Date : 5/9/2011 12:16:28 PM
From : "Newhook, Vanessa"
To : "Thompson, Robert"
Cc : "Bown, Charles W." , "Wardle, Richard"
Subject : RE: Hebron Cost and Design Evolution
Attachment : image001.jpg;

Robert,

Further to Jim's comments below, for your information NR has developed a case which aligns with Nalcor's case but we are still working on an independent assessment of the DPA. While we have no specific reason to expect there to be significant differences, I did want to make the distinction.

Regards,
Vanessa

Vanessa Newhook
ADM, Royalties and Benefits
Department of Natural Resources
Government of Newfoundland and Labrador
t 709.729.1644

From: JKeating@nalcorenergy.com [mailto:JKeating@nalcorenergy.com]
Sent: May 9, 2011 12:12 PM
To: JimKeating@nlh.nl.ca
Cc: Thompson, Robert; Bown, Charles W.; Wardle, Richard; Newhook, Vanessa; EMartin@nlh.nl.ca
Subject: Hebron Cost and Design Evolution

One correction..

Total government take (proceeds from Royalty, Tax and Nalcor Equity) has increased from 20 billion in 2008 to **29** billion.

Also..my weights are Nalcor weights (derivative data), not released to the public. I feel we can say "weight increases up to 60%" rather than the specific number.

Jim

Jim Keating
Vice President - Oil & Gas
Executive Leadership Team
Nalcor Energy
t. 709 737-1239
e. jimkeating@nalcorenergy.com
w. nalcorenergy.com

From: Jim Keating/NLHydro
To: "Thompson, Robert" <rthompson@gov.nl.ca>
Cc: "Bown, Charles W." <cbown@gov.nl.ca>, "Wardle, Richard" <richardwardle@gov.nl.ca>, "Newhook, Vanessa" <vnewhook@gov.nl.ca>
Date: 05/09/2011 12:03 PM
Subject: RE: Nalcor data 3/3 - Hebron Cost and Design Evolution

---

Those points are correct. Here are some additional ones.

- Capital costs increases are largely attributed to refinement of concept selection typical of this phase of offshore projects. Focus is primarily on resource capture and adding reserves. As a result, in adding 66 million barrels of reserves we have been required to add 44% additional water inject capacity and associated additional power requirements. This growth in scope has also contributed to the need for refinement of deck heights and the knock-on resizing and reconfiguring the main primary steel of the topsides. This and other refinements have caused topsides wight to jump from about 25,000 tonnes to 39,000 tonnes, a 56% increase in topsides weight.
- [redacted]
- Total recoverable oil has increased from 579 to 645 million barrels.
- Forecast long term PIRA oil price has increased nearly 24%
- Economic life has increased by 5 years.
- [redacted]

[redacted]

- Nalcor purchase price unchanged at $110 million including any other Pool 3 development. Nalcor will maintain 4.9% interest in all the Hebron lands.
- [redacted]
- While capital costs have increased, the result for Nalcor is that the project has improved economically (otherwise these design refinements would not be considered).
- [redacted]

Lower Churchill Comments

Hebron is different from the LCP in one important way. The Hebron project is driven by reserves identification and production which is largely unknown and uncertain and must be modeled and updated continuously. As a result, during the front end engineering phase, all reserve predictions lead to changes in the concept until such time that one is chosen at sanction. Costs (tied to platform weight and GBS scale) fluctuate around reserves determination. AS reserves go up - so due costs. For the LCP, the scope of the project is much better known and is of far less risk. So unlike Hebron, LCP cost estimates unrelated to the energy resource.

nalcor energy

Jim Keating
Vice President - Oil & Gas
Executive Leadership Team
Nalcor Energy
t. 709 737-1239
e. jimkeating@nalcorenergy.com
w. nalcorenergy.com

From: "Thompson, Robert" <rthompson@gov.nl.ca>
To: "Newhook, Vanessa" <vnewhook@gov.nl.ca>
Cc: "Bown, Charles W." <cbown@gov.nl.ca>, "Wardle, Richard" <richardwardle@gov.nl.ca>, <jkeating@nalcorenergy.com>
Date: 05/08/2011 11:30 PM
Subject: RE: Nalcor data 3/3 - Hebron Cost and Design Evolution

---

Thanks Vanessa. Based on this information there seems to be several points:

1. the net cash flow looks much improved due mainly to projected price increases, improvements in crude oil quality, and higher reserve estimates;
2. the design process has resulted in a capital cost increase of about $2.2 billion (its hard to know which estimate to use, so I used the $5.3b as a starting point)
3. Nalcor's 4.9% share of capital cost has increased from about $260m to $360m, an increase of about 38%.
4. The main reason for the increased cost is the increased weight of topsides, from about 25,000t to 35,000t. Other reasons are GBS-related, such as increased construction management and camp costs.

Is this accurate?

Robert

-----Original Message-----
From: Newhook, Vanessa
Sent: Sat 5/7/2011 12:41 PM
To: Thompson, Robert
Cc: Bown, Charles W.; Wardle, Richard; jkeating@nalcorenergy.com
Subject: Nalcor data 3/3 - Hebron Cost and Design Evolution

Robert,

The final deck of information. I did not forward the detailed cost spreadsheets but there is a summary slide included with explanation of the growth areas.

Please note we will use the details to compare to DNR's internal case as we update our models based on the DPA submission.

Regards,

Vanessa