Review of SaskPower's Cost Allocation and Rate Design Methodologies

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Agenda

1. Project Description
2. Background on Cost Allocation Methodology
3. Elenchus Review and Recommendations
4. Next Steps

Project Description

- SaskPower's RFP:
  - Review SaskPower's Cost Allocation and Rate Design Methodologies
  - Identify Main Classification and Allocation Methodologies
  - Survey Canadian and US Utilities' practices
  - Review items identified by SRRP
  - Make Recommendations to SaskPower
  - Progress Report March 30
  - Presentation May 15
  - Final Report June 30

Cost Allocation Methodologies

- Shared Utility Assets and Expenses
- Cost Causality is main criteria
- Goal is Fair and Reasonable Rates

Cost Allocation Methodology Steps

- Functionalization
- Categorization or classification
- Allocation

Functionalization

- Group similar assets and expenses
  - E.g. Uniform System of Accounts
    - Meter readings
    - Fuel costs

Example Functionalization

- Generation
- Transmission
  - Majority of Power Customers (72 kV)
- Distribution
  - Residential, commercial, farm, standard oilfield and some Power customers
- Customer Service

Classification

- Demand related
- Energy related
- Customer related

Allocation

- Customer groups
  - Primary Allocators
    - kWh (energy including losses)
    - kW (demand including losses)
    - # of customers
    - Weighted # of customers
  - Direct Assignment (Streetlights)

Cost Allocation Results

- Revenue to revenue requirement ratios by customer group
  - Above range – providing subsidy
  - Below range – receiving subsidy
  - Range 0.95 to 1.05, or 0.90 to 1.10
- For Test Year, SaskPower attempts 0.98 to 1.02
- Starting step for Rate Design

Generally Accepted Rate Making Principles – Cost Allocation and Rate Design

- Bonbright Principles (1961 and 1988)
  - Revenue Related
  - Cost Related
  - Practical Related

SaskPower Principles

Based on Bonbright:

- Meeting revenue requirement
- Fairness and equity
- Economic efficiency
- Conservation of resources
- Simplicity and administrative ease
- Stability and gradualism

Elenchus' Review Approach

- Review model and documentation
- Survey of other jurisdictions
- Exchange of information with SaskPower staff
- Compare with standard practice based on survey and Elenchus experience

Cost Allocation Methodology

- SaskPower follows traditional approach
  - 2015 data
  - Includes generation, transmission and distribution
  - Average embedded cost data

- Elenchus supports approach

Identify Main Classification and Allocation Methodologies (Generation)

- Report documents main methodologies used in North American jurisdictions
- Elenchus reviewed two classification alternatives
- Elenchus agrees with using 2 CP as allocation method for demand related

Generation Classification Methodologies

- Variable costs are energy related
  - Such as fuel costs
- How to classify capital and other fixed costs?
  - NARUC Manual (January 1992) identifies many acceptable options to use for the demand/energy split
    - Peak Demand Methods (five methods identified)
    - Energy Weighting Methods (four methods identified)
    - Time Differentiated Embedded Cost of Service Methods (four methods identified)

Survey of Classification and Allocation Methodologies

- Utilities responses received from:
  - ATCO Electric
  - BC Hydro
  - Newfoundland Power
  - Georgia Power
  - Nova Scotia Power
  - Hydro Quebec
  - Manitoba Hydro
  - Hydro One
  - Consumers Energy
  - NB Power

Generation Classification Methodologies Survey results

Table 1: Classification methodology used for generation assets and expenses		
Methodology	Number of respondents	Percent of Respondents
Set by regulation	1	10
System Load Factor	4	40
100% demand	1	10
3 CP Peak and Average	1	10
Fixed and Variable	1	10
NA	2	20
Totals	10	

Generation Classification Methodologies (2)

- Reflects Elenchus view that generation is built to meet both energy and demand drivers
  - Widely accepted; must meet annual GWh energy needs as well as peak GW demand
  - Demand/energy split should reflect customer load profile
- Energy Weighting Methods
  - Average and Excess
  - Equivalent Peaker
  - Base and Peak
  - Judgmental Energy Weightings

Generation Classification Methodologies (3)

- Average and Excess (78.3% energy)
- 2 CP and Average (43.9% energy)

- Current Equivalent Peaker – SaskPower units only (54.3% energy)

Generation Classification Methodologies (4)

Customer class	Equivalent Peaker Method	Average & Excess
Residential	0.96	0.98
Farms	0.96	0.97
Commercial	1.03	1.03
Power	1.03	1.01
Oilfields	1.02	1.02
Streetlights	0.86	0.85
Reseller	0.93	0.94
Total	1.00	1.00

Generation Allocation Methodologies Survey

Table 16: Allocation Method for Generation Demand Costs		
Method	Number of respondents	Percent of Respondents
1 CP	2	20
3 CP	2	20
4 CP	2	20
12 CP	1	10
Highest 300 Hours	1	10
NA	2	20
Totals	10	

Classification Survey Results (Transmission)

Table 6: Classification of transmission costs to demand		
Percent Classified as demand	Number of respondents	Percent of Respondents
90 - 100	6	60
70 - 90	0	0
50 - 70	0	0
35 - 50	2	20
Below 35	0	0
NA	2	20
Totals	10	

Allocation Survey Results (Transmission)

Table 17: Allocation Method for Transmission Demand Costs		
Method	Number of respondents	Percent of Respondents
1 CP	4	40
3 CP	1	10
4 CP	1	10
12 CP	1	10
Other	1	10
NA	2	20
Totals	10	

Identify Main Classification and Allocation Methodologies (Transmission)

- Report documents main methodologies used
- Elenchus agrees with classifying 100% demand related and 2 CP allocation

Identify Main Classification and Allocation Methodologies (Distribution)

- Report documents main methodologies used

- Elenchus views:
  - Use Minimum System Method for classification of lines and transformers
  - Agrees with 2 CP for sub-transmission and NCP allocation of distribution demand related costs
  - Agrees with number of customers for customer related costs

Rate Design Methodology

- SaskPower uses fixed and variable charges:
  - Basic monthly charge and Energy Charge (¢/kWh) for Residential and energy billed small commercial customers
  - Diesel supplied customers have a monthly charge and an inclining energy rate
  - Farms and larger commercial customers with demand meters have a basic charge, demand rate above 50 kVa/month and energy rate that declines once the demand rates is applied
  - Larger customers, (power standard, resellers), have a monthly charge, a demand charge and an energy charge

Rate Design Methodology (2)

- For larger customers, rate design adjustment increases energy charge and reduces demand charge

- Elenchus supports approach

SRRP Identified Issues

- Equivalent Peaker Method calculations
  - Correctly done
  - Data issues
  - Different results

- Recommending Average and Excess

SRRP Identified Issues (2)

- Minimum System Method
  - Low density utilities have large customer component
  - SaskPower Results % Customer related:
    - Lines 68% Currently 35%
    - Transformers 35% Currently 30%

SRRP Identified Issues (3)

- Minimum System Method
  - Peak Load Carrying Capacity Adjustment (PLCC)
  - SaskPower Results
    - Lines 1,089 Watts
    - Transformers 707 Watts

SRRP Identified Issues (4)

Customer class	Survey Results (Existing)	Minimum System with PLCC Adjustment
Residential	0.96	0.96
Farms	0.96	0.96
Commercial	1.03	1.03
Power	1.03	1.03
Oilfields	1.02	1.04
Streetlights	0.86	0.78
Reseller	0.93	0.93
Total	1.00	1.00

SRRP Identified Issues (5)

- Customer Class Consolidation
  - Two main phases
- Main goal is to reduce number of rate codes
- SaskPower has looked at bill impacts

- Elenchus supports as long as bill impacts managed

SRRP Identified Issues (6)

- Winter/Summer 2 CP Allocation
- SaskPower uses average of 3 peak hours in winter and 3 peak hours in summer months over 5 years (excluding outliers)
  - Reduces volatility
  - Values are close for each season
- Elenchus accepts SaskPower's method as a valid approach
- Based on discussions with planners, 2 CP is still appropriate

SRRP Identified Issues (7)

- Winter/Summer 2 CP Allocation

Customer class	Single year, winter and summer peaks	5 year average, 3 highest hours winter and summer peaks	5 year average, winter and summer peaks
Residential	0.96	0.96	0.98
Farms	0.96	0.98	0.97
Commercial	1.03	1.02	1.02
Power	1.03	1.02	1.01
Oilfields	1.02	1.03	1.03
Streetlights	0.86	0.86	0.86
Reseller	0.93	0.95	0.96
Total	1.00	1.00	1.00

SRRP Identified Issues (8)

- Winter/Summer 2 CP Allocation

Customer class	Single year, winter and summer peaks 2015	Single year, winter and summer peaks 2014
Residential	0.96	0.97
Farms	0.96	0.98
Commercial	1.03	1.06
Power	1.03	1.00
Oilfields	1.02	1.01
Streetlights	0.86	0.92
Reseller	0.93	0.92
Total	1.00	1.00

SRRP Identified Issues (9)

- Coincident and non-Coincident Peak allocators
  - SaskPower uses 3 to 5 years of historical data (excludes outliers)
  - Result reflects the most likely maximum/peak demand

- Elenchus suggests NCP Load Factor definition:
  - Class Maximum Diversified Demand (MDD)

SRRP Identified Issues (10)

- NCP Load Factor definition impact:

Customer class	2015 Base (NCP)	2015Base (MDD)
Residential	0.96	0.97
Farms	0.96	0.97
Commercial	1.03	1.02
Power	1.03	1.03
Oilfields	1.02	1.01
Streetlights	0.86	0.85
Reseller	0.93	0.93
Total	1.00	1.00

SRRP Identified Issues (11)

- Functionalization of Overhead Costs
  - Based on how other costs functionalized

- Elenchus supports

SRRP Identified Issues (12)

- Impact of demand response Program
  - Based on historical data does not impact system peak

- Elenchus supports

Stakeholder Issues

- SIECA
  - Surveyed utility characteristics
  - Generation classification methodologies
  - Solar and Wind generation allocation
  - Equivalent Peaker method cost data
  - Coincident peak allocation

- Meadow Lake Mechanical Pulp Inc.
  - 230 kV rate
  - TOU rate differential

Next Steps

- Finalize draft report (end of April)
- Final presentation (May 15)
- Stakeholder Questions on Elenchus Report
- Elenchus responds to stakeholder questions (May 30)
- Final report June 30

Wrap-up

THANK YOU

Questions?