MANITOBA HYDRO

2012/13 & 2013/14 ELECTRIC GENERAL RATE APPLICATION

UNDERTAKING PROVIDED BY: V.WARDEN

Manitoba Hydro Undertaking # 46

Manitoba Hydro to provide a breakdown of the increase from the $7.8 billion for Conawapa to the $10.2 billion current estimate; and Keeyask from $5.6 to $6.2 billion; and to indicate if, in Conawapa, there was a two (2) year change, or whether it was only one (1) year. Manitoba Hydro to include an explanation of how the management reserve was derived and to indicate what level of reliability Manitoba Hydro has that the current capital estimates are going to be accurate on in-service date.

Response:

The changes in Keeyask total project costs of $583 million are as follows:

Cost Breakdown	Increase/ (Decrease)	Explanation for change
Labour Management Reserve	$384 million	*Increase to reflect potential additional costs associated with higher risk in labour productivity*
Escalation Management Reserve	$116 million	*Increase to reflect potential additional costs associated with higher risk in escalation*
G.S. Actual Escalation	$187 million	*Base estimate revised 2009$ to 2012$ for actual escalation that has exceeded projected escalation*
Infrastructure	$17 million	*Upgrade to camp accommodation for worker attraction & retention*
Planning & Licensing	$34 million	*Increased adverse effects and regulatory and environmental costs related to sturgeon activities, First Nation activities and preparation of EIS*
Transmission Lines	$26 million	*Increased detail in scope identifying number and type of towers required as well as addition of lines from G.S. to switching station*
Transmission Stations	$34 million	*Increased detail in scope identifying breaker replacements and bank addition required*
Interest & Other	($215) million	*Decrease in interest rates partially offset by increase in costs*
Total Increase	**$583 million**	

The in-service date for the Keeyask project is 2019/20 in IFF12 and there is no change from IFF11.

The changes in Conawapa total project costs of $2 422 million are as follows:

Cost Breakdown	Increase/ (Decrease)	Explanation for change
Labour Management Reserve	$510 million	*Increase to reflect potential additional costs associated with higher risk in labour productivity*
Escalation Management Reserve	$337 million	*Increase to reflect potential additional costs associated with higher risk in escalation*
Base estimate increase	$366 million	*Removal of negative contingency due to deferral of in-service*
G.S. actual escalation	$150 million	*Base estimate revised 2010$ to 2012$ for actual escalation that has exceeded projected escalation*
Infrastructure	($59) million	*Section of PR 280 upgrade no longer required due to re-routing through Keeyask G.S.*
Contingency	$166 million	*Increase due to additional risks/uncertainties identified as a result of updated market information and process reviews of Wuskwatim*
Escalation	$421 million	*Increase mainly due to the 2-year in-service deferral*
Interest	$530 million	*Increase due to addition of management reserves, higher costs and 2-year in-service deferral partially offset by decrease in interest capitalization rates*
Total Increase	**$2 422 million**	

The Conawapa in-service date was deferred one year from 2023/24 in CEF10 to 2024/25 in CEF11 with the total project cost maintained at $7.8 billion, effectively reducing the contingency for the cost of deferral. In CEF12, the in-service was deferred one further year to 2025/26. The cost increases shown above for the base estimate increase, escalation and interest are, as a result, consistent with a 2 year deferral.

As indicated in MH Exhibit #91, there are two distinct means to manage risk on the project. Contingency deals with risks that are relatively easily defined and quantified and whose likelihood can be reasonably assessed. The appropriate amount of contingency is included to yield a base cost estimate which has an equal likelihood of being higher or lower than final actual cost. Management reserve deals with risks which are not suitable to be addressed in contingency due to their relatively large magnitude and lower ability of the Corporation to influence the outcome of these risks.

In the case of Keeyask and Conawapa risks related to labour productivity & escalation are addressed through use of management reserves due to the magnitude of the cost

variation they may cause. Keeyask and Conawapa estimates include both a labour reserve and an escalation reserve:

The labour reserve represents the potential additional costs associated with labour productivity and cumulative impacts. The labour reserve is derived by applying outcomes of the Wuskwatim process reviews to the labour components of the Keeyask and Conawapa estimates including:

- Increases to the number of labour hours required per work activity and the resulting number of workers due to reduced labour productivity;
- Additional costs for extended construction duration due to lower productivity;
- Increases to collective agreement wages to attract and retain workers. Increases to the size of the camp to accommodate the additional workers required due to lower productivity;
- Increases to the service contracts to accommodate the additional workers required;
- Increases to project management costs related to additional supervisory staff to monitor less experienced and less productive workers; and,
- Additional costs for 7-12 work schedule (7 days per week, 12 hours per day).

The Corporation expects to utilize the labour reserve if there are restrictions in our ability to address the current and expected state of the Canadian construction labour market (demand/supply), specifically labour availability and productivity. Examples include (a) restrictions on the ability to modify wage rates, hours of work per day, and turnaround schedules in the Burntwood Nelson Agreement, and (b) constraints on the project using labour outside of Manitoba and Canada.

The escalation reserve represents the potential additional costs to the project associated with cost escalation greater than Canadian CPI. The escalation reserve is derived by projecting the total project capital costs utilizing rates of inflation comprised of components directly related to major hydro project construction, such as copper, cement, concrete reinforcing bar, and diesel fuel price increases, rather than the broadly defined components comprising Canadian CPI. The Corporation expects that it will utilize the escalation reserve.

Considering the uncertainties in heavy construction escalation, labour productivity and project construction conditions, there is a greater likelihood that the actual costs to construct Keeyask and Conawapa will be less than the updated cost estimates than more. This is provided that the in-service dates, interest rates, escalation and major scope items are consistent with the estimate assumptions.