

MANITOBA HYDRO  
COST OF SERVICE METHODOLOGY  
REVIEW

EVIDENCE OF WILLIAM HARPER  
ECONALYSIS CONSULTING

PREPARED FOR “THE COALITION”

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# PRESENTATION OUTLINE

- COSS CONTEXT/PRINCIPLES
- KEY ORAL HEARING ISSUES
  - TREATMENT EXPORTS
  - DSM COSTS
  - TRANSMISSION COSTS
  - GENERATION COSTS
  - NET EXPORT REVENUES
- ISSUES NOT ADDRESSED
  - NEB FEES
  - NON-TARIFFABLE TRANSMISSION
  - MODELLING IMPROVEMENTS

# COSS CONTEXT

- PART OF THE RATE MAKING PROCESS
- SUPPORTS PRINCIPLE OF FAIR AND EQUITABLE RATES
  - *COSS is employed as a tool in evaluating customer class rates, serving as one test of the fairness of rates between customer classes. (PUB 117/06)*
- “FAIR AND EQUITABLE” <-> COST CAUSALITY
  - *Equal Treatment of Equals Based on Cost Causality (OEB HR 5)*
  - *This (fairness) objective is met in part by the allocation of MH’s prospective revenues and expenses by customer class, in accordance with cost causation, legislation, policy and the public interest. (PUB 117/06)*

# COSS – COST CAUSATION

- COMPLEXITIES
  - MARGINAL VS. EMBEDDED COSTS
  - RESPONSIBILITY FOR JOINT COSTS
  - NOT ALL CUSTOMERS RECEIVE SAME SERVICE BENEFITS
  - ORIGINAL INTENT/COST DRIVER VS. CURRENT ROLE
  - HISTORICAL VS. CURRENT COST RELATIONSHIPS
  - FORECAST USE VS. RANGE OF SYSTEM CONDITIONS
  - FORECAST USE VS. TREND
- PRACTICALITY & TRANSPARENCY
- JUDGEMENT REQUIRED
  - *“Allocation of Costs is not a Matter for a Slide Rule. It Involves Judgement on a Myriad of Facts”* (US SUPREME COURT - 1945)
  - *“It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.”* (SHERLOCK HOLMES)

# COSS – OTHER CONSIDERATIONS

- LEGISLATION
  - MANITOBA HYDRO ACT
  - UNIFORM RATES
  - AEF
  - CLIMATE CHANGE AND EMISSIONS REDUCTIONS ACT
  - SUSTAINABLE DEVELOPMENT ACT
- POLICY
  - INTEGRATED RESOURCE PLANNING
  - PLANNING PERSPECTIVE (PATIENT CAPITAL)
  - CONSIDERATION OF HIGH IMPACT/LOW PROBABILITY EVENTS
  - MISO PARTICIPATION
- PUBLIC INTEREST
  - TREATMENT OF DIESEL COMMUNITIES

# TREATMENT OF EXPORTS

- PURPOSE OF EXPORT CLASS IN COSS
  - NOT BASIS FOR EXPORT PRICING
  - DETERMINE REASONABLE SHARE OF COSTS FOR EXPORTS -> NET EXPORT REVENUE
- ISSUE STATUS:
  - GENERAL AGREEMENT TO INCLUDE EXPORT CLASS/CLASSES IN COSS
  - KEY ISSUES ARE INTER-RELATED:
    - NUMBER OF CLASSES -> ROLE OF OPPORTUNITY EXPORTS
    - ALLOCATION OF COST TO CLASSES -> COST RESPONSIBILITY RELATIVE TO DOMESTIC LOAD

# TREATMENT OF EXPORTS

- ASSIGNMENT OF COSTS TO EXPORTS
  - ECONOMIC BASIS FOR EXPORTS
  - COST OF SERVICE PRINCIPLES
- ECONOMICS: EXPORT ROLE IN BUSINESS CASES
  - BOTH FIRM AND OPPORTUNITY EXPORTS AFFECT TIMING AND TYPE OF PLANT BUILT
  - BUT INCREMENTAL INVESTMENT < INVESTMENT FOR DOMESTIC LOAD
  - FIRM EXPORTS IMPACT > OPPORTUNITY EXPORT IMPACT (PER KWH)
    - “Since more of the output of Keeyask is sold under firm contract, ... the Panel sees less risk of disappointing export revenues from Keeyask compared to Conawapa” (PUB – KEEYASK/CONAWAPA NFAT)*
    - “Uncommitted firm energy is valued at a premium price relative to opportunity sales.” (MH – WUSKWATIM NFAT)*

# TREATMENT OF EXPORTS (Cont.)

- **COST OF SERVICE: SIMILAR SERVICE <-> SIMILAR COSTS**
  - ALL EXPORTS LESS RELIABLE THAN DOMESTIC LOAD
    - MANITOBA HYDRO DOES NOT CARRY PLANNING RESERVES FOR EXPORTS
    - ALL EXPORTS ARE CURTAILABLE PRIOR TO DOMESTIC LOAD
  - OPPORTUNITY EXPORTS LESS RELIABLE THAN FIRM EXPORTS
    - FIRM (BUT NOT OPPORTUNITY) EXPORTS COMMITMENTS INCLUDED IN GENERATION AND TRANSMISSION PLANNING
    - OPPORTUNITY EXPORT COMMITMENTS MADE UNDER SHORTER TIMEFRAME
    - OPPORTUNITY EXPORTS CURTAILABLE PRIOR TO FIRM EXPORTS
- **CONCLUSIONS**
  - EXPORTS (FIRM AND OPPORTUNITY) SHOULD ATTRACT SOME FIXED COSTS
  - FIRM EXPORT COST RESPONSIBILITY < DOMESTIC LOAD
  - OPPORTUNITY EXPORT COST RESPONSIBILITY < FIRM EXPORT



# TREATMENT OF EXPORTS

- PRACTICAL CONSIDERATIONS
  - VARIETY OF FIRM EXPORT ARRANGEMENTS
  - UNCERTAINTY REGARDING OPPORTUNITY EXPORTS
  - SPECIFIC COST RESPONSIBILITY DIFFICULT (IMPOSSIBLE) TO DETERMINE
- TREAT FIRM EXPORTS SIMILAR TO DOMESTIC LOAD AND ASSIGN NO FIXED COST RESPONSIBILITY TO OPPORTUNITY EXPORTS

# TREATMENT OF EXPORTS URA & AEF

## ➤ ASSIGN TO EXPORTS

### – URA

- STATUTORY REQUIREMENT
- GOVERNMENT POLICY BASED ON “BENEFITS GENERATED THROUGH EXPORT SALES” / “NOT ASKING MANITOBANS TO PAY MORE”.

### – AEF

- STATUTORY REQUIREMENT – FUNDED BY EXPORTS / PROGRAMS DETERMINED WITH GOVERNMENT
- SUPPORTS NON-ELECTRIC EFFICIENCY INITIATIVES

# TREATMENT OF DSM - OVERALL

- ISSUE STATUS: THREE ALTERNATIVES
  - TREAT AS RESOURCE OPTION
  - DIRECTLY ASSIGN TO CUSTOMER CLASSES
  - HYBRID APPROACH

# TREATMENT OF DSM – OVERALL (Cont.)

- BASIS FOR DSM
  - PART OF INTEGRATED RESOURCE PLANNING
    - “An Integrated Resource Plan determines what supply side and demand side resource mix is in the best interest of electricity customers” (PUB NFAT)*
  - PURSUED AS LEAST COST OPTION
  - HYDRO’S CHOICE TO PURSUE
  - PARTICIPATION ENCOURAGED VIA HYDRO INCENTIVES
- ASSIGN TO FUNCTIONS BASED ON AVOIDED COSTS USED TO EVALUATE DSM

# TREATMENT OF DSM AS A “RESOURCE”

## GENERAL ISSUES RAISED

- NO IMMEDIATE SYSTEM BENEFIT FROM DSM
  - DSM COSTS ARE FOR PAST DSM/CURRENT SAVINGS WITHOUT WHICH THERE WOULD BE SHORTAGES NOW
  - THE CURRENTLY FORECAST NEED DATE ASSUMES CONTINUED INVESTMENT IN DSM
  - NEED FOR LONG-TERM/PATIENT CAPITAL VIEW
- TREATMENT AS RESOURCE MAY CAUSE NON-PARTICIPANTS TO PAY MORE
  - RIM TEST RESULTS FAVOURABLE  
(UTILITY RESOURCE SAVINGS)  $\geq$  (REVENUE LOSS + DSM COSTS)
  - SIMILAR ISSUES EXIST WITHIN THE CLASS

# DSM

## TREATMENT OF CRP

- INITIAL PROPOSAL
  - DIRECTLY ASSIGN COSTS (\$8.5 M) TO CLASSES WITH CRP
  - REDUCE COSTS ALLOCATED TO CLASSES WITH CRP BY VALUE OF PROGRAM (\$5.8 M)
  - INCREASE GENERATION COSTS BY VALUE OF CRP (\$5.8 M)
- REVISED PROPOSAL
  - SET COST REDUCTION FOR CRP EQUAL TO CRP COSTS (\$8.5 M)
  - INCREASE GENERATION COSTS BY EQUIVALENT AMOUNT (\$8.5 M)
- NEW PROPOSAL DOES NOT SOLVE THE PROBLEM -> SIMPLY CREATES NEW/DIFFERENT PROBLEMS
  - CRP CUSTOMERS CREDITED MORE THAN CRP WORTH
  - ALL CUSTOMERS ALLOCATED COSTS > VALUE OF CRP
  - LOWER SERVICE QUALITY FOR CRP CUSTOMERS NOT RECOGNIZED

# TRANSMISSION GENERATION-RELATED ASSETS

- CONCEPT: TREAT AS GENERATION ASSETS THAT CONNECT/INTEGRATE GENERATION TO THE TRANSMISSION NETWORK
- ISSUES REGARDING TREATMENT IF:
  - SUBSEQUENTLY ALSO USED TO SERVE LOAD
  - OFFSETS NEED FOR NETWORK FACILITIES
  - NOT LINKED/CONCURRENT WITH GENERATION INVESTMENT

# GRTA: AC TRANSMISSION

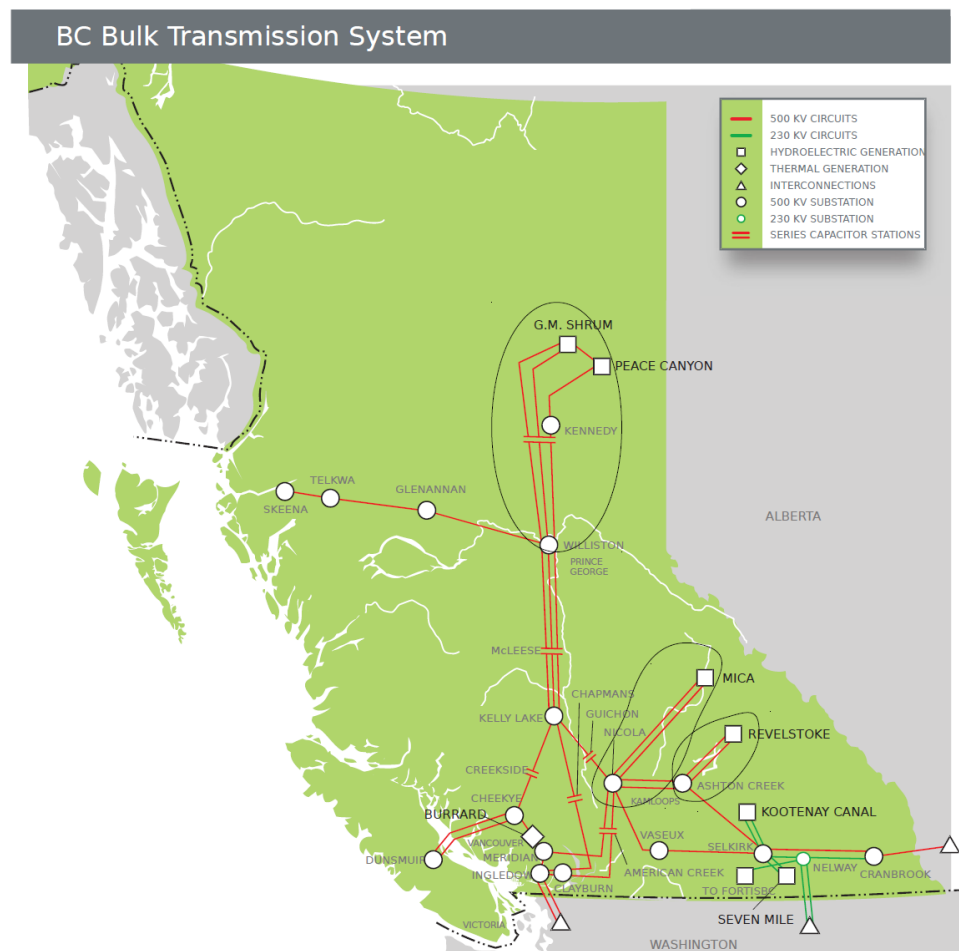
- GENERAL CONSENSUS RE:
  - NORTHERN COLLECTOR CIRCUITS
  - DEDICATED CONNECTION LINES/STATIONS
- ISSUE:
  - TREATMENT IF LOAD SUBSEQUENTLY CONNECTS
- MANITOBA HYDRO'S USE OF FERC/MISO CRITERIA REASONABLE
  - RECOGNIZES USE/BENEFITS CHANGE WITH TIME -> FOCUSES ON CURRENT SYSTEM USE
  - CONSISTENT WITH PUB 7/03
  - PRACTICAL



# GRTA: DORSEY

- ISSUES:
  - INTEGRAL TO INCORPORATION OF NORTHERN GENERATION BUT
  - SUGGESTED DORSEY ROLE IN SUPPORTING AC NETWORK
  - CURRENT DORSEY OATT TREATMENT
- TREAT CONVERTER AS GENERATION-RELATED/AC FACILITIES AS TRANSMISSION
  - NO EVIDENCE AC NETWORK SUPPORT BASIS FOR NEED
  - DETERMINATION OF TRANSMISSION BENEFITS COMPLEX AND JUDGEMENTAL
  - CONSISTENT WITH FERC/MISO CRITERIA

# BC HYDRO'S GRTA



# GRTA: BIPOLE III (& RIEL)

- ISSUES
  - NOT CONSTRUCTED CONCURRENT WITH/ NOT NEEDED TO DEVELOP ADDITIONAL NORTHERN GENERATION
  - REQUIRED ONLY FOR WINTER RELIABILITY
- TREAT AS GENERATION-RELATED
  - EVOLVING RELIABILITY STANDARDS/CONCERNS RE LOW PROBABILITY/HIGH CONSEQUENCE EVENTS TRIGGERED NEED
  - HIGH CONSEQUENCES LINKED TO CONTINUED/GROWING RELIANCE ON NORTHERN GENERATION
  - BP III INTEGRAL FOR BOTH WINTER AND SUMMER RELIABILITY
  - CONSISTENT WITH FERC/MISO CRITERIA

# TRANSMISSION INTERCONNECTIONS

- ISSUE
  - USE OF WEIGHTED ENERGY VS. CP ALLOCATOR
- USE OF WEIGHTED ENERGY ALLOCATOR APPROPRIATE
  - ROLE OF INTERCONNECTIONS/EXTERNAL MARKETS DIFFERENT THAN IN OTHER JURISDICTIONS
  - RECOGNIZES THAT INTERCONNECTIONS IMPROVE BOTH CAPACITY AND ENERGY RELIABILITY FOR DOMESTIC LOAD
  - RECOGNIZES THAT INTERCONNECTIONS SUPPORT FIRM (5x16/7x16) AND OPPORTUNITY EXPORTS

# GENERATION COSTS CLASSIFICATION APPROACH

- ISSUES
  - WIDE RANGE OF METHODOLOGIES IN USE
  - NECESSITY OF SPLITTING BETWEEN CAPACITY AND ENERGY
- MANITOBA HYDRO'S USE OF WEIGHTED ENERGY ALLOCATION APPROPRIATE
  - RECOGNIZES MH'S OPERATIONS AND PLANNING AFFECTED BY ITS INTEGRATION WITH US MARKETS-> USES THE RELATIVE PRICES FOR PURPOSES OF ALLOCATION
  - REPRESENTS A HOLISTIC APPROACH TO OVERALL CLASSIFICATION & ALLOCATION OF GENERATION COSTS

# GENERATION COSTS INCLUSION OF CAPACITY ADDER

- IMPACT OF CAPACITY MARKETS ON ENERGY WEIGHTS?
  - ADDER INCLUDED FOR YEARS PRIOR TO 2009 CAPACITY MARKET
  - CURRENT CAPACITY MARKET PRICES EXTREMELY LOW
- DO CURRENT WEIGHT DIFFERENTIALS INCLUDE CAPACITY COSTS?
  - YES BASED ON 2006 COSS REVIEW EVIDENCE
  - CURRENT WEIGHT DIFFERENTIALS GREATER THAN IN 2005-2009
- PERIODS USED TOO BROAD TO REFLECT CAPACITY
  - USE OF SINGLE PEAK HOUR OVER SIMPLIFICATION
  - MH'S CURRENT MARGINAL COSTS INCLUDE A CAPACITY ADDER FOR ALL SUMMER AND WINTER PEAK HOURS

# GENERATION ALLOCATION CAPACITY ADDER

| <b>COMPARISON OF PEAK PERIOD WEIGHTS<br/>USED FOR GENERATION ALLOCATION</b>   |                      |                      |                                  |
|---|----------------------|----------------------|----------------------------------|
|   | PCOSS06 <sup>1</sup> | PCOSS08 <sup>2</sup> | PCOSS14-<br>Amended <sup>3</sup> |
| Spring Peak   | 2.684                | 2.513                | 3.657                            |
| Summer<br>Peak  | 3.114                | 3.258                | 4.560                            |
| Fall Peak   | 2.229                | 2.624                | 3.860                            |
| Winter Peak   | 3.286                | 3.406                | 4.659                            |
| Notes: 1) PUB-MFR 7<br>2) Coalition/MH I-53 b)<br>3) PCOSS14-Amended Model – with Fall/Winter Correction and No<br>Capacity Adder |                      |                      |                                  |

# GENERATION INCLUSIONS OF CAPACITY ADDER

## CONCLUSIONS:

- NEED FOR CAPACITY ADDER NOT SUBSTANTIATED
- NEED MAY EVOLVE IF/AS CAPACITY MARKETS MATURE
- IF CAPACITY ADDER REQUIRED NEED TO ESTABLISH APPROPRIATE HOURS AND SEASONS.



# NET EXPORT REVENUES

- ISSUES

- INCLUSION IN COSS
- ALLOCATION BASE
- TREATMENT OF DIRECTLY ASSIGNED COSTS

- INCLUDE IN COSS

- EXCLUSION SIMPLY RESULTS IN AN IMPLICIT ASSIGNMENT
- INCLUSION IS MORE TRANSPARENT

- ALLOCATE BASED ON “COST OF SERVICE”

- AVOIDS COUNTER INTUITIVE RESULTS
- CONSISTENT WITH NFAT “PROMISE”

*“Development plans with both Keeyask G.S. and Conawapa G.S. provide incremental dependable and surplus energy which translate to savings for Manitoba customers in the long run” (MH NFAT)*

- EXCLUDE DIRECTLY ASSIGNED COSTS BEYOND THE “METER”

# NET EXPORT REVENUES

## TREATMENT OF DIRECTLY ASSIGNED COSTS

- ISSUE: LIGHTING COSTS INCLUDE DISTRIBUTION-RELATED FACILITIES LINKED TO OBLIGATION TO SERVE AND LIGHTING FIXTURES ETC. TRADITIONALLY VIEWED AS CUSTOMER EQUIPMENT. COSTS DIFFICULT TO SEPARATE
  - SEPARATE DOLLARS BASED ON REVIEW OF TYPICAL INSTALLATIONS OR PROFESSIONAL JUDGEMENT
- ISSUE: DSM COSTS PROVIDE SYSTEM BENEFIT
  - TREATMENT AS SYSTEM RESOURCE->INCLUDE IN ALLOCATION BASE

# COSS CONCLUSIONS

- COSS WILL VARY BY UTILITY TO REFLECT UNIQUENESS OF:
  - SYSTEM CONFIGURATION AND GENERATION
  - RELATION WITH NEIGHBOURING UTILITIES
- COSS NEEDS TO EVOLVE WITH UTILITY ENVIRONMENT:
  - SYSTEM CONFIGURATION AND OPERATION CHANGES
  - LEGISLATIVE AND POLICY CONTEXT CHANGES
  - INFORMATION AND ANALYTICAL CAPABILITY IMPROVEMENTS
- MANITOBA HYDRO'S COSS -> WORK IN PROGRESS