Review of SaskPower's Cost Allocation and Rate Design Methodologies – Progress Report

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Agenda

1. Project Description
2. Elenchus
3. Background
4. Methodology and Preliminary Elenchus Recommendations
5. Next Steps

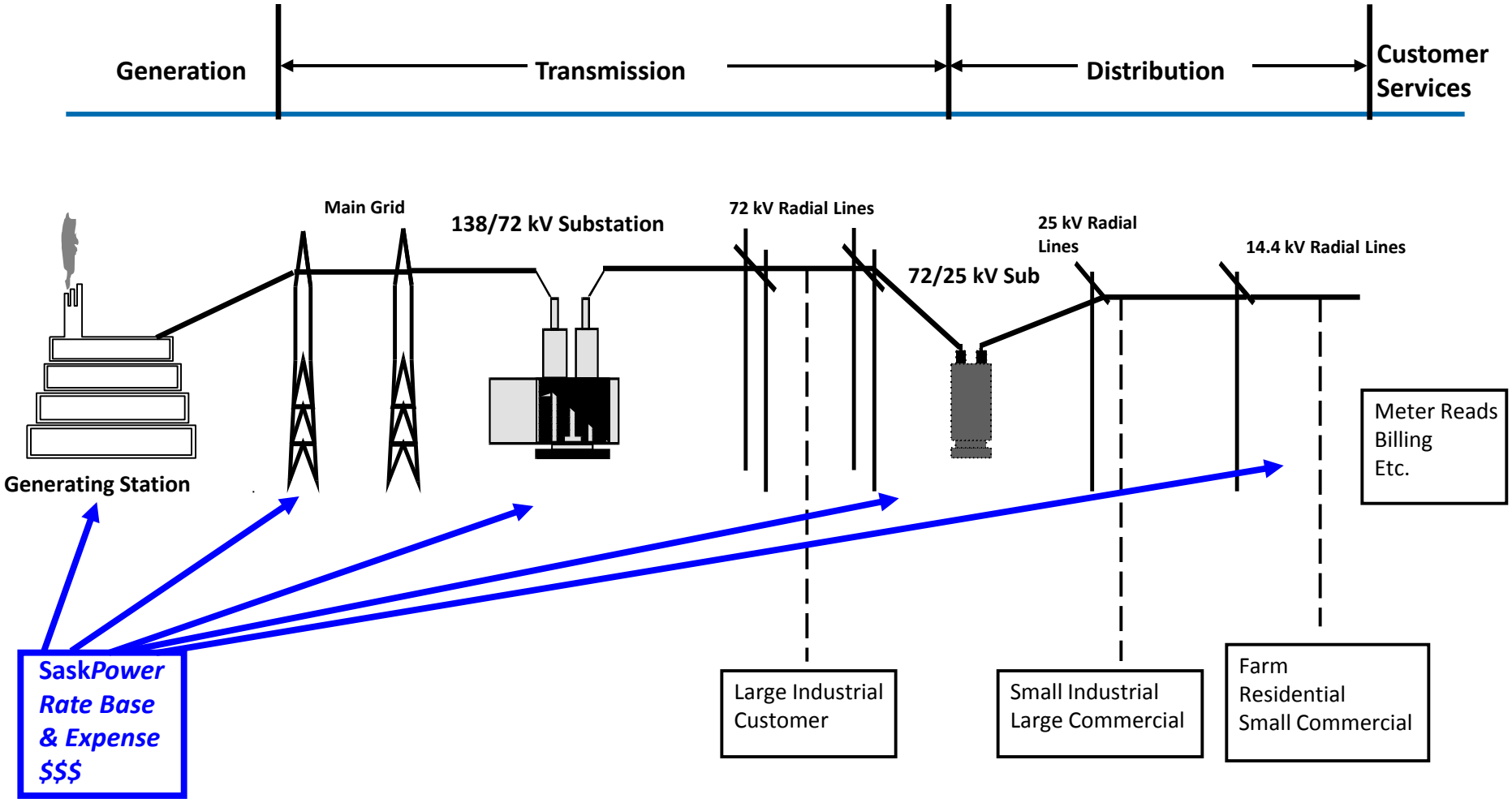
Project Description

- 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

Elenchus

- John Todd, President
- Founded 1980
- Michael Roger joined Elenchus in 2010
- Prior responsibilities included cost allocation

www.elenchus.ca


Generation
Transmission
Distribution
Customer Services
Main Grid
138/72 kV Substation
72 kV Radial Lines
25 kV Radial Lines
14.4 kV Radial Lines
72/25 kV Sub
Generating Station
Meter Reads
Billing
Etc.
SaskPower
Rate Base
& Expense
$$$
Large Industrial
Customer
Small Industrial
Large Commercial
Farm
Residential
Small Commercial

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

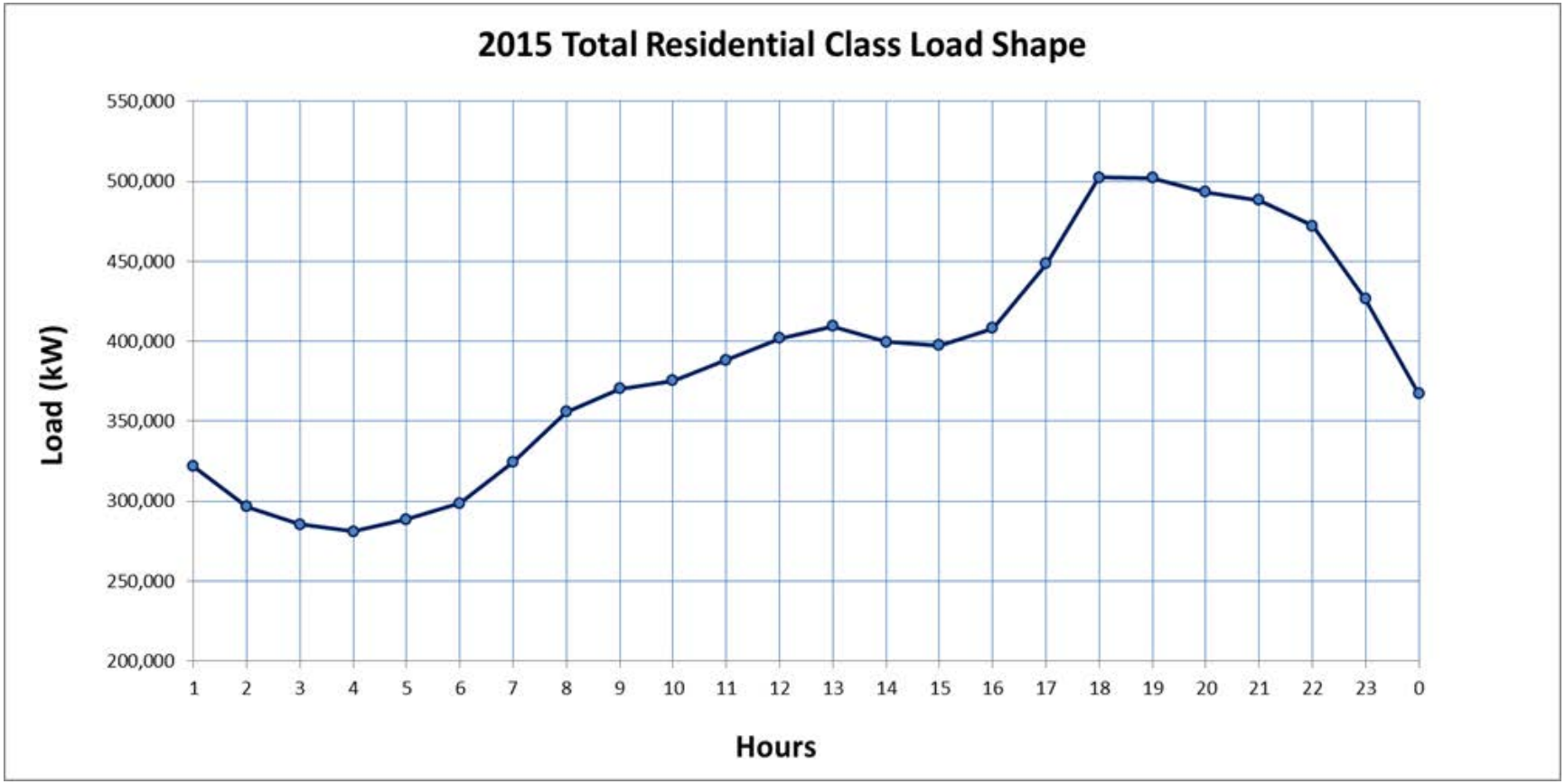
Example Functionalization

- 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

Demand, Energy & Peak Demand



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 cost 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 will document main methodologies used in North American jurisdictions
- Elenchus still reviewing 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)

Generation Classification Methodologies (2)

- Peak Demand Methods (five methods identified)
  - Single Coincident Peak (1-CP)
  - Summer and Winter Peak (Average of 3 CPs in each season)
  - Sum of 12 Monthly Coincident Peaks (12-CP)
  - Multiple Coincident Peak
  - All Peak Hours
- Reflects a view that generation is built to meet the capacity requirements (i.e., caused only by demand, not energy requirements)

Generation Classification Methodologies (3)

- Energy Weighting Methods
  - Average and Excess
  - Equivalent Peaker
  - Base and Peak
  - Judgmental Energy Weightings
- Reflects 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
  - Should demand/energy split reflect supply mix or customer load profile?

Generation Classification Methodologies (4)

- Time Differentiated Embedded Cost of Service Methods
  - Production Stacking
  - Base-Intermediate-Peak (BIP)
  - Loss of Load Probability (LOLP) Production Cost
  - Probability of Dispatch
- These methods are not commonly used
  - Can be complex
  - Can be unstable if supply mix is changing

Identify Main Classification and Allocation Methodologies (Transmission)

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

Identify Main Classification and Allocation Methodologies (Distribution)

- Report will document 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 (¢/kW.h) 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 (cont.)

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

- Elenchus supports approach

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

SRRP Identified Issues

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

- Exploring alternative classification methodologies
  - Alternatives are more stable
  - Average and excess
  - Load factor

SRRP Identified Issues (cont.)

- Minimum System Method
  - Reviewing results
  - Low density utilities have large customer component

SRRP Identified Issues (cont.)

- 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 (cont.)

- 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 (cont.)

- 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 supports

SRRP Identified Issues (cont.)

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

- Elenchus supports

SRRP Identified Issues (cont.)

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

- Elenchus supports

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?