco. I'm -- I'd like to examine in more detail the No New Gen case.

MR. DANIEL PEACO: Okay.

MR. RICHARD BEL: I want to try and understand it because I think I understand it, but I'm not -- I'm not sure. So the -- the two (2) base assumptions are the 750 -- I'm on page 59 -- slide 59.

So it's -- we have the 750 megawatt interconnection and we have a raise in the import floor, so we double the amount of imports that are allowed?

MR. DANIEL PEACO: Yes.

MR. RICHARD BEL: So there's -- those

two (2) effects are working together?

MR. DANIEL PEACO: That's correct.

MR. RICHARD BEL: So you -- you postulated that the -- the transmission line would be built so that we could -- it was a drought condition.

But the transmission line's working with the import floor because by raising the amount of imports, we're essentially increasing the amount of capacity in the system for exports?

MR. DANIEL PEACO: No, this -- let me -- let me take it --

MR. RICHARD BEL: Okay.

MR. DANIEL PEACO: As the system sits today, the -- the interface between Manitoba and the US has a certain rating for export and a certain rating for import, and they're different numbers. But the -- and so the -- the All Gas Plan, for example, doesn't add any transmission. And so the -- the limitations on -- on import in that plan remain the same as they are today through the -- through the entire study.

In this case, what we said is, Let's -- let's specifically test whether an increase in -- in the ability to import power when you need it has an effect. And so there's -- there's two (2) things you need to do. There's two (2) -- there's two (2) ways to

-- to think about that. One is you need to increase the -- the transfer limit on imports. And we did that -- did that by postulating a build of -- of trans -- an additional transmission line.

And in the Preferred Development Plan, which has the 750 line that was -- was used in this case, it increases both import and export transfer limits by 750 megawatts, so it -- it increases the transfer limits both ways.

And so that gives you an amount of a bill -- you know, extra amount of capacity to -- to import power if and when you need to do so. And then coupled with that, even -- even if you have the expanded import capability, Manitoba Hydro's planning criteria has a separate criteria to -- to rely no more than -- than 10 percent on -- on imports in its overall planning.

And so what we said is, Let's change that -- that policy as well when we do that to see what that does. So we -- I mean, we had one (1) shot. So we said, Let's -- let's do a case and kind of test a couple things together. So we put those in there so that when you -- it allows to -- basically to contract for capacity across that transmission line, as well as use it for energy.

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And when you do -- when we did those two (2) things, it obviously allows the opportunity for more imports to come in. Now, obviously, that's working with the existing hydro system. So there are times when the existing hydro system has a lot of water and it -- it is plenty. But when it doesn't, then it has access to an -- expanded paths to import power from MISO.

Is that -- does that answer your question?

MR. RICHARD BEL: I understand -- yeah, I understand that part. But I'm -- I'm trying to understand on the top of that S-curve where that net present value's coming from.

And I'm wondering if, by changing that constraint, it allows us to utilize the existing hydro system more efficiently.

MR. DANIEL PEACO: It would.

MR. RICHARD BEL: In other words, export more --

MR. DANIEL PEACO: It would.

MR. RICHARD BEL: -- at any given situation, because you're kind of buying capacity, or you're --

MR. DANIEL PEACO: Yeah, if you think

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about it, a lot of what -- the opportunity here is you -- to the extent you have the added ability, there's -- there's more capacity spec -- particularly to import at night/weekends, when prices are low in MISO, and -- and then return it. In drought conditions the import capacity today limits the amount of energy you can import in those circumstances. So this gives you more -- more division freedom in order to take advantage of off-peak prices to import and -- and manage the reservoir differently than you can with the limitations on the import as it -- as it sits today.

And I think that's what's -- what you're seeing in those numbers.

MR. RICHARD BEL: Okay. And the -- the limit -- I read in one of the reports that the import level that's set right now is a convention. It's not a physical thing. It's --

MR. DANIEL PEACO: Well, when you say--

MR. RICHARD BEL: 'Convention' means that that rule could be changed.

MR. DANIEL PEACO: Well, you said import limit. The import limit is -- is not a -- a convention. That's a -- it's an engineering determination of what the capacity of the interface is. But -- but the -- on the planning policy, in terms of

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dependable energy --

MR. RICHARD BEL: Right.

MR. DANIEL PEACO: -- there's -- there's a determination as -- it -- you know, how much -- how much are we going to rely on imports is really a -- a policy determination, because there's -- there's a policy that Manitoba Hydro uses in its planning. And it -- and it -- it could be different. And we've -- we've talked about that issue separately in our reports.

And -- and this -- this case was an -- was an opportunity for us to test, you know, does it make any difference if we relax that. And -- and so -- so you see the combined effect of both of those things in that case.

MR. RICHARD BEL: Okay. And one last thing, there's another slide with a -- slide 71. So if we combined your -- the -- the No New Generation case, if we -- if we change the import limit -- I'm not -- I'm not calling it the right -- the right way here.

If we changed the known -- if we added the known -- if we made a hybrid plan between -- between No New Generation and the K19 case, would that that shift the blue line to the right if we made a hybrid plan?

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You mentioned in this scenario that you could combine these two (2) things.

MR. DANIEL PEACO: Sure. I -- so I'm -- I'm just -- I want to make sure that I understand the combination you're looking -- looking to talk about.

MR. RICHARD BEL: Okay.

MR. DANIEL PEACO: So the K19 plan, which has -- which -- which includes the -- the transmission line --

MR. RICHARD BEL: And the No New Generation. It means relax the -- or -- or raise the import limit.

MR. DANIEL PEACO: Oh. Oh, I see. Oh. You're talking about the import limit policy?

MR. RICHARD BEL: Right. So what happens to the -- to the -- the K19 S-curve then? It shifts to the right?

MR. DANIEL PEACO: Well, by virtue of building --

MR. RICHARD BEL: Keeyask.

MR. DANIEL PEACO: -- Conaw -- Keeyask, you have more times when you would be surplus and exporting and -- and less time that you would have oppo -- you know, need to be importing. But -- but as we -- as I showed in one of the other charts, even with

La Capra Associates

Observations on "No Gen" Case Results

- DSM and Fuel Switching deferred year of need to 2029
- Illustrates the Potential Drought Hedge value of increased import limits
- Illustrates the impact of DSM and imports on MH thermal generation
- While a "hypothetical" plan, the results point to potential for added elements to other plans, such as increased import capability and DSM

Plan 14, With the LCA Load Reduction, Compared to LCA No New Generation Plan

Development Plan	Incremental NPV relative to All Gas, millions of 2014 Dollars @ 5.05% Discount Rate
	All Gas
1 All Gas No Load Reduction	-
17 LCA No New Generation LCA Load Reduction 750MW Relaxed Import Criteria Extended Diversities	$1,421
14 K19/C25/750MW No Load Reduction MP Sale WPS Sale & Inv	$1,696
14 K19/C30/750MW LCA Load Reduction GRE Diversity Extenstion 2030 MP Sale WPS Sale & Inv	$2,607
14 K19/C27/750MW LCA Load Reduction MP Sale WPS Sale & Inv	$2,594