

# **Need For and Alternatives To (NFAT) Public Review of MH Preferred Development Plan**

**Pre-hearing Conference May 16, 2013**

# MH Preferred Development Plan

- Keeyask 1<sup>st</sup> unit - 2019
- Conawapa 1<sup>st</sup> unit – 2025 (approx.)
- 300 MW North-South AC transmission reinforcement in Manitoba 2026 (Not Bipole IV)
- 750 MW Import/Export US Interconnection 2020
- 250 MW Minnesota Power (MP) Sale (2020 to 2035)
- 300 MW Wisconsin Public Service (WPS) Sale (2020 to 2040)
- 125 MW Northern States Power (NSP) Sale Expansion (2021 to 2025, approved)
- Demand Side Management (Power Smart) where economic



## 7 Preferred & Alternative Development Plans Evaluated with 27 Scenarios to Deal with Uncertainties & Risks

- Economic evaluations consider a wide range of scenarios on each plan. High, reference & low for each:
  - Export and natural gas prices
  - Discount rates
  - Capital costs
- Results in 27 scenarios for each plan  
(3 prices X 3 discount rates X 3 capital costs = 27 scenarios)
- Resulting in 189 cases  
(7 main development plans X 27 scenarios = 189 cases)
- Probabilistic analysis applied to all cases
- Financial evaluations consider impact of all scenario parameters but not all combinations

## 7 Plans Evaluated in NFAT Submission Utilizing 27 Scenarios: 2012 Power Resource Planning Assumptions and adjusted export price forecast

- 750 MW Tie, MP/WPS Sales, Keeyask 2019, Conawapa 2025 (300MW)
- 750 MW Tie, MP/WPS Sale, Keeyask 2019, Imports, Conawapa 2031 (100MW)
- 250 MW Tie, MP/WPS Sales, Keeyask 2019, Conawapa 2025 (100MW)
- 250 MW Tie, MP/WPS Sales, Keeyask 2019, Gas 2024+ (100MW)

### Plans with No New Tie (Interconnection)

- All Gas 2022+
- Gas 2022, Conawapa 2026
- Keeyask 2022, Gas 2029+

## **Plans Evaluated in NFAT Submission Utilizing the Reference Scenario: 2012 Power Resource Planning Assumptions and adjusted export price forecast**

### Plans with No New Interconnection (Economic Evaluation)

- Wind 2022+, Gas(capacity support) 2025+
- Wind 2022+, Conawapa 2026
- Gas 2022+, Conawapa 2026

### Plan with 750 MW New Interconnection (Economic Evaluation)

- Keeyask 2019, Imports, Gas 2031

### Five Year Drought Stress Test (Economic & Financial)

- Preferred Plan (750 MW Interconnection, MP/WPS Sales, Keeyask 2019, Conawapa 2025)

# Sensitivities & Stress Tests with Preliminary 2013 Forecasts

- Economic & Financial Evaluations with 2013 assumptions & forecasts:
  - Electricity export prices & natural gas prices
  - Economic parameters (interest, CPI, exchange, etc)
  - Preliminary load forecast
  - GRE Diversity Exchange extended from ending 2025 to now 2030

## Preliminary 2013 Reference case except 1.5X 2013 DSM

- Case A: DSM increased to 1.5 X current program, Preferred Plan
- Case B: DSM increased to 1.5 X current program, Keeyask/Gas Plan

## Risk Stress Test: Lower Load forecast and/or Higher Bound DSM Preliminary 2013 Reference case except 4X 2013 DSM

- Case C: DSM increased to 4 X current program, Preferred Plan
- Case D: DSM increased to 4 X current program, Keeyask/Gas Plan
- Note that the stress tests to lower load growth and/or higher DSM are undertaken to test impact on attractiveness of Preferred Development Plan NOT to evaluate attractiveness of DSM (increased DSM resource & program costs not yet available)

# Preliminary Table of Contents - NFAT Submission

## Executive Summary

1. Introduction
2. Manitoba Hydro's Preferred Development Plan Facilities  
e.g. project descriptions, capital costs and budgets, capital cost estimating methodology, environmental and socioeconomic impacts and benefits, compliance with sustainability principles
3. Trends & Factors Influencing North American Electricity Supply  
e.g. energy outlook, CO2 value outlook
4. The Need for New Supply to Meet Load  
e.g. MB Load, 2013 DSM, capacity-energy demand/supply
5. Reliability & Economic Benefits of Imports, Exports & Interconnections,  
e.g. export price forecasting approach , US & CDN transmission

# Preliminary Table of Contents - NFAT Submission cont.

6. The Window of Opportunity to Expand Imports, Exports and Interconnections to meet growing Manitoba Load  
e.g. new export contracts & US transmission
7. Manitoba Resource Options & Assessment  
e.g. full range of options(thermal, non-thermal, hydro), short list of options, comparison of short list options
8. Determination & Description of Development Plans (2012)
9. Economic Evaluation of Development Plans with Reference Case
10. Development Plan Uncertainties and Comprehensive Economic Evaluations with Scenarios

# Preliminary Table of Contents - NFAT Submission cont.

11. Financial Evaluation of Development Plans
12. Preliminary 2013 Forecasts and Sensitivity Evaluations
13. Integrated Comparisons of Development Plans – Multiple Account Analysis
14. Conclusions & Recommendations
15. Implementation and Risk Management Plan for Preferred Development Plan

## Appendices:

1. Consolidated Integrated Financial Forecast (IFF 2012)
2. Manitoba Hydro Corporate Strategic Plan (2012)
3. Manitoba Hydro Electric Board Annual Report (2012/13)
4. Manitoba Hydro Integrated Planning Process
5. Province of Manitoba Clean Energy Strategy
6. Climate Change Report (2012)
7. Economic Outlook (both 2012 & 2013)
8. DSM Power Smart Plan 2013<sup>12</sup> & DSM Market Potential Study  
(if available)

# Appendices

9. Load Forecast - external (2012 & 2013)
10. Generation Planning Criteria
11. Supply & Demand Tables – Capacity / Energy
12. Keeyask Project Detailed Description
13. Conawapa Project Detailed Description
14. Joint Keeyask Development Agreement Benefits Summary
15. Conawapa Benefits Package Summary
16. Domestic Transmission & U.S. Interconnection Project  
Detailed Descriptions (Canada & US transmission & stations)
17. Emerging Technologies Report

# Appendices

- 18. Range of Resource Options
- 19. Life Cycle Greenhouse Gas Valuation Analysis
- 20. Multiple Account Evaluation Comparison of Selected Sequences
- 21. Economic Impact analysis ( employment, income, GDP)
- 22. Probabilistic System Reliability Evaluation
- 23. Power Resource Plan – external use (2012)
- 24. Aggregate Cash Flows for Economic Evaluations (main cases)
- 25. Proformas for Financial Evaluations (main cases)

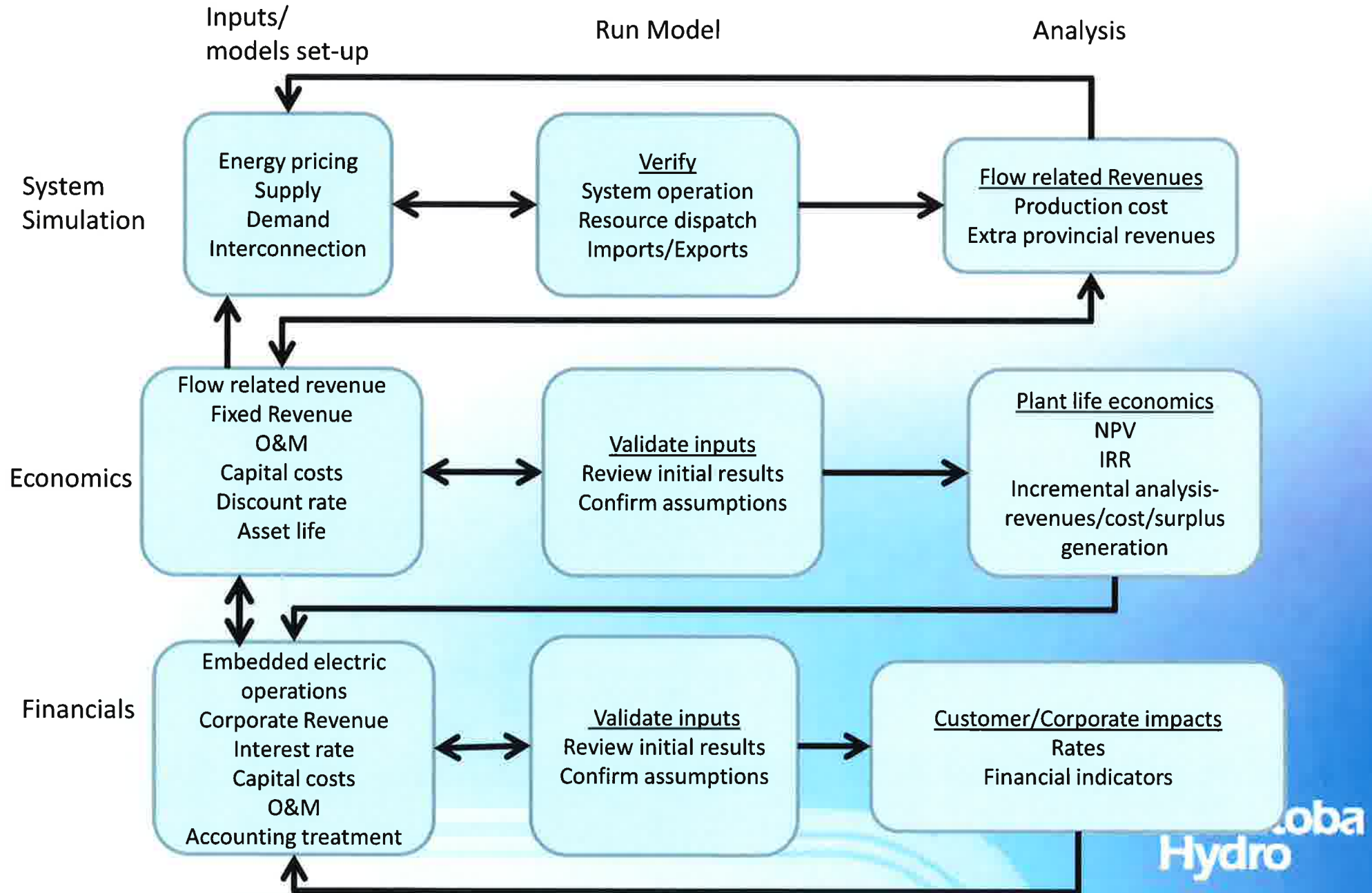
## Documents to be Filed in Confidence

- Corporate Risk Report
- Energy Price Outlook (2012 & 2013)
- Manitoba Hydro Consensus Export Price Forecasts (2012 & 2013) & Input Consultant Export Price Forecast where Consent is Provided
- Power Resource Plan - internal use (2010 & 2012)
- Load Forecast – internal use (2012 & 2013)
- Export Contracts and Term Sheets associated with the Preferred Development Plan

# Interpretation of Terms of Reference

- Macro-environmental: high level summary of environmental impacts and benefits sufficient to compare resources (not detailed evaluations such as in EIS)
- Socio-economic: high level summary of potential effects to people in Manitoba, including such things as employment, training and business opportunities; infrastructure and services; personal, family and community life; resource use; and heritage resources.

# Analyzing a Case (2 to 4 weeks)



**Thank you**



 **Manitoba  
Hydro**