Manitoba Hydro
2017/18 & 2018/19
Electric General Rate Application

December 19, 2017

Cost of Service, Rate Design and Bill Affordability Panel
Cost of Service, Rate Design and Bill Affordability Panel

- Greg Barnlund, Director, Rates & Regulatory Affairs
- Lois Morrison, Director Marketing and Sales
- Paul Chard, Director, Customer Care
- Colleen Galbraith, Manager, Bill Affordability
- Greg Mason, Consultant, Prairie Research Associates
Panel Presentation Agenda

I. Overview of the Rate Setting Process (G. Barnlund)
II. Rate Design Objectives and Regulatory Principles (G. Barnlund)
III. Cost of Service Study (G. Barnlund)
IV. Rates and Bill Impacts (G. Barnlund)
V. Bill Affordability Programs (C. Galbraith, P. Chard & L. Morrison)
VI. Bill Affordability Stakeholder Engagement & Working Group (P. Chard & C. Galbraith)
VII. Bill Affordability Research Findings (G. Mason)
VIII. Considerations for Bill Affordability (G. Barnlund)
I. Overview of the Rate Setting Process

Greg Barnlund
Three Steps to Developing Rates

**Revenue Requirement**
- Determination of overall cost of providing service:
  - Operating, maintenance and administrative
  - Finance expense
  - Depreciation and amortization
  - Capital and other taxes
  - Fuel and power purchases
  - Water rentals and assessments
  - Contribution to reserves (net income)

**Cost of Service**
- Determination of a fair allocation of the Corporation's overall revenue requirement to each customer class based on how customers cause costs to be incurred.
  - Prospective Cost of Service Study (PCOSS)

**Rate Design**
- Determination of how to recover each class' revenue requirement
II. Rate Design Objectives and Regulatory Principles

Greg Barnlund
Rate design goals and rate making objectives

- Finding just and reasonable rates
- Cost to serve is an important consideration but not the only consideration (“other compelling policy considerations”)
- Useful to examine the rate design goals and rate making objectives and the related regulatory principles
- Manitoba Hydro rate making objectives are found at page 2 of Tab 9
- Regulators also refer to the observations of James C. Bonbright for guidance
Rate design goals and rate making objectives

• Principles of Public Utility Rates* by James C. Bonbright finds these rate attributes:
  – Effectiveness of yielding total revenue requirements
  – Revenue (and cash flow) stability from year to year
  – Stability of rates themselves, minimal unexpected changes that are seriously adverse to existing customers
  – Fairness in apportioning cost of service among different consumers so as to avoid arbitrariness and capriciousness and to obtain equity in three dimensions:
    • Horizontal (equals treated equally)
    • Vertical (unequals treated unequally)
    • Anonymously (customers not diverted uneconomically from incumbent by entrant)

Rate design goals and rate making objectives

• Principles of Public Utility Rates by James C. Bonbright finds these rate attributes:
  – Static efficiency of rate classes and blocks to discourage wasteful use of service while promoting all justified types and amounts of use
  – Dynamic efficiency in promoting innovation and responding economically to change demand and supply patterns
  – Avoidance of undue discrimination in rate relationships (subsidy free with no inter-customer burdens)
  – Simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application
  – Freedom from controversies as to proper interpretation.
Manitoba Hydro’s General Rate Making Objectives

• **Recovery of revenue requirement** - Rates must provide the Corporation the opportunity to fully recover its allowed revenue requirement. This means that rates are set to recover as close to the prescribed level of revenue for each class, based upon forecast average weather conditions and forecast numbers of customers, demand and energy requirements.

• **Fairness and Equity** – Rate design should provide for equitable treatment of customers both within a customer class (whereby similar customers receive similar treatment) and between customer classes (whereby dissimilar customers may be treated differently).

• **Rate Stability and Gradualism** – In conformity with the principles of gradualism and sensitivity to customer impacts, annual adjustments to revenues by customer class should be less than two percentage points greater than the overall proposed increase.

• **Efficiency** – Manitoba Hydro views this goal in designing rates as the need to provide appropriate price signals regarding the value of energy and to promote the efficient and economic use of energy. The determination of an appropriate price signal may recognize the application of marginal cost considerations.

• **Competitiveness of Rates** - Maintain Manitoba Hydro’s competitive position with respect to rates charged by other Canadian utilities for all rate classes.

• **Simplicity and Understandability** – Rate design should be understandable to customers and should be easy to interpret and apply.
Manitoba Hydro General Rate Making Guidelines Rate Stability and Gradualism

Revenue Requirement
• Revenue requirement sets the average rate increase for the domestic customers (i.e. 7.9%)

PCOSS
• Adjustment of class revenues for Revenue Cost Coverage
• No more than 2.0% further impact from average rate increase for any class

Rate Design
• Impact of changes in rate design for the class, the greater of either;
  • No more than 3.0% or $3 per month further impact (residential)
  • No more than 5.0% or $5 per month further impact (commercial)
III. Cost of Service Study

Greg Barnlund
Revenue to Cost Coverage Ratios

• Comparison of class allocated costs against the revenues generated by rates gives the measure of cost coverage for each customer class.

• Cost of Service Studies provide a good approximation of cost responsibility but cannot be perfectly precise.

• Application of a Zone-of-Reasonableness in useful in assessing the adequacy of class revenues.
### Revenue to Cost Coverage Ratios

<table>
<thead>
<tr>
<th>Customer Class</th>
<th>PCOSS18: Net Export Revenue Added to Class Revenue (as filed)</th>
<th>PCOSS18: Net Export Revenue Deducted from Cost (GSS-GSM/MH I-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>94.8%</td>
<td>93.5%</td>
</tr>
<tr>
<td>GSS Non Demand</td>
<td>112.5%</td>
<td>115.7%</td>
</tr>
<tr>
<td>GSS Demand</td>
<td>101.0%</td>
<td>101.3%</td>
</tr>
<tr>
<td>GSM</td>
<td>98.3%</td>
<td>97.8%</td>
</tr>
<tr>
<td>GSL 0-30 kV</td>
<td>99.1%</td>
<td>98.7%</td>
</tr>
<tr>
<td>GSL 30-100 kV</td>
<td>109.3%</td>
<td>113.0%</td>
</tr>
<tr>
<td>GSL &gt;100 kV</td>
<td>108.6%</td>
<td>112.3%</td>
</tr>
<tr>
<td>A&amp;RL</td>
<td>100.3%</td>
<td>100.3%</td>
</tr>
</tbody>
</table>
Annual Differentiation Required to Bring All Classes into a Zone Of Reasonableness of 0.95 to 1.05 (without other cost or revenue changes)

<table>
<thead>
<tr>
<th>Customer Class</th>
<th>1 Year</th>
<th>5 Years</th>
<th>10 Years</th>
<th>Final RCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>3.6%</td>
<td>0.7%</td>
<td>0.4%</td>
<td>97.5%</td>
</tr>
<tr>
<td>GSS Non Demand</td>
<td>-8.2%</td>
<td>-1.7%</td>
<td>-0.8%</td>
<td>105.0%</td>
</tr>
<tr>
<td>GSS Demand</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>101.0%</td>
</tr>
<tr>
<td>GSM</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>98.3%</td>
</tr>
<tr>
<td>GSL 0-30 kV</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>99.1%</td>
</tr>
<tr>
<td>GSL 30-100 kV</td>
<td>-5.3%</td>
<td>-1.1%</td>
<td>-0.5%</td>
<td>105.0%</td>
</tr>
<tr>
<td>GSL &gt;100 kV</td>
<td>-4.6%</td>
<td>-0.9%</td>
<td>-0.5%</td>
<td>105.0%</td>
</tr>
<tr>
<td>A&amp;RL</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>100.3%</td>
</tr>
</tbody>
</table>
## Revenue to Cost Coverage Ratios

<table>
<thead>
<tr>
<th>Customer Class</th>
<th>PCOSS18 (as filed)</th>
<th>Estimated Revenue Cost Coverage in 2020 with BPIII In Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>94.8%</td>
<td>96.7%</td>
<td>Increase</td>
</tr>
<tr>
<td>GSS Non Demand</td>
<td>112.5%</td>
<td>115.3%</td>
<td>Increase</td>
</tr>
<tr>
<td>GSS Demand</td>
<td>101.0%</td>
<td>101.3%</td>
<td>Neutral</td>
</tr>
<tr>
<td>GSM</td>
<td>98.3%</td>
<td>97.4%</td>
<td>Decrease</td>
</tr>
<tr>
<td>GSL 0-30 kV</td>
<td>99.1%</td>
<td>96.5%</td>
<td>Decrease</td>
</tr>
<tr>
<td>GSL 30-100 kV</td>
<td>109.3%</td>
<td>103.5%</td>
<td>Decrease</td>
</tr>
<tr>
<td>GSL &gt;100 kV</td>
<td>108.6%</td>
<td>101.5%</td>
<td>Decrease</td>
</tr>
<tr>
<td>A&amp;RL</td>
<td>100.3%</td>
<td>118.2%</td>
<td>Increase</td>
</tr>
</tbody>
</table>
Flow of Revenue Requirement through Cost Of Service Process

Revenue Requirement $1.9B

Functionalize
- Generation ($1.17B)
  - Energy ($800M)
  - Demand ($367M)
- Trans ($219M)
  - Energy ($59M)
  - Demand ($210M)
- Subtrans ($72M)
  - Energy ($9M)
  - Demand ($72M)
- Dist Plant ($338M)
  - Energy ($310M)
  - Customer ($28M)
  - Weighted Customer ($114M)
- Cust Svc ($114M)
  - Customer ($114M)

Classify
- Winter CP Demand ($367M)
- Winter CP Demand ($210M)
- Winter CP Demand ($72M)
- NCP Demand ($310M)
- Weighted Customer Demand ($28M)
- Weighted Customer ($114M)

Allocate
- Energy ($800M)
- Demand ($367M)
- Energy ($59M)
- Winter CP Demand ($210M)
- Winter CP Demand ($72M)
- NCP Demand ($310M)
- Weighted Customer ($28M)
- Weighted Customer ($114M)
IV. Rates and Bill Impacts

Greg Barnlund
Bill Comparisons - Residential

Monthly Bill Comparison in 2017/18 at Current Rates Residential *

<table>
<thead>
<tr>
<th>City</th>
<th>Bill Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montreal</td>
<td>$71</td>
</tr>
<tr>
<td>Winnipeg</td>
<td>$90</td>
</tr>
<tr>
<td>Calgary</td>
<td>$104</td>
</tr>
<tr>
<td>Vancouver</td>
<td>$111</td>
</tr>
<tr>
<td>St. John's</td>
<td>$120</td>
</tr>
<tr>
<td>Moncton</td>
<td>$130</td>
</tr>
<tr>
<td>Ottawa</td>
<td>$132</td>
</tr>
<tr>
<td>Toronto</td>
<td>$144</td>
</tr>
<tr>
<td>Regina</td>
<td>$159</td>
</tr>
<tr>
<td>Halifax</td>
<td>$161</td>
</tr>
</tbody>
</table>

Monthly Bill Comparison in 2018/19 at Proposed 7.9% Rates Residential *

<table>
<thead>
<tr>
<th>City</th>
<th>Bill Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montreal</td>
<td>$72</td>
</tr>
<tr>
<td>Winnipeg</td>
<td>$97</td>
</tr>
<tr>
<td>Calgary</td>
<td>$106</td>
</tr>
<tr>
<td>Vancouver</td>
<td>$114</td>
</tr>
<tr>
<td>St. John's</td>
<td>$123</td>
</tr>
<tr>
<td>Moncton</td>
<td>$133</td>
</tr>
<tr>
<td>Ottawa</td>
<td>$135</td>
</tr>
<tr>
<td>Toronto</td>
<td>$147</td>
</tr>
<tr>
<td>Halifax</td>
<td>$164</td>
</tr>
<tr>
<td>Regina</td>
<td>$168</td>
</tr>
</tbody>
</table>

*Consumption: 1,000 kWh/Month
Bill Comparisons - Industrial

Monthly Bill Comparison in 2017/18 at Current Rates
General Service Large > 100 kV *

- Manitoba Hydro: $1,363
- Newfoundland & Labrador Hydro: $1,513
- Hydro Quebec: $1,514
- Hydro Ottawa: $1,691
- BC Hydro: $1,923
- SaskPower: $2,236
- NB Power: $2,316
- Nova Scotia Power: $2,810

Consumption: 31,000 MWh and 50 MW/Month; $ in 000’s

Monthly Bill Comparison in 2018/2019 at Proposed 7.9% Rates
General Service Large > 100 kV *

- Manitoba Hydro: $1,470
- Hydro Quebec: $1,527
- Hydro Ottawa: $1,724
- Newfoundland & Labrador Hydro: $1,746
- BC Hydro: $1,980
- SaskPower: $2,350
- NB Power: $2,362
- Nova Scotia Power: $2,849

December 19, 2017
V. Bill Affordability Programs

Colleen Galbraith, Paul Chard & Lois Morrison
Initiatives To Assist Customers Manage Energy Bills

• Bill Management
• First Nations Social Process
• Arrears Management
• Crisis intervention
• Affordable Energy Program
  & Indigenous Power Smart Program
• Power Smart Programs
Bill Management

• Equal Payment Plan
  – Valuable tool for customers to manage their bills through cold winters and hot summers
  – Divides customers’ forecast annual bills into equal monthly payments
  – Used by 25% of Manitoba Hydro’s electric customers

• Energy Affordability Installment Plan (new in 2018)
  – Designed to make arrears balances more affordable by spreading payments over a longer period of up to 3 years, interest free
  – Integrated into a single payment amount for the customer

• Customized Due Dates
First Nations Social Process

- Ongoing monthly process of information exchange between Manitoba Hydro and First Nation communities
- Ensures social assistance payments are applied to customer bills
- Until this process has run any unpaid balances sit on the customers’ accounts
Arrears Management

• Customized & Flexible Payment Arrangements
  – Work with the customer to develop a repayment plan that works for the customer
• Reverse and stop late payment charges
• Disconnection is a last resort that we work hard to avoid
• Customers with active payment arrangements are not disconnected
Crisis Intervention

• Neighbours Helping Neighbours
  – One time grant to customers facing a financial crisis
  – Partnership with Salvation Army since 2004
  – Manitoba Hydro covers Salvation Army administrative charges
  – Manitoba Hydro matches customer donations dollar for dollar
  – Maximum Grant $400 changed from $300 in April 2016
  – Salvation Army also provides referrals to community programs
    which provide support services, counseling, budgeting skills, job
    training, food assistance
    • Referrals offer longer term impact on assisting customers manage arrears

• Vulnerable Persons Intervention
### Neighbours Helping Neighbours

<table>
<thead>
<tr>
<th>Funding &amp; Donations to Sep 30, 2017</th>
<th>Customer Donations</th>
<th>Manitoba Hydro Funding of Donations</th>
<th>Grant ($) Awarded</th>
<th>Manitoba Hydro Funding of Salvation Army Administrative Expenses</th>
<th>Total Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Totals</td>
<td>$465,360</td>
<td>$2,200,017</td>
<td>$2,665,377</td>
<td>$1,064,692</td>
<td>$3,730,070</td>
</tr>
</tbody>
</table>

- 88% of total expenses funded by Manitoba Hydro
- Manitoba Hydro administrative costs are not tracked
Integrated Efforts

• Majority of Referrals to Neighbours Helping Neighbours come from Credit & Recovery Services
  – 701 referrals to Neighbours Helping Neighbours since March 2016

• Internal Referral to Affordable Energy Program
  – Credit & Recovery Services - 715 applications mailed
  – Customer Contact Centre – 10,121 applications mailed

• Mandatory joint application for Neighbours Helping Neighbours with Affordable Energy Program in March 2017
Neighbours Helping Neighbours

- Application to AEP became mandatory as of May 2014
- Follow ups with landlords to apply to AEP
- Joint application created March 2017, landlord follow ups continued
Affordable Energy Program

Multi-Pronged Approach

- Direct
- Multi Unit Residential Buildings (apartment suites)
- Neighbourhood
- Community
- Social Housing
- Social Enterprises
- Indigenous
Affordable Energy Program

Qualifying lower income customers may receive:

• Free in-home energy efficiency review and energy savings items (LEDs, Showerheads, Faucet Aerators, Pipe Wrap, Window Kits & Draft Stoppers)
• Free insulation including installation (attic, walls, basement, crawlspace)
• Conversions for propane, oil and coal customers to natural gas furnace if in a gas area, or electric furnace if natural gas is not available
• Furnace Replacement Program for Centra Gas Manitoba
  – New high-efficiency natural gas furnace for only $9.50/month for 5 years OR $3,000 rebate for a high-efficiency natural gas boiler
Affordable Energy Program

Affordable Energy Program Participation
October 31, 2017

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Homes</td>
<td>21,084</td>
</tr>
<tr>
<td>Insulation Installs</td>
<td>10,852</td>
</tr>
<tr>
<td>Furnace Installs</td>
<td>5,420</td>
</tr>
<tr>
<td>Boiler Installs</td>
<td>127</td>
</tr>
</tbody>
</table>

• “Results in terms of participation rates, install rates, and savings are strong.” – Dunsky Energy Consulting External Review of the Affordable Energy Program (2015)
Affordable Energy Program—Further Efforts

- Partnerships with Selkirk Community Renewal Corporation, Portage la Prairie (Dakota Ojibway Tribal Council), and Dauphin (Manitoba Metis Federation)
- Targeted direct mailer to electric customers with high consumption
- Indigenous Heat Recovery Ventilation Video translated to Ojibway, Cree & Dene
- Energy Savings Tips Booklet
  - Customized version for Indigenous communities
- Affordable Energy Program Video – overview of process
- Continued autodialer campaigns to customers in arrears
Indigenous Power Smart Program

• Launched in the summer of 2008
• Customized program to meet unique needs in Indigenous communities
• Through direct engagement the Indigenous Energy Advisor works with the Band Housing Manager
• No Cost To Indigenous Community
• Local residents install materials, training and funding provided for labour
• Pace is determined by each community
Indigenous Power Smart Program - Insulation

- All Communities contacted
- 40 Communities completed
- Estimated market based on Residential Energy Use Survey and discussions with Band Housing Managers
  - If there are more homes found which qualify they are upgraded
- Up to December 2014, 1,457 homes also received basic energy efficiency measures

Indigenous Insulation Market

- Insulation Completed: 3,254
- Insulation Remaining: 3,254

Total Estimated Market: 3,778

December 19, 2017
Manitoba Hydro
Indigenous Power Smart Program

• **Indigenous Direct Install Initiative**
  – Proactively launched December 2014
  – LEDs, Showerheads, Faucet Aerators, Pipe Wrap, Window Kits & Draft Stoppers
  – Pay local labour to directly install measures
  – 3,574 Homes Retrofitted

• All Communities contacted

• 12 Communities completed

---

**Basic Measures Market**

- **Total Estimated Market**: 16,344
- **Completed**: 5,031
- **Remaining**: 11,313

- **31% Total Receiving Basic Measures**
- **69% Basic Measures Remaining**
MKO Communities

• **Insulation Efforts**
  – 1,320 Completed Homes of Estimated 1,468 (90%)
  – 20 Communities Insulation Complete
  – 6 Communities Insulation Underway, 148 Homes
  – 1 Community No Insulation Needed

• **Direct Install Efforts**
  – 1,790 Completed Homes* of Estimated 7,375 (24%)
  – 3 Communities Direct Install Complete (LEDs, Showerheads, Faucet Aerators, Pipe Wrap, Window Kits & Draft Stoppers)
  – 24 Communities With Measures Underway
  – Pace determined by each community

*Some homes received basic measures with their insulation prior to December 2014
Power Smart

• Variety of Programs continuing to support all sectors (residential, commercial, industrial)

Residential
- Affordable Energy
- Home Insulation
- Residential LED Lighting
- Appliances & Electronics

Financing
- PAYS Financing
- Power Smart Residential Loan
- Residential Earth Power Loan

Commercial / Industrial
- Commercial Lighting
- Building Envelope
- Enhanced Building Operations
- Power Smart Shops
- Refrigeration
- HVAC
- Kitchen Appliance

- Power Smart for New Homes
- Refrigerator Retirement
- Smart Thermostats
- Solar Energy (PV) Pilot

- Network Energy Management
- Water & Energy Saver
- New Buildings
- Parking Lot Controllers
- Custom Measures
- Geothermal
- LED Roadway Lighting

- Performance Optimization
- Natural Gas Optimization
- Bioenergy Optimization
- Load Displacement
- Solar Energy (PV)
Beyond the Indigenous Power Smart Program...

Additional Initiatives Supporting DSM in First Nation Communities...

– Community Geothermal Program
  • 340 installations completed as of July 2017

– Community Energy Profiles & Expanded Power Smart Shops Pilot
  • Completed for 2 communities
  • Band-owned buildings audited; direct install and deeper lighting retrofits

– Custom coordinated community partnership opportunities
  • O-Pipon-Na-Piwin/MKO – comprehensive insulation upgrades proposal to INAC
VI. Bill Affordability Stakeholder Engagement & Working Group

Colleen Galbraith
Collaborative Process

• July 2015 when the PUB’s Order was issued to January 2017 when Manitoba Hydro filed the report on behalf of the Working Group

• Participation of Working Group Members

• Would have been enhanced through participation or presentation by:
  – Assembly of Manitoba Chiefs
  – Indigenous and Norther Affairs Canada
  – Public Law Interest Centre
The Bill Affordability Collaborative Process was a significant effort on the part of Manitoba Hydro and its stakeholders

- There were 14 Working Group meetings and 20 Sub Committee meetings in a 16 month period from September 2015 to December 2016
- Cost of this process approximately $457k.
- Creation of significant value in informing the discussion of energy poverty and sharing of information in a constructive “without prejudice” environment
Summary of PRA research supporting the Manitoba Hydro Bill Affordability Collaborative Process

Greg Mason, PhD, CE
Senior Consultant – PRA
and
Associate Professor of Economics
University of Manitoba
How PRA supported the collaborative process

- Review concepts of energy poverty and affordability
- Assess affordability approaches in other jurisdictions
- Review Manitoba Hydro’s 2014 Residential Energy Use Survey
- Design, conduct a survey of Manitoba Hydro residential customers
- Linked survey data to Manitoba Hydro bills (for those survey respondent who consented)
- Designed a quantitative modelling exercise to simulate the impact of rate increases and affordability programming on Manitoba Hydro’s customer base.
Definition of energy poverty

Energy poverty refers to circumstances in which a household is, or would be, required to make sacrifices or trade-offs that would be considered unacceptable by most Manitobans in order to procure sufficient energy from Manitoba Hydro.

Measurement of energy poverty – many options exist

Simple ratio of income approach (SRIA). A Manitoba household energy poor if annual energy exceed 6% or 10% household’s pre-tax income. The use of 6% and 10% reflects convention and have no basis in any objective measure of economic hardship.

Low income cut-off (LICO) approach. A household is deemed to be energy poor if it has annual energy costs of 6% or 10% of income and an income less than 25% higher than the current LICO (termed “LICO125”). PRA used this measure, however it will overstate the extent of energy poverty. It also likely underestimates the impact of energy poverty outside Winnipeg since LICOs are much lower in rural Canada.
Energy poverty among Manitoba Hydro users (REUS)

- Manitoba Hydro’s *Residential Energy Use Survey (REUS)* found that 14.3% allocate more than 6% of their income to energy costs and 4.2% have energy burdens more than 10%.

- According to Manitoba Hydro, 12% of accounts were in arrears during 2015 – 5.7% > 60 days and 2.6% > 90 days.

- Residents in First Nations communities faced significant payment issues:
  - Customers in First Nations communities account for about half of all arrears.
  - They also accounted for 22% of all disconnects (78% were residents elsewhere in Manitoba).
PRA Customer Survey

- PRA mailed 7991 invitation letters to randomly selected Manitoba Hydro.
- Customers in arrears were over-sampled relative to the general population of Manitoba Hydro customers with the intent of increasing the numbers experiencing energy poverty.
- Surveys conducted by telephone.
- PRA interviewed 1,101 customers, including 786 customers in the general sample and 315 customers in the arrears sample.
- Almost all respondents (98% overall) agreed to have their survey responses linked to Manitoba Hydro Admin data.

Limitations:
- After the fact, it appears that arrears are not correlated with energy poverty, meaning that energy poor subgroups tend to be small in this sample. (The oversampling did not work as expected.)
- The survey represents Manitoba, meaning that northern residents tend to be clustered in urban centres... Few respondents reside in FN communities.
Energy poverty among Manitoba Hydro users (PRA sample)

- The PRA survey builds on the REUS.
- Focusses on the relationship between low income, arrears and energy poverty.
- Within the general customer survey sample, 10% of respondents were energy poor at the 6% level or more (compared with 14.3% in the REUS), while 3% were energy poor at the 10% level or more (compared with 4.2% in the REUS).
- Within the arrears subsample, the proportion of customers who were energy poor was only slightly higher: 14% were energy poor at the 6% level or more, while 5% were energy poor at the 10% level or more.
Key attributes of the PRA sample

- General sample: n=786 (100%)
- Provided income/Allowed linking: n=605 (77%)
- The numbers of customers that pay more than energy 10% of income toward is low.

- Poor payer: n=85 (11%)
- Energy poor: n=58 (10%)
- Poor payer and not energy poor: n=72 (12%)
- Energy poor and not poor payer: n=64 (11%)
- Energy poor and poor payer: n=46 (8%)
- Energy poor >= 10%: n=15 (2%)
- Energy poor >= 6%: n=12 (2%)

The numbers of customers that pay more than energy 10% of income toward is low.
Few customers are poor payers \textit{and} energy poor

Numbers energy poor and poor payers for those paying 6\% or more of incomes
Attributes of the arrears subsample

Subgroups within the arrears sample

- Arrears subsample: n=315 (100%)
- Provided income/Allowed linking: n=260 (83%)
- Experiences arrears but not energy poor: n=246 (95%), n=223 (86%)
- Experiences arrears and energy poor: n=14 (5%), n=37 (14%)
Energy poverty is not a prime cause of arrears

- A very small number of respondents who are energy poor at the 10% level fall into the subgroups of interest.
- Only households that are energy poor at the 6% level are included in the analyses of the linked administrative and survey data in subsequent analyses.
Responses to energy costs

- 53% of the arrears sample, compared to 10% of the general sample, had missed bill payments because they could not afford to pay their hydro bill over the past two years.

- 51% of the arrears sample, compared to 17% of the general sample, had to reduce spending on necessities to pay their hydro bill over the past two years.

- 23% of the arrears sample, compared to 9% of the general sample, had to reduce the temperature in their home to an uncomfortable level to lower their hydro bill over the past two years.
Little correlation exists between electricity consumption and income.
Modelling the impact of proposed rate increases on energy poverty

• Excel used to model the impact of varying rate increases on the survey sample, subject to assumptions about:
  – The imposition of a carbon tax
  – Inflation rates assumed to continue as recorded between 2009 and 2016
  – Incomes assumed to grow as between 2009 and 2016.

• The model included a wide range of parameters.

• The modelling reveals that under plausible assumptions about inflation and income growth, increased energy rates will adversely affect the energy poverty experienced by some Manitobans.
Impact of rate increases on LICO125 customers paying 6% of their income toward energy
Impact of rate increases on LICO125 customers paying 10% of their income toward energy
The effect of bill affordability options on the numbers of survey respondents that would experience energy poverty

Table 23: Impact of affordable rate design options upon the proportion of Manitoba Hydro customers experiencing energy poverty

<table>
<thead>
<tr>
<th>Rate design option</th>
<th>6% threshold</th>
<th>10% threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Households experiencing energy poverty</td>
<td>% decline relative to no intervention</td>
</tr>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>No intervention</td>
<td>59</td>
<td>9.7%</td>
</tr>
<tr>
<td>Straight rate discount</td>
<td>25%</td>
<td>4.5%</td>
</tr>
<tr>
<td></td>
<td>35%</td>
<td>3.6%</td>
</tr>
<tr>
<td></td>
<td>45%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Fixed charge waiver (18.6%)</td>
<td>48</td>
<td>7.9%</td>
</tr>
<tr>
<td>Percentage of income payment plan (PIPP)</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Source: PRA calculations based on survey of Manitoba Hydro customers
Cautions on bill affordability options

- Many bill affordability options assume a means (income) tested approach to supporting those experiencing energy poverty.

- Three options exist:
  1. Invite customers to apply for rate assistance, submitting income tax returns for the household and then award rate relief. **But...**Experience shows that this approach results in very low uptake **and...** recipients need to reapply every year.
  2. Use social assistance receipt as eligibility test. **But...**This misses the working poor which is about 60% of the target group.
  3. Use income tax rolls directly to qualify eligible participants. **But...**Canada Revenue Agency will never allow its records to determine eligibility directly, unless the program is embedded within the tax form **and...** tax rolls do not record the economic family, which is the logical unit for this policy **and...** many low-income persons do not file income tax returns (income assistance recipients and those where the total earnings are less than the basic exemptions for that family).
Cautions on bill affordability options for First Nations communities

- To mitigate affordability issues Manitoba Hydro can work with communities to improve the social process to manage disconnects and to retrofit housing.

- This requires close cooperation with band councils and Indigenous Services Canada.

- Retrofitting homes is a good option that Manitoba Hydro actively offers. *But...* this requires that houses have sufficient structural integrity and housing in First Nations communities is the responsibility of the federal government and band councils.

- An application process might be grafted on the to existing social process. *But...* but this requires that bands offer Manitoba Hydro eligible household lists that are externally audited, *and...* would include households that have members who are employed.

- Using a status card could be used to indicate eligibility for special rate consideration. *But...* this excludes other Aboriginal persons *and...* includes status card holders who live off reserve *and* who may have relatively high income.
Final caution

• The PUB needs to be careful in directing Manitoba Hydro to create an income assistance program as this duplicates existing activities by the provincial government.

• Manitoba Hydro does not have, nor is it likely to obtain critical income information that will allow it to target rate support program accurately. Manitoba Hydro is not currently equipped and is unlikely be able to run an income tested support program effectively.

• The eligible population fluctuates (20% turnover annually), due to earnings fluctuations as well as changes in “marriage”. Tracking eligibility requires trained personnel and the development of procedures to manage the diverse circumstances presented by a constantly changing target group.

• The proper unit of policy (target group) comprises the economic family. Manitoba Hydro only has access to the customer, who is a member of the economic family. It cannot target income support policies properly.

• Care would be needed not to duplicate existing programs (e.g. rent assist) or to stack rate reduction on other affordability programs.
VIII. Considerations for Bill Affordability
Important conclusions

“The Working Group’s findings and recommendations reflect the understanding, made clear by the research, that identifying appropriate policy measures to address energy poverty is challenging and complex. The Working Group’s recommendations affirm that no single policy mechanism can address energy poverty in Manitoba, and that a suite of tools is required to effectively respond to the diverse circumstances of households who face difficulty in paying their Manitoba Hydro bills.”

(“Manitoba Hydro Bill Affordability Collaborative Process, Summary Report and Recommendations” page 7 of 242, Appendix 10.5)
Challenges of Low Income and Affordability

• Manitoba Hydro’s commitment is to work with stakeholders to develop appropriate and cost effective solutions.
• There is a need to understand Manitoba Hydro’s mandate.
• There is a need to distinguish Manitoba Hydro’s mandate from that of the government, whereby the government is to provide housing and income assistance to citizens in need.
• Income sufficiency and poverty are complex issues, involving complexities such as the stability of employment and household relationships.
• Poverty may be either temporary or chronic in nature.
Limitations to rate making solutions

• Quotation from Bonbright (1988) pg. 72

“It concerns the question whether or not public utility rates, like income taxation, should be based on the relative abilities of rich and poor consumers to pay for the service, thereby serving partly to offset inequities in personal cash incomes...

...a significant answer to the question just raised – admittedly not conclusive in all situations, yet persuasive for general ratemaking policy – is the public utility rates are ineffective instruments by which to minimize inequities in income distribution; and that alternative instruments (including public education, social security laws, progressive taxation, and possibly even some forms of subsidized public services) are better designed to accomplish this objective, on the assumption that the objective itself is desirable.”
Policy decisions to be resolved

- Who should pay for Low Income Assistance?
- Which recipients should be targeted?
- How can programming be designed that compliments and does not conflict with government assistance programs?
- How much consultation needs to be undertaken with customers?
- First Nation consultation needs to be deepened and issues need to be better understood by all stakeholders
Who Should Pay for Low Income Assistance Subsidies and Programs?

• All residential customers?
• All electric ratepayers?
• Government – Taxpayers?
Thank you