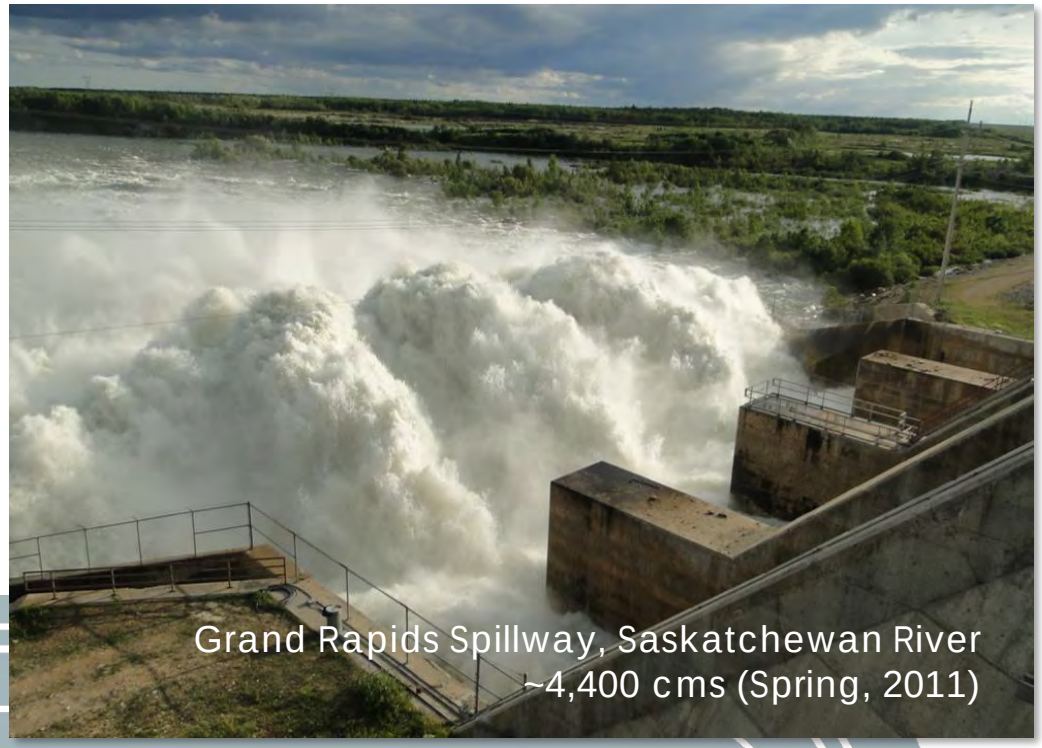
Manitoba Hydro Perspective

GWF Integrated Modelling Program for Canada

September 14-15th, 2017 Kick-off Workshop



Grand Rapids Spillway, Saskatchewan River
~4,400 cms (Spring, 2011)

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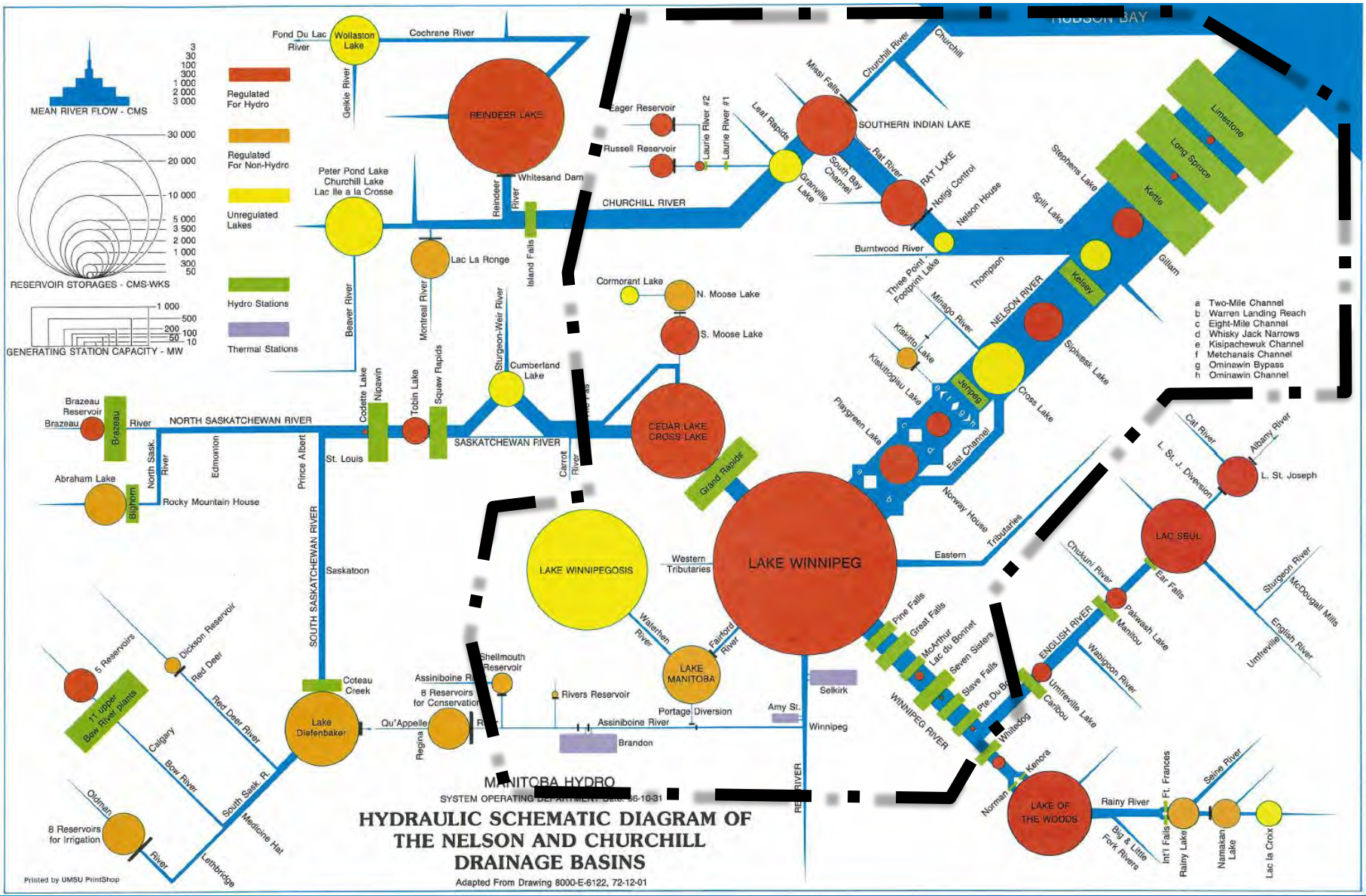
Outline

- Background on MH, infrastructure
- Flow forecasting and planning reservoir operations
  - Current practice
  - Desired future state
- What MH would like to see from the project and how we can contribute

System Schematic



Keeyask Generating Station

- Nelson River
- 695 MW, 7 Units
- $8.7B, Aug 2021

Bipole III Transmission Reliability Project

- 1,388 km HVDC Line + Converters
- $5.0B, Jul 2018

Flow Forecasting and Planning Reservoir Operations - Current

- Historic hydrology
- Stationarity
- Forecasting:
  - Upstream regulators
  - Statistical/regression-based (mostly)
- Deterministic/scenario based optimization for reservoir planning

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Flow Forecasting and Planning Reservoir Operations – In Development/Future

- Address non-stationarity
- Physical based flow forecasting (large scale)
- Stochastic optimization
- Tools for investigating alternate policies, stakeholder engagement and regulatory processes

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MH's interests/objectives:

- Improved/expanded hydrologic and hydraulic modeling
- Tools for operations planning and climate change studies
- Interprovincial collaboration on operations/policy
- Modelling to assist in exploring future development/management scenarios
- Demonstration tool for stakeholder engagement related to regulation and operations

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What MH can contribute:

- Expertise in hydrologic modelling/climate change studies for Nelson-Churchill Basin
- Insight into reservoir management and decision support and MH reservoir operations
- Input to IWM development for MB system
- Input to evaluating new operating policies
- Propose future resource development studies

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Discussion