Why Power Smart Rates Make Sense in Manitoba

Peter Miller
University of Winnipeg

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TREE/RCM Interventions

- Time to Respect Earth’s Ecosystems (TREE) and Resource Conservation Manitoba (RCM) advocate Power Smart rates and programming based on principles of Sustainability and Justice.

Interventions --


- 2003-2004 – Need For and Alternatives To Wuskwatim (NFAAT) before Manitoba’s Clean Environment Commission (CEC)

- 2005 – PUB – Centra Gas PUB hearing

- 2005, 2006 – Manitoba Public Insurance PUB hearing
Elements of Justice

- Intergenerational equity – stewardship that looks forward 7 generations (and more).
- Provision for basic human needs, particularly of the least well off.
- Revenues proportional to cost-responsibility [most prominent element in rate hearings].
- Compliance with the just laws of the land. [e.g. Manitoba’s Sustainable Development Act]
Sustainability Principles
(from Manitoba’s Sustainable Development Act)

- Integration of Environmental and Economic Decisions
- Stewardship (intergenerational equity)
- Conservation and Enhancement includes: “wise and efficient use of renewable and non-renewable resources”
- Global Responsibility
  - think globally when acting locally;
  - recognize economic, ecological & social interdependence; and
  - work cooperatively within Canada and internationally
Climate Change Policy

- Provincial: “Kyoto and Beyond”
  Exceed Kyoto requirements and aim for much steeper cuts beyond.

- Federal: “Beyond”
  No short term targets, but aim for deeper cuts through technological innovation in the longer term.
National Round Table (NRTEE) 
Advice on a Long-term Strategy

- 60% reductions in GHGs by 2050.
- Requires both energy efficiency in *use* and lower carbon in *production*. Create at least 40% of the 60% reduction through efficiency. [See largest wedge in following NRTEE diagram.]
- **Urgent need for a long-term signal to guide investment decisions.**
- Provide energy for a growing economy and produce economic & environmental co-benefits.
Green Economics:
The Road Not Taken

- The federal government has made sustainable development an overarching policy objective, but has only employed to a very limited degree its single most powerful policy instrument - fiscal policy. (NRTEE 2005)

- Ditto for Manitoba

- Ecological Fiscal Reform (EFR): Creating an integrated set of incentives to support the shift to sustainable development.
Green Economics in Manitoba’s Sustainable Development Act

- SDA Guideline 1: Efficient Use of Resources
  - encouraging and facilitating development and application of systems for proper resource pricing, demand management and resource allocation together with incentives to encourage efficient use of resources; and
  - employing full-cost accounting to provide better information for decision makers

- This guideline is directly violated by historic and current pricing of electricity and gas in Manitoba
COMPARSED TO OTHER PLACES IT’S LIKE GETTING HALF A BILL.

MANITOBANS PAY THE LOWEST HYDRO RATES IN THE COUNTRY. IT’S A FACT.
Consider that 1000 kilowatt hours of usage in Manitoba costs $63.02 per month. In parts of Ontario, for example, costs for the same usage can more than double to $134.45. So next time you open your hydro bill, don’t think about how much you’re paying; think about how much you’re saving.

WHEN MANITOBANS NEED AFFORDABLE ENERGY. WE’RE THERE.

knowyourhydro.com
Notes on “Affordable Energy”

- My energy bill depends not only on rates but also efficiency of use. If rates and my efficiency both double, I pay the same for the same benefits and release the unconsumed surplus for export sale to increase Manitoba’s benefits.

- Affordability depends on both cost and income. Programs that target cost reduction to low-income consumers make power more affordable than across-the-board rate subsidies.
Why Are Rates Low?

- Crown corporation subsidies -- no federal or provincial income taxes or federal Large Corporations Tax.

- No dividends to owner.

- Low embedded costs from historic dams.

- **Export earnings subsidize domestic rates**
  (Hydro exports are Manitoba’s Golden Goose.)
Feeding the Golden Goose

- Problem – Domestic consumption keeps increasing, reducing exportable power that pays the other part of your Hydro bill. MH’s Power Smart is undercut by low pricing.

- MH and Government’s solution – keep building more dams to maintain or increase export earnings in order to maintain the subsidy.

- That solution ends when the Nelson River’s capacity is used up. Hydro power is renewable but not endlessly expandable.
What’s Wrong with Electricity, Gas, & Insurance Subsidies? - 1

1. Undermines conservation
   - Conservation investments less cost-effective → wasted energy
     [Only 1 to 2% of new houses are built to R-2000 standard.]

2. Costs money
   - Wasted energy → wasted energy dollars
   - For gas, wasted dollars go to Alberta. Who needs them more?
   - For electricity, higher than needed domestic consumption by largest users limits power available for export at higher rates
   - Manitoba could be debt free like Alberta if MH had sold power at Saskatchewan prices (Benarroch)
   - Subsidized car insurance → more driving → more infrastructure, accident & health costs and more money sent to Alberta for gas.
What’s Wrong with Electricity, Gas, & Insurance Subsidies? - 2

3. **Harms the economy**
   - Lost opportunities for economic development and job creation in building and energy efficiency industries
   - Less efficient homes & businesses → vulnerability to rate shocks
   - Growth of energy-intensive industry harms other users by (a) using up supply otherwise available for export earnings and (b) capturing more of the (now reduced) subsidy from exports, leaving less for other purposes (or users).
   - If the crowns paid their share of taxes, other taxes that put a drag on job creation could be reduced (e.g. the payroll tax).

4. **Is inequitable**
   - Larger users of common assets capture more of the subsidies (the biggest piggy gets the most slop).
What’s Wrong with Electricity, Gas, & Insurance Subsidies? - 3

5. Harms the environment

- Upstream and downstream GHG emissions from natural gas and gasoline supply and combustion
- Upstream land and water impacts from exploration, extraction, refining, and supply of gas & gasoline to Manitoba
- Depletion of finite accessible oil and gas deposits, which
- Accelerates greater land, water and GHG impacts from tar sands development, sensitive arctic & offshore sources, and longer supply lines (including LNG)

- Wasted electrical power removes option of displacing fossil fuel generated electricity in ON and the US and accelerates impacts of new generation and transmission.
How Are GHG Externalities Priced?

- Incremental damage estimates from GHG emissions are distributed over all emitters.
  - European ExternE damage estimate = CAN$22/tonne CO$_2$e (2001 dollars)
- Estimates of costs that would be imposed by mitigation technologies.
- Estimates of expected carbon market prices if cap and trade regimes are imposed.
How Price Affects Consumption

- Long-run elasticities range from $\sim - 0.3$ to $-2.9$
  (Source: Manitoba Hydro’s summary of lit)

- I.e. a 10% increase in the cost of electricity can be expected to reduce consumption in the range of 3% to 29% over a number of years.

- Jim Lazar used a conservative - 0.25 arc elasticity in his calculations that follow.
## Impact of Full Costing

### Elasticity Impact of Applying Full Costing

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Embedded Costs (Less Export Subsidy)</td>
<td>Embedded Costs + CO2 at $20/tonne</td>
<td>Marginal (i.e. Market) Cost</td>
<td>CO2 at $20/tonne and Marginal Cost</td>
</tr>
<tr>
<td>1</td>
<td>Current MH Domestic Retail Revenues (excluding SEP)</td>
<td>$1,015,677,100</td>
<td>$1,015,677,100</td>
<td>$1,015,677,100</td>
</tr>
<tr>
<td>2</td>
<td>Full Costs of Domestic Consumption</td>
<td>$1,299,996,400</td>
<td>$1,622,555,477</td>
<td>$1,984,126,009</td>
</tr>
<tr>
<td>3</td>
<td>Difference Between Full Costs (2) and Current Revenue (1)</td>
<td>$284,319,300</td>
<td>$606,878,377</td>
<td>$968,448,909</td>
</tr>
<tr>
<td>4</td>
<td>% Increase in Price to Recover Full Costs</td>
<td>28%</td>
<td>60%</td>
<td>95%</td>
</tr>
<tr>
<td>5</td>
<td>% Decline in Consumption (Assumed Arc Elasticity of -0.25)</td>
<td>-7%</td>
<td>-15%</td>
<td>-24%</td>
</tr>
<tr>
<td>6</td>
<td>Current Retail Sales (kW.h)</td>
<td>22,850,478,680</td>
<td>22,850,478,680</td>
<td>22,850,478,680</td>
</tr>
<tr>
<td>7</td>
<td>Decline in Domestic Consumption = Increase in Power Available for Export (kW.h)</td>
<td>1,599,138,177</td>
<td>3,413,353,865</td>
<td>5,446,987,324</td>
</tr>
<tr>
<td>8</td>
<td>Assumed Marginal Export Price</td>
<td>$0.0535</td>
<td>$0.0535</td>
<td>$0.0535</td>
</tr>
<tr>
<td>9</td>
<td>Additional Revenue to Manitoba from Exports</td>
<td>$85,553,892</td>
<td>$182,614,432</td>
<td>$291,413,822</td>
</tr>
<tr>
<td>10</td>
<td>Additional Revenue from Domestic Customers</td>
<td>$264,421,868</td>
<td>$516,224,230</td>
<td>$737,594,711</td>
</tr>
<tr>
<td>11</td>
<td>Total Additional Revenue</td>
<td>$349,975,760</td>
<td>$698,838,662</td>
<td>$1,029,008,533</td>
</tr>
</tbody>
</table>

**Comparisons for line 7 above:**
- **Wuskvatim:** Capacity = 200 MW, Energy (80% load) = 1,401,600,000 kW.h, Less 10% line loss = 1,261,440,000 kW.h
- **Conawapa:** Capacity = 1,250 MW, Energy (80% load) = 8,760,000,000 kW.h, Less 10% line loss = 7,884,000,000 kW.h
What If We Paid Full Value? - 1

Column A (full embedded costs, no export subsidy)

- Rates increase 28%
- Consumption declines 7% (-0.25 elasticity)
- Additional domestic revenue = $264,422,000
- Additional export revenue = $85,554,000\(^a\)
- Total additional revenue = $349,976,000
- Carbon reduced 1,128,678 tonnes worth $22.6 million\(^b\)
- Additional societal value created \((a+b)\) = $108.1 million\(^\text{\textcopyright} 2019\)

So-called “Power at Cost” still fails to capture market and environmental opportunity costs.
What If We Paid Full Value? - 2

- Column C (Market value replaces embedded costs)
  - Rates increase by 95%
  - Consumption declines 24%
  - Additional domestic revenue $737,595,000
  - Additional export revenue $291,414,000\(^a\)
  - Total additional revenue $1,029,009,000
  - Carbon reduced 3,844,504 tonnes worth $76.9 million\(^b\)
  - Additional societal value created \((a+b) = $368.3\text{ million}\)

- Additional $737 million from Manitobans can be returned as efficiency and social investments and tax reduction. New export revenue is created $$.
What If We Paid Full Value? - 3

- Column D (market value + $20/T CO2 reduction)
  - Rates increase by 127%
  - Consumption declines 32%
  - Additional domestic revenue $880,764,000
  - Additional export revenue $388,474,000\(^a\)
  - Total additional revenue $1,269,238,000
  - Carbon reduced 5,124,964 tonnes worth $102.5 million\(^b\)
  - Additional societal value created \((a+b) = $491\text{ million}\)

- As a future pricing target, this option provides NRTEE’s “long-term signal to guide investment decisions.”
# Impact of a Smelter

**Illustrative Estimate of Impact on the Manitoba Economy of A New Aluminum Smelter**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Demand, kilowatts</td>
<td>500,000</td>
</tr>
<tr>
<td>Load Factor</td>
<td>95%</td>
</tr>
<tr>
<td>Annual kWh Consumption</td>
<td>4,161,000,000</td>
</tr>
<tr>
<td>Current Rate for General Service Large 100 kv+</td>
<td>$ 0.02806</td>
</tr>
<tr>
<td>Annual Revenue</td>
<td>$ 116,757,660</td>
</tr>
<tr>
<td>Marginal Generation Cost (excluding CO2 costs)</td>
<td>$ 0.0535</td>
</tr>
<tr>
<td>Lost Wholesale Revenue / Opportunity Cost</td>
<td>$ 222,613,500</td>
</tr>
<tr>
<td>Net Rate Increase to MH Customers Under Current System</td>
<td>$ 105,855,840</td>
</tr>
<tr>
<td>Estimated Payroll</td>
<td></td>
</tr>
<tr>
<td>Employees</td>
<td>500</td>
</tr>
<tr>
<td>Average annual compensation</td>
<td>$ 80,000</td>
</tr>
<tr>
<td>Annual Payroll</td>
<td>$ 40,000,000</td>
</tr>
<tr>
<td>Net Loss to Manitoba Economy</td>
<td>$ 65,855,840</td>
</tr>
</tbody>
</table>
Special Cases

- Affordable energy to meet basic needs of all.
  - Inverted rates
  - Aggressive DSM programs
  - Targeted programs for the poor – more intensive DSM, bill assistance, possibly reduced rates.

- Existing energy-intensive industries
  - TOOLS - Inverted rates, vintage rates, long-term energy supply contracts, return of revenue to industrial customers for approved efficiency investments, and rates responsive to commodity cycles.
  - Social criteria for getting a special deal

- Distinguish targeted measures from guaranteed unlimited supply of cheap energy.
  - Why should Manitoba’s export earnings subsidize the excess consumption of the pot lights in this room or the choice of fancy cabinets instead of R-2000 construction in a new home?
# Power Smart Rates - Seattle

Seattle City Light residential rates

http://www.ci.seattle.wa.us/light/accounts/rates/ac5_erp12.htm#rsc

<table>
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<tr>
<th>Summer Billing Cycles (April - September)</th>
<th>Winter Billing Cycles (October - March)</th>
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<tr>
<td><strong>ENERGY CHARGES:</strong></td>
<td></td>
</tr>
<tr>
<td>First 10 kWh per day at 4.06¢ per kWh</td>
<td>First 16 kWh per day at 4.06¢ per kWh</td>
</tr>
<tr>
<td>All kWh over 10 kWh per day but less than or equal to 100 kWh per day at 8.39¢ per kWh</td>
<td>All kWh over 16 kWh per day but less than or equal to 167 kWh per day at 8.39¢ per kWh</td>
</tr>
<tr>
<td>All additional kWh per day at 9.81¢ per kWh</td>
<td></td>
</tr>
<tr>
<td><strong>Base Service Charge:</strong> 9.73¢ per meter per day</td>
<td></td>
</tr>
</tbody>
</table>
# Power Smart Rates – Low-income

**Seattle City Light  Residential Rate Assistance**

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<tr>
<td><strong>ENERGY CHARGES:</strong></td>
<td></td>
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<tr>
<td>First 10 kWh per day at 1.70¢ per kWh</td>
<td>First 16 kWh per day at 1.70¢ per kWh</td>
</tr>
<tr>
<td>All kWh over 10 kWh per day but less than or equal to 100 kWh per day at 3.10¢ per kWh</td>
<td>All kWh over 16 kWh per day but less than or equal to 167 kWh per day at 3.10¢ per kWh</td>
</tr>
<tr>
<td>All additional kWh per day at 3.91¢ per kWh</td>
<td></td>
</tr>
<tr>
<td><strong>Base Service Charge:</strong> 4.87¢ per meter per day</td>
<td></td>
</tr>
</tbody>
</table>
PUB Responses to Our Interventions

- Equalizing northern rates and more aggressive DSM programs are to be funded from export revenue. (The rest continues to subsidize domestic rates).

- Recommend MH increase rates more rapidly to reduce debt.

- MH to provide full-cost accounting information with filings, to be taken into account for rates.

- MH to report on: eliminating declining rates, implementing inverted rates, creating a new industrial rate class that will cover marginal costs, incentives to encourage industry to become more efficient, rationale for Brandon coal generation, and relevance of Kyoto.
Legal & Political Hurdles

- The MH Act authorizes producing power for export and setting rates to recover costs, but it gives no direction for disposition of export profits other than safekeeping by government.

- Consumer groups argue the MH Act leaves ratepayer subsidization as the default disposition of “profits.” The Act needs review re export profits & dividends.

- “Lowest rates” mantra, reinforced by MH, makes it politically difficult to do what is sustainable, just and economically best.

- Need for public education and political leadership to optimize Hydro’s social and environmental benefits as a Crown Corporation.
Conclusions

- Climate change creates real global damages and costs.

- Manitobans’ inefficient electricity consumption costs opportunities to mitigate CC damages and to increase our export earnings.

- Manitoba’s “lowest rates” policy, by encouraging inefficient consumption, squanders our energy advantage in unfair ways and increases CC damage.

- Let’s develop a Power Smart alternative that is more just and sustainable and reflects the full value of Manitoba’s hydroelectric advantage.

- Done right, a Power Smart rate policy can enhance Manitoba’s economy, promote equity, meet the energy needs of industry and the poor, and contribute to the mitigation of climate change.