



REVIEW OF DEMAND SIDE MANAGEMENT (DSM) FRAMEWORK FOR NATURAL GAS DISTRIBUTORS

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Purpose

Concentric Energy Advisors, Inc. (“Concentric”) was retained to critically review, assess and compare Ontario’s Demand Side Management (“DSM”) Framework for natural gas distributors. The DSM Framework in Ontario was compared with best practices in select North American and other jurisdictions in order to make recommendations on what changes, if any, should be made to enhance the existing framework in Ontario.



Preliminary Remarks

- Ontario's DSM policies should continue to adapt to changing market conditions and provincial policy objectives in order to continue achieving conservation targets in an equitable, cost-effective and economically efficient manner.
- Many utility regulatory bodies across Canada and the United States are currently examining whether DSM policies and frameworks are achieving conservation objectives, which are evolving with energy and environmental legislation.
- Due to shifting policy objectives, it is difficult to identify what may be considered “best practices”, because these continue to evolve.
- A range of solutions and recommendations can be derived based on Ontario's stated policy objectives.
- Concentric suggests a particular direction among options based on our understanding of Ontario's provincial policies on energy and the environment, and/or where there are gaps between industry best practices and the existing (or proposed) DSM framework in Ontario.



Regulatory Approaches to DSM Program Design

Regulatory Approach	Traditional	Progressive	Aggressive
Primary Objective	Energy Savings	Energy Savings Manage Demand Growth	Energy Savings Manage Demand Growth Carbon Reduction
Cost Effectiveness Test	Ratepayer Impact Utility Cost	TRC	Societal Modified TRC
Avoided Costs	Commodity	Commodity/Capacity	Commodity/Capacity/ Externalities/Carbon reduction
Input Assumptions	Utility costs	Utility costs Participant costs	Utility costs, participant costs Externalities
Adjustment Factors	Free ridership Persistence Attribution	Plus free drivership, Spillover and Proportional attribution	Secondary concern (tradeoff theory)
DSM Program Design	Prescriptive	Flexible	Proportional reduction
DSM Budget	Fixed \$ Amount	% of Revenues	Objective Driven
DSM Metrics/Targets (Measuring Success)	Energy Saved/DSM \$	Short term and long term energy savings	Market Transformation DSM Penetration Carbon Reduction
Financial Incentive (Utilities)	Limited	Tied to Energy Savings	Tied to Societal Goals/Climate
Compensating for Lost Revenue	Minimal	LRAM	Revenue Decoupling
Conservation Impact Evaluation	Utility report, prudence review	Independent review and verification	Evaluate whether DSM results achieve program objectives
Filing and Reporting	Progress Report / Evaluation Report	Audited Program Results	Broad Evaluation Measures
Stakeholder Input	Limited/Informal	Formal/Advisory	Proactive Consultation Direct Involvement
Integration of Gas/Electric	Limited/None	Encouraged	Mandated



Research Methodology

- Jurisdictions in the U.S. were chosen based on the highest per capita spending on gas DSM programs.
- Jurisdictions in Canada were selected with gas distributors actively engaged in DSM activities.
- Three foreign countries were chosen to provide additional perspective from outside North America.
- 16 of the 20 jurisdictions reviewed in Concentric's evaluation have adopted formal DSM frameworks for natural gas distributors.

Canadian Provinces	U.S. States	Other Countries
Alberta*	California	Great Britain
British Columbia	Colorado	New Zealand*
Manitoba	Connecticut	Australia*
Nova Scotia*	Iowa	
Quebec	Maine	
	Massachusetts	
	Minnesota	
	New Jersey	
	New York	
	Oregon	
	Washington*	
	Wisconsin	



Guiding Principles

Concentric's recommendations are premised on the following guiding principles, which we observe represent best practices for the design of DSM programs:

<u>Define Program Objectives:</u>	Consistent with policy objectives and the public interest.
<u>Comprehensive Policy Approach:</u>	To achieve energy efficiency and conservation goals.
<u>Inclusion of Externalities:</u>	Acknowledge the trend toward inclusion of environmental and social externalities in the cost effectiveness test.
<u>Establish Benchmarks:</u>	Gather information regarding the current situation in Ontario as a reliable benchmark.
<u>Align Program Objectives with Spending:</u>	DSM programs and measures which are most cost effective and achieve market penetration goals.
<u>Ability to Measure Results:</u>	Enable the Board to reliably measure and verify program results.
<u>Keep it simple:</u>	Relatively straight-forward and easily understandable.
<u>Build Trust:</u>	Enhance confidence among stakeholders that program results are accurately measured and clearly reported.



Fourteen Critical Elements

The remainder of this presentation discusses the 14 critical elements of the DSM Framework:

1. Cost Effectiveness Test
2. Estimation and Use of Avoided Costs
3. Development and Use of Input Assumptions for Evaluating DSM Technologies
4. Adjustment Factors for Impact Assessment
5. DSM Program Design Factors
6. DSM Budget Development and Approval
7. Development of DSM Metrics and Targets
8. Shared Savings Mechanism (SSM) – Incentives to the Utilities
9. Lost Revenue Adjustment Mechanism (LRAM)
10. Impact Evaluation Methods
11. Filing and Reporting Requirements
12. Stakeholder Input and Consultation
13. Integration of Natural Gas and Electric DSM
14. Consideration of Alternatives to the DSM Framework



Issue #1: Cost Effectiveness Test

Question:

- Should the Board continue to rely on the Total Resource Cost test as the method for evaluating the cost effectiveness of DSM programs for natural gas distributors?

Stakeholder Comments:

- Perspectives vary widely with respect to the value and validity of the Total Resource Cost test for assessing DSM programs.
- Some believe that the TRC does not properly assess environmental and social externalities in determining the net benefits of DSM programs.
- Utilities support the continued use of the TRC, but believe that strict adherence will discourage implementation of innovative but unproven programs, and could place low-income populations at a disadvantage.
- Certain stakeholders have expressed concern that the TRC is not ideal for evaluating low-income programs because it does not adequately capture non-energy benefits such as reduced late payment and arrears management costs.
- “Scorecard” approach suggested to evaluate gas savings, customer satisfaction, levelized cost of intervention, etc.



Issue #1: Cost Effectiveness Test, Continued

Experience in Other Jurisdictions

- Ten of the 16 jurisdictions with formal DSM frameworks for natural gas distributors have adopted the TRC test as the primary economic measure of cost effectiveness.
- Several jurisdictions use more than one cost effectiveness test, and many jurisdictions are considering a number of different variations or adaptations of the traditional TRC test.
- Several jurisdictions (including British Columbia) have placed an economic value on carbon emissions, which means that energy efficiency programs are more easily justified under a cost-benefit analysis.
- Inclusion of environmental and social externalities varies among jurisdictions.
 - Explicit adders are one method of handling externalities (e.g., Iowa).
- The selection of a discount rate for the benefit/cost analysis differs from jurisdiction to jurisdiction.
 - Utility after-tax WACC, Treasury rates, “societal discount rate” are used to discount benefits and costs.

Cost-Benefit Analysis Threshold

- Most jurisdictions approve energy efficiency and conservation programs that demonstrate a benefit-cost ratio greater than 1.0. Some jurisdictions apply this threshold to the individual DSM program or measure, while others apply it to the entire portfolio of DSM programs.
- Jurisdictions handle the scoring of low-income programs in a variety of different ways.



Issue #1: Cost Effectiveness Test, Continued

Cost Effectiveness Tests in Other Jurisdictions:

Jurisdiction	TRC	Societal	Participant	Ratepayer	Utility	Program Admin
United States						
California	X					X
Colorado	X					
Connecticut	X				X	
Iowa		X	X	X	X	
Maine		X				
Massachusetts	X					
Minnesota		X	X	X	X	
New Jersey	X	X	X	X		X
New York	X					
Oregon		X			X	
Washington*						
Wisconsin	X					
Canada						
Alberta*						
British Columbia	X			X		
Manitoba	X	X				
Nova Scotia*						
Quebec	X					
Countries outside North America						
Great Britain	X*					
New Zealand*						
Australia*						

* Has not adopted formal DSM requirements for gas distributors. See explanation below for Great Britain.

Note: Bold highlights indicate this is the primary cost effectiveness test used in that jurisdiction.



Issue #1: Cost Effectiveness Test, Continued

Recommendations:

- Traditional TRC test is no longer the best cost effectiveness test for evaluating DSM programs in Ontario
- Adopt the Societal Cost Test to measure cost effectiveness and program benefits, including environmental and social externalities.
- Under this approach, the Board would approve all energy efficiency and conservation programs with a benefit/cost ratio greater than 1.0 (subject to budget constraints).
- Use the Program Administrator Cost test to *prioritize* DSM programs and measures. Priority should be given to those programs and measures with the highest PAC test results, thereby accelerating DSM programs that have a faster payback period.
- Separately evaluate the cost effectiveness of DSM programs for low-income customers, using the Societal Cost test with a threshold between 0.60 and 0.75.
- Apply the cost effectiveness test on a program basis rather than a portfolio basis.



Issue #2: DSM Avoided Costs

Question:

- How should the Board determine what avoided costs should be included in the benefit/cost analysis, how frequently should those costs be updated, and what method should be used to calculate savings?

Stakeholder Comments:

- Considerable controversy regarding:
 - Assumptions underlying natural gas price forecasts used to estimate avoided costs;
 - Frequency of updates to avoided costs; and
 - The methodology used to calculate savings from the replacement of inefficient appliances.
- Some stakeholders have questioned whether the same commodity price forecast should be used for both utilities.
- One utility expressed concern with burdensome methodology of avoided cost calculation (use of discreet steps for each customer class).
- Some stakeholders observed that updates to avoided costs or any other input assumptions used to calculate incentives should be matched with updates to DSM targets.
- Ratepayer advocates have expressed concern about the use of different avoided costs for calculation of DSM targets and TRC savings.



Issue #2: DSM Avoided Costs, Continued

Experience in Other Jurisdictions:

- Some jurisdictions calculate avoided costs using sophisticated software tools, while other jurisdictions require the gas distributors to calculate avoided costs based on specified input assumptions.
- Several jurisdictions have assigned a value to carbon emissions, or have placed a tax on natural gas carbon emissions to account for its environmental impact.
- Estimation of avoided natural gas commodity costs is typically calculated using standard trading data such as costs at Henry Hub (Louisiana), with transportation costs accommodated using basis differentials.
- Oregon derives its avoided costs using volumes from a supply forecast. The Energy Trust of Oregon does apply a 10% credit for energy efficiency programs, “which recognizes the benefits of conservation in addressing risk and uncertainty.”



Issue #2: DSM Avoided Costs, Continued

Recommendations:

- Gas distributors should be responsible for calculating avoided costs using a limited number of input assumptions including commodity costs, capital costs, and operating and maintenance expenses.
- We endorse the Board's current approach whereby the commodity cost is updated on an annual basis, and all other avoided costs are based on a three-year program cycle.
- Adopt a societal discount rate based on the average yield on the Government of Canada long bond over a specified number of months rather than the utility's after-tax weighted average cost of capital.
- Coordinate with the Minister of Energy and Infrastructure to establish a value for carbon emissions to be used in the calculation of avoided costs.
- A price in the range of \$15 to \$25 per ton would be consistent with the value placed on carbon emissions elsewhere.



Issue #3: DSM Input Assumptions and Parameters

Question:

- What method should the Board utilize for developing input assumptions and parameters for the benefit/cost analysis, and how frequently should those assumptions be updated?

Stakeholder Comments:

- Timing and method for updating input assumptions are important for transparency.
- Wide support for development of a process for seeking OEB approval of DSM technologies and input assumptions.
- In March 2009, nine Ontario stakeholders filed joint comments in response to Navigant's *Draft report, Measures and Assumptions for Demand Side Management (DSM) Planning*. Concerns expressed include:
 - Inclusion of input assumptions for measures that are not associated with any utility programs.
 - Universal set of input and performance assumptions to technologies whose benefits differ from site to site. Conservation effectiveness of some measures vary substantially from one installation to the next.
 - Measurement of the useful life of custom measures.



Issue #3: DSM Input Assumptions and Parameters, Continued

Experience in Other Jurisdictions:

- Input assumptions used to calculate the energy savings associated with a conservation program are generally developed using one of three models:
 - The regulatory agency allows each utility to provide its own input assumptions when filing a proposed conservation plan. In this scenario, the utilities are required to explain how they arrived at these assumptions and to justify their use (6 jurisdictions).
 - The regulator itself develops and distributes a standardized set of input assumptions to be used by all utilities in calculating the energy savings associated with particular conservation programs (5 jurisdictions).
 - Authorize a third-party administrator to develop the input assumptions with the regulatory agency maintaining oversight authority (2 jurisdictions).

How Frequently Are Input Assumptions Updated?

- The majority of jurisdictions surveyed update their input assumptions on an annual basis, while others, such as Quebec and New Jersey, re-evaluate their input assumptions every few years.

Impact on Financial Incentives to Utilities

- When input assumptions (the basis of DSM revenue and earnings projections) are constantly changing, it is difficult for utilities to treat conservation programs as a predictable part of their business. This has been a particularly acute problem in California, where filings for avoided costs and revenue sharing have experienced extensive delays.



Issue #3: DSM Input Assumptions and Parameters, Continued

Recommendations:

- Concentric endorses the Board's current approach of developing a common set of input assumptions with the assistance of an independent consultant.
- However, if the gas distributor wishes to deviate from these input assumptions, it should be allowed to file information that would support its assumptions.
- The Board should continue to update input assumptions to reflect the best available information based on the annual Evaluation Reports.
- Information gathered from the annual Evaluation Reports should be quite useful in making minor revisions to input assumptions based on empirical evidence, especially on issues such as free ridership.
- The disadvantage to frequent updates is cost.
- However, since the OEB has significant experience with DSM programs, Concentric would anticipate that the majority of changes to input assumptions would be refinements rather than major overhauls.



Issue #4: DSM Adjustment Factors

Question:

- How should the Board measure and adjust for Free Ridership, Spillover Effect, Persistence of Savings, and Attribution of Benefits?

Stakeholder Comments:

- For DSM programs with no established rate of **Free Ridership**, some stakeholders proposed assumption of a standard temporary rate of 30%.
- Timing of adjustment to assumptions for **Free-Ridership** and **Spillover Rates** was a topic of some controversy.
 - Utilities: Multi-year
 - Several other stakeholders: more frequent updates will ensure proper rewards
- Ratepayer advocate groups believe that the OEB should not allow utilities to use **Spillover Effects** to inflate TRC savings or claim LRAM or SSM rewards unless the utility can provide a precise measure to quantify spillover.
- Enbridge suggests that no changes be made to the existing **Persistence** methodology, which benefits gas ratepayers more than the persistence standard applied to electric utilities in Ontario.
- Disagreement over **Attribution** of DSM benefits.
 - Union has stated that proposed attribution rules give it confidence to develop programs jointly with other organizations.
 - Other stakeholders find particular fault with the “centrality” principle.



Issue #4: DSM Adjustment Factors, Continued

Experience in Other Jurisdictions:

- In order to account for energy savings not attributable to utility conservation programs, **9** jurisdictions in our research (including **all** Canadian provinces analyzed) make adjustments to the gross impacts measured.
- Gross energy savings are typically converted to net impacts using multipliers representing the non-programmatic impacts.
- Several jurisdictions look beyond free-ridership and spillover, making additional adjustments to gross impact measurements.
- Other jurisdictions handle adjustments in a variety of ways, including the assumption that effects cancel one another.
- In Great Britain, in order to claim credit for emissions reductions, a gas distributor must prove that such savings are “in addition” to other applicable legal requirements or programs. They also must demonstrate that any measure for which they claim emission reduction credit would not have been installed had it not been for their conservation program.



Issue #4: DSM Adjustment Factors - Recommendations

Free Ridership

- Rely on empirical data from Evaluation Reports or other jurisdictions to establish free ridership percentages.
- Assume that free ridership is offset by spillover, unless a program can be reliably shown to deviate from this assumption
- Multiply energy savings by a designated factor to adjust for effects not attributable to the utility's DSM programs.

Attribution of Benefits

- The centrality principle currently used by the OEB gives too much credit to gas distributors for joint DSM programs.
- Assign a percentage of credit to the utility based on the percentage of total dollars it spent designing, developing and delivering the joint DSM programs.

Spillover

- See Free Ridership recommendations

Persistence of Savings

- Persistence should not be assumed at 100%.
- It should be determined from technical input assumptions and annual evaluation reports.
- If gas distributors wish to deviate from established figures, they should file evidence with the Board for approval.



Issue #5: DSM Program Design

Question:

- How should the DSM framework be designed in order to encourage gas distributors to develop cost effective conservation programs that achieve significant energy savings and/or that transform existing behaviors?

Stakeholder Comments:

- Concerns with **Market Transformation** programs:
 - Measuring the effectiveness of market transformation activities is particularly challenging.
 - Specific, measurable, and verifiable targets are crucial for a fair and equitable market transformation program.
 - Incentives for market transformation programs should only be paid when meaningful change has occurred.
 - Attributing shifts in a market solely to DSM programs would be very challenging, if not impossible.
- Concerns with **Low Income** DSM programs:
 - Several stakeholders have suggested that additional effort should be made to pursue “deep” conservation programs for low-income customers.
 - Some have emphasized the unique nature of the low-income market, noting that significantly different program designs are needed relative to those for other market segments.
 - Some stakeholders object to the ambitious pursuit of social objectives through DSM, stating that “social change is the purview of government, not profit-oriented private enterprise.”
 - Ratepayer advocates argue that DSM target should only be designed to achieve energy efficiency goals, and that low-income programs should be reviewed using the same screening and evaluation criteria as all other DSM programs.



Issue #5: DSM Program Design, Continued

Experience in Other Jurisdictions:

All jurisdictions reviewed in our research that require natural gas DSM also require utilities to address the needs of different market segments, such as mass market programs for residential and small commercial customers, tailored programs for large commercial and industrial customers, unique programs for low-income and elderly customers, and market transformation programs that benefit customers across all classes.

- Resource Acquisition Programs
- Market Transformation Programs
- Low Income Customer Programs
 - Among the five Canadian provinces reviewed, only Quebec explicitly requires natural gas distributors to implement DSM programs to address low-income customers.
 - Of the 12 U.S. states surveyed, nearly all require programs that address low-income customers.
- Lost Opportunity Markets & “Deep Savings”
 - The most aggressive DSM programs are those that use innovative approaches to alter the way energy is consumed (e.g., California).



Issue #5: DSM Program Design, Continued

Recommendations:

DSM programs should be designed to emphasize those measures and technologies that contribute most to cost effective energy savings.

- Resource Acquisition Programs:
 - Utilize energy efficiency potential studies from Union and Enbridge to align DSM programs with identified energy savings opportunities or “behavioral” problems.
- Market Transformation Programs:
 - It is difficult to attribute verifiable savings to market transformation programs.
 - Utilize a combination of customer and vendor surveys to estimate the effectiveness of these programs.
- “Lost Opportunities:”
 - Lost opportunity markets offer utilities the chance to achieve ‘deep’ savings by pursuing unique, one-time opportunities to reduce natural gas consumption.
 - Results from such programs should be included in the calculation of the financial incentive.



Issue #5: DSM Program Design, Continued

Recommendations:

- Low-Income DSM Programs should follow several guiding principles.
 1. The utility should identify geographic regions with the highest concentration of low-income customers.
 2. The utility should primarily focus on those customers with the highest energy use and those who have a history of late payments or that face disconnection.
 3. In order to capture economies of scale, the utility should develop programs that serve an entire neighborhood, rather than an individual customer.
 4. The utility should concentrate on DSM programs that provide an immediate benefit, such as home weatherization and appliance replacement.
 5. To modify consumer attitudes and behaviors through education, the utility should coordinate with community organizations and local contractors.
 6. The utility should understand that serving the low-income or disabled population often requires a grassroots, community-based effort.



Issue #6: DSM Budgets

Question:

- What guidelines should the Board follow in developing energy efficiency budgets that balance the competing interests of encouraging conservation and maintaining affordable rates?

Stakeholder Comments:

- Several ratepayer representatives suggested that distributors' DSM budgets should be based on the specific programs sponsored by the distributors.
- Environmental stakeholders called for aggressive DSM budgets, which could ramp up to 3% of total utility revenue over a three-year period.
- The utilities differ over whether a specific proportion of utility revenue should be used to establish DSM budget.
- Two perspectives on length of the budget period:
 - The utilities advocate a multi-year approach for continuity and certainty of funding to cost-effective programs.
 - Other stakeholders believe program duration should be at most two years, particularly during this uncertain economic period, and in light of the Green Energy Act.
- To combat rate shock, several stakeholders in the Conservation Working Group ("CWG") recommended:
 - Firm budget caps;
 - Reductions in the number of participants and/or the estimated cost per home; and
 - Strict monitoring and evaluation of proposed programs.



Issue #6: DSM Budget's, Continued

- DSM budgets in many jurisdictions are based on a certain percentage of annual utility revenue:

2007 DSM expenditures, by company, as a percentage of revenue

Jurisdiction	Utility	Year	Gross Oper Rev (000s)	DSM Expenditures (000s)	DSM % GOR	GOR less cost of gas (000s)	% of utility revenue less cost of gas
British Columbia	Terasen	2007	\$1,751,000	\$3,100.0	0.18%	\$622,000	0.50%
Manitoba	Manitoba Hydro	2007	\$528,000	\$10,100.0	1.91%	\$142,000	7.11%
Ontario	Enbridge	2007	\$3,085,000	\$22,000.0	0.71%	\$972,000	2.26%
Ontario	Union	2007	\$1,811,000	\$17,000.0	0.94%	\$655,000	2.60%
Quebec	Gaz Metro	2007	\$1,600,000	\$14,400.0	0.90%	\$420,000	3.43%
Saskatchewan	SaskEnergy	2007	\$962,000	\$1,800.0	0.19%	\$587,000	0.31%
Average			\$1,622,833	\$11,400	0.70%	\$566,333	2.01%

2007/2008 DSM expenditures, by company, as a percentage of revenue

Jurisdiction	Utility	Year	Gross Oper Rev (000s)	DSM Expenditures (000s)	DSM % GOR	GOR less cost of gas (000s)	% of utility revenue less cost of gas
California	SoCalGas	2008	\$4,101,000	\$68,016.0	1.66%	\$1,260,000	5.40%
Connecticut	Southern CT Gas	2008	\$433,613	\$2,022.0	0.47%	\$129,596	1.56%
Iowa	Mid-American	2007	\$890,960	\$15,813.7	1.77%	\$406,439	3.89%
Maine	Northern Utilities	07/08	\$49,151	\$675.4	1.37%	\$20,178	3.35%
Massachusetts	National Grid	2007	\$1,511,246	\$7,757.3	0.51%	\$292,326	2.65%
Minnesota	Northern States	2008	\$796,343	\$6,423.5	0.81%	\$201,697	3.18%
Minnesota	CenterPoint Gas	2008	\$1,385,652	\$8,422.8	0.61%	\$142,066	5.93%
New York	Con Edison	2008	\$1,702,889	\$14,000.0	0.82%	\$705,343	1.98%
Oregon	NW Natural	2008	\$867,539	\$9,282.9	1.07%	\$269,045	3.45%
Washington	Cascade NG	2008	\$104,945	\$2,382.5	2.27%	\$29,006	8.21%
Average			\$1,184,334	\$13,480	1.14%	\$345,570	3.90%



Issue #6: DSM Budgets, Continued

Experience in Other Jurisdictions:

- Cost Recovery: Most jurisdictions allow the gas utility to recover the cost of DSM programs through some type of customer charge.
- Spending Caps: Many jurisdictions have placed caps on the amount of the DSM budget which can be spent on evaluating and monitoring DSM program results.
- In most jurisdictions, gas utilities file a DSM plan along with estimated savings targets and a proposed budget.
 - Spending is normally tied to expected energy savings and cost savings.



Issue #6: DSM Budget Development

Recommendations:

- Increase Board-recommended spending on DSM programs to between 4% and 6% of utility operating revenue less the cost of purchased gas, and establish a minimum spending level equal to 3% of utility operating revenue less the cost of purchased gas.
- Allow gas distributors flexibility in proposing budgets to meet the DSM targets and metrics because utilities are in the best position to determine which programs will be most effective.
- Limit the amount of the budget that is spent on evaluating and monitoring DSM programs to between 3% and 5% of the total budget for each gas distributor.
- Consider more extensive review of those programs that account for the majority of expenditures and savings, and make smaller programs subject to less rigorous and/or less frequent scrutiny.

**Minimum and Recommended DSM Budgets
Based on 2008 Distribution Revenues**

Utility	2008 distribution revenue ¹ (million)	DSM Budget at 3% (million)	DSM Budget at 4% (million)	DSM Budget at 6% (million)
Enbridge	\$1,010.6	\$30.32	\$40.42	\$60.64
Union	\$675	\$20.25	\$27.00	\$40.50



Issue #6: DSM Budget Development, Continued

- Incremental customer costs from 2010 levels for Enbridge would be \$8.24 to 4%, and \$19.08 to 6%.
- Incremental customer costs from 2010 levels for Union would be \$3.34 to 4% and \$13.65 to 6%.

Customer Rate Impact of Minimum and Recommended DSM Budgets

Utility	2008 customers	Annual cost per customer at 3%	Annual cost per customer at 4%	Annual cost per customer at 6%
Enbridge	1,865,020	\$16.26	\$21.67	\$32.51
Union	1,309,430	\$15.46	\$20.62	\$30.93



Issue #7: Development of DSM Metrics and Targets

Stakeholder Comments:

Stakeholders have expressed concerns that the TRC net savings targets do not appropriately incent utilities to promote DSM technologies and programs with longer-term savings.

- Resource Acquisition Metrics and Targets
 - Ratepayer advocates suggest replacing TRC net savings targets with targets for per capita consumption.
 - Environmental interests supported use of the TRC net savings for establishing targets (with best available information).
 - Gas utilities object to the use of best available information, arguing that adjusting assumptions is both costly and time-intensive.
 - General problem with “bottom up” approach the TRC savings method requires.
- Market Transformation Metrics and Targets
 - Ratepayer advocates consider this an outdated concept because of difficulty assigning causation.
 - Environmental representatives call for clarity in terms of measuring market transformation, recommending additional emphasis on lost opportunity markets.
- Low Income Customer Program Metrics and Targets
 - Ratepayer advocates emphasize that the low-income market requires significantly more resources for longer periods.
 - General agreement that increased budgets for low-income programs are necessary.
 - CWG – established metrics to score programs: basic measure participants, extended measure participants, lifetime gas savings for extended measure participants. Additional metrics were also proposed (though not for scoring).
 - Gas utilities have committed to extended access and education programs for low income customers.



Issue #7: Development of DSM Metrics and Targets, Continued

Experience in Other Jurisdictions:

- Different jurisdictions in our survey use different methods to measure the success of DSM programs:
 - Market penetration/customer participation (Manitoba, Quebec, Maine)
 - Targets for reduction in gas demand (BC, Minnesota, Colorado, Oregon, New York)
 - Maximum potential study (California)
 - Carbon emissions reduction (Great Britain)
- Among the jurisdictions in our survey that require energy efficiency and conservation programs:
 - 7 jurisdictions (six U.S. states and Great Britain) require utilities to deliver DSM programs that meet targets established by regulatory bodies.
 - 5 jurisdictions (one Canadian province and four U.S. states) require utilities to propose DSM targets and metrics for review and approval by regulators.
- The most successful gas distributors in our survey were able to achieve an annual reduction in total gas consumption of approximately 1% from energy efficiency and conservation programs.



Issue #7: Development of DSM Metrics and Targets, Continued

Recommendations:

One of the most difficult aspects of designing a cost effective energy efficiency and conservation program is determining how to measure success. This concern can be addressed by developing DSM metrics that are straight-forward and verifiable.

- TRC net savings is difficult to measure and verify, and may contribute to a focus on more modest, short-term programs.
- Adopt market penetration of the Best Available Technologies (“BAT”), where possible, as the primary metric for evaluating whether a particular DSM program or measure is successful.
- This approach will result in the selection of DSM programs that maximize the economic potential of energy efficiency and conservation programs, rather than simply passing a minimum benefit/cost ratio of 1.0.
- In situations where market penetration is not applicable or cannot be measured (e.g., attic insulation might be difficult to observe), Concentric recommends measuring the percentage reduction in gas consumption per customer attributable to the DSM program or measure.
- The same metrics (BAT and percentage reduction in gas consumption per customer) can be used to measure success of DSM programs serving low-income customers.



Issue #8: Shareholder Incentive Mechanisms

Question:

- What financial incentives should the Board provide for meeting specified DSM targets?

Stakeholder Comments:

- Disagreement between utilities and other stakeholders over use of best available information instead of forecasts and locked-in prior year assumptions in the calculation of the SSM.
- Environmental groups suggest removal of cap on SSM incentives, and establishing a threshold for the commencement of shareholder rewards at 75% of the TRC target.
- Considerable debate among stakeholders regarding whether input assumptions should be updated to reflect the most recent results from program evaluations.
 - In particular, one gas utility does not agree that input assumptions should be revised such that utility performance for purposes of the SSM is based upon revised input assumptions as opposed to those used from the beginning of the year under review.
- Some stakeholders have questioned the methodology used, and the shareholder incentive levels corresponding to different calculated TRC net savings.
- Certain ratepayer interests contend that the incentives offered for DSM are not consistent with the results achieved.
- Consumer advocates argue that incentives are unnecessary altogether, and that “facilitating DSM should be a service that the LDCs provide for their customers” because the utilities are able to recover costs through the LRAM.
- Certain stakeholders argue that SSM incentives should be tied more closely to results of low-income DSM programs.



Issue #8: Shareholder Incentive Mechanisms, Continued

Experience in Other Jurisdictions:

Of the 5 Canadian jurisdictions reviewed in our research, only British Columbia offers incentives to utilities that achieve targets for gas DSM. Of the 12 U.S. states included in our research, 8 offer incentives for exceptional program performance.

- In British Columbia, public utility DSM plans may include incentive mechanisms with approval from the British Columbia Utilities Commission.
- There are two main forms of performance incentives among the eight U.S. states that currently provide such benefits:
 1. A reward structure based on discrete steps
 - California, Connecticut, Minnesota, New Jersey, and New York
 2. Factor-based approach
 - Colorado and Massachusetts

State	Financial Incentive
California	Utilities can receive up to 12% of excess TRC benefits; utilities are penalized if performance falls below a certain threshold, which is well below 100% of the target level
Colorado	Awards a maximum of 20% of net economic benefits or 25% of program expenditures, whichever is lower. The bonus is amount is the percentage of net economic benefits resulting from the DSM plan, and includes an Energy factor (percentage of energy target achieved) and a Savings factor (actual savings achieved divided by approved savings targets).
Minnesota	If a utility achieve 150% of its initial TRC target, it is eligible to receive approximately 30% of its conservation budget as an incentive
New Jersey	Has established a dollar cap of \$376,620 on performance incentives for commercial and industrial efficiency programs, and \$62,802 on incentives for residential gas efficiency programs. Both programs are operated by a third-party administrator, and the residential program administrator notes the significant reduction in performance incentives funds available in 2009.
New York	Reward structure provides a maximum of \$13 million, applied at \$3.00 per incremental Mcf of gas conserved; utilities are penalized if performance falls below a certain threshold, which is well below 100% of the target level.
Washington	Does not reward utilities for achieving program goals, but does assess penalties for poor performance
Great Britain	Does not provide incentives to utilities that meet or exceed conservation levels established by Ofgem for CERT and CESP programs. However, under both CERT and CESP, Ofgem is authorized to impose penalties on utilities that fail to comply with provisions of the programs. Under CESP, bonus credits toward meeting low-income program goals are offered when utilities deliver particular combinations of measures (e.g., providing multiple kinds of energy saving services to individual residential buildings, or serving a minimum number of buildings in a given area). However, these incentives for participation are not, strictly speaking, shareholder incentives in the sense contemplated for Ontario's DSM framework.



Issue #8: Shareholder Incentive Mechanisms, Continued

Recommendations:

The financial incentive mechanism should reward gas distributors for achieving various DSM program objectives. There is merit in expanding the ways by which a gas distributor in Ontario can earn financial incentives.

- Using market penetration to measure program success, it is possible to independently verify whether the utility has achieved the target market penetration ratio for different DSM technologies.
- Revise the financial incentive mechanism to place more emphasis on market penetration and percentage reduction in gas consumption per customer.
- Reward gas distributors with financial incentives only if they exceed the established metrics and targets; a gas utility should not receive a financial incentive for achieving less than 100% of its targets.
- For purposes of calculating financial incentives, use best information available for input assumptions, which are updated annually on Evaluation Reports.
- Reward gas distributors for pursuing DSM measures that provide ‘deep’ energy savings.
- Develop a separate financial incentive mechanism for low-income programs that is contingent on market penetration, reductions in gas consumption per customer, and efforts to reduce customer bills through education and awareness programs.



Issue #9: Lost Revenue Adjustment Mechanism

Question:

- What cost recovery mechanism should the Board adopt to remove the disincentive for gas distributors to encourage and promote conservation and energy efficiency programs?

Stakeholder Comments:

- Certain stakeholders have expressed concerns regarding the LRAM calculation process, which they believe may result in utility recovery of inappropriate amounts.
 - Specifically, they believe it is imperative that LRAM calculations be based on the best available information at the time adjustments are to be applied (as under the existing DSM framework).
- Some stakeholders have requested an examination of the processes used to periodically develop input assumptions for calculation of LRAM.
 - Non-utility stakeholders generally are consistent in their support for the use of best available information in the calculation of LRAM.
 - Enbridge agrees that assumptions should be the best available at the time of an audit, but it proposes that the Board establish a date by which information used to inform LRAM calculations must be submitted.
 - Union, on the other hand, supports the approach to LRAM described in the Draft DSM Guidelines.
- One environmental stakeholder suggested a calculation methodology in which the LRAM volume is set equal to half of the “annual fully effective savings volume.”



Issue #9: Lost Revenue Adjustment Mechanism, Continued

Experience in Other Jurisdictions:

- Eight of the 16 jurisdictions reviewed in our research allow natural gas utilities to recover lost revenue associated with energy efficiency and conservation programs.
- In Canada, ratepayer-funded natural gas conservation programs are not as prevalent as in the U.S.; however, where ratepayer-funded conservation programs do exist (i.e., Ontario and British Columbia), utilities are typically allowed to recover lost margin resulting from such programs.
- In the U.S., lost margin recovery is already the norm for natural gas utilities. Of the 34 U.S. states that offer natural gas conservation programs, 19 currently allow utilities to recover lost revenue and several others have initiated pilot lost revenue mechanisms or have regulation pending.
- The mechanisms employed by gas distributors to recover lost margin associated with conservation programs commonly fall into one of two general categories:
 1. Lost Revenue Adjustment Mechanisms (LRAM): Lost revenue resulting from utility-sponsored conservation measures can be tracked and applied as a surcharge to customer rates.
 2. Revenue Decoupling: De-linking recovery of fixed costs from the volume of gas sold per customer.



Issue #9: Lost Revenue Adjustment Mechanism, Continued

Recommendations:

- Energy efficiency and conservation programs cannot succeed unless the program is revenue neutral for the regulated utility.
- Concentric's research indicates that other jurisdictions are shifting away from LRAM to revenue decoupling.
- In 2005, the National Association of Regulatory Utility Commissioners ("NARUC") passed a resolution advising state commissions to consider the implementation of revenue decoupling. The resolution stated that revenue decoupling mechanisms "may assist, especially in the short term, in promoting energy efficiency and energy conservation and slowing the rate of demand growth of natural gas."
- Allow gas distributors to request revenue decoupling to recover lost revenues attributable to DSM programs.
- If revenue decoupling is not adopted by the Board, or until such time as it is implemented, calculation of LRAM should be based on energy savings (contained within the Societal Cost test and the Program Administrator Cost test).
- If the Board continues to rely on LRAM, Concentric recommends that the calculation should be based on updated input assumptions based on the Evaluation Reports.



Issue #10: Impact Evaluation Methods

Question:

- How should the Board evaluate and monitor the impact of DSM programs, and how should the auditor be selected?

Stakeholder Comments:

- Stakeholders have proposed improving or replacing the existing process used to evaluate the impacts of DSM programs.
 - Key disadvantages of the current process include the significant time, effort and cost required to calculate and agree on impacts of myriad DSM programs.
 - One stakeholder suggested replacing the existing impact evaluation method with one that evaluates the average use of gas over time.
 - Another stakeholder recommended that a reliable method of evaluation “should be a prerequisite for program funding.”
- Doubt was expressed regarding independence of auditors employed by the distributors. Some have called for the Board to select and hire a third party to evaluate and audit both gas distributors.
 - Under this model, the distributors would pay for the work and have input to the process.
 - Union and Enbridge, however, value independent third party evaluation and want to maintain responsibility for verification of program results, costs, etc.
- Enbridge suggests that the Board consider implementing a more qualitative assessment methodology, providing flexibility for the evaluation of programs with different design elements.
- Union is concerned that “adding the evaluation, measurement and verification costs into the program level TRC would unfairly disqualify many programs, especially given the new, more onerous evaluation requirements by program.”



Issue #10: Impact Evaluation Methods, Continued

Experience in Other Jurisdictions:

Utilities are generally required to report similar information to regulators, regardless of jurisdiction, including the following:

1. Budget versus actual expenditures
2. Projected versus actual savings
3. Customer participation rates
4. Cost-effectiveness ratios (or levelized cost per therm)

•Methods to Evaluate and Monitor DSM Programs

- Regulators use a variety of techniques to evaluate and monitor DSM programs, including:
 1. Audits (to ensure models and calculations are correct)
 2. Inspections (to ensure that measures were, indeed, installed)
 3. Evaluations (to update the validity of assumptions)

•Evaluating and Monitoring Adjustments

- The methodologies used to measure savings, spillover and other metrics, differ among jurisdictions.

•Precision vs. Cost of Evaluating Conservation Programs

- While all jurisdictions have an explicit interest in defining DSM benefits, different balances are struck between precision and cost.

•Evaluation of Program Results

- Most jurisdictions contract with an independent third party to perform program evaluations
- Method of selecting these auditors varies from one jurisdiction to the next.



Issue #10: Impact Evaluation Methods, Continued

Recommendations:

The purpose of the evaluation and audit process is to review all input assumptions related to the delivery of DSM programs over the period of the multi-year plan.

- The Board should appoint the entities responsible for conducting independent program evaluations and third-party audits of program results.
- We anticipate that the Board will be responsible for:
 - Selecting the program evaluator(s) and the program auditor
 - Defining the parameters of the evaluation and the audit
 - Reviewing the results
- Consider assigning one or two OEB employees to oversee the DSM program and evaluation audit process.
- In selecting the third-party auditor, Concentric recommends that the OEB attempt to balance the need for expertise in verifying DSM program results with the need for independence.



Issue #11: Filing and Reporting Requirements

Question:

- What filing and reporting requirements should the Board adopt?

Stakeholder Comments:

- Stakeholders have urged the Board to develop detailed reporting requirements to:
 - Enable a thorough review by an auditor.
 - Justify the Board's reallocation of the DSM budget.
- Further, they suggest that utilities be required to file detailed information concerning any DSM benefits for which the gas distributor plans to claim credit under attribution rules.
- Union Gas:
 - supports the provisions included in the Draft DSM Guidelines that would require the development and filing of an Evaluation Plan;
 - supports annual Evaluation Report filings; and
 - believes that items material to LRAM, SSM, and any other financial incentives should be filed with an accompanying opinion from a third party auditor.



Issue #11: Filing and Reporting Requirements, Continued

Experience in Other Jurisdictions:

Each of the 16 jurisdictions reviewed in our research that require gas distributors to offer ratepayer-funded energy efficiency and conservation programs has established formal systems to report on and evaluate program activity.

- Reporting Requirements
 - The main function served by a regular reporting requirement is to measure program performance against the goals and targets established at the beginning of the program period.
 - Reports commonly include program descriptions, information on recent program activities, budgets and energy savings, participation levels, as well as cost-effectiveness calculations for the past program year.
 - Some program administrators are also required to publish quarterly reports on the status of conservation programs (Manitoba, California, Massachusetts, and Oregon).
 - Some regulatory agencies responsible for energy efficiency and conservation programs must submit periodic reports on the status of such programs to the state legislature (Connecticut, Iowa, and Maine).
- Frequency of Evaluation Reports
 - In most jurisdictions, program evaluations are conducted and reported on annually, but there are exceptions.
 - In Connecticut, annual evaluations are supplemented by monthly evaluation reports.
 - California evaluates its energy efficiency and conservation programs every two years whereas, in Quebec, Gaz Metro prepares an Evaluation Report every three years.
 - As Maine transitions to a new DSM framework, the designated program administrator—Efficiency Trust Maine—will arrange for each program with a budget of \$500,000 or more to be evaluated at least once every five years.



Issue #11: Filing and Reporting Requirements, Continued

Recommendations:

Well-defined filing and reporting requirements will assist the Board and interested stakeholders in monitoring and evaluating the success of DSM programs in Ontario. This should increase the level of confidence among stakeholders that programs are achieving tangible results and that budgets are being spent on measures and technologies that are cost effective and serve the public interest.

- Adopt the proposed annual reporting and evaluation reporting requirements as described in the Draft DSM Guidelines.
- The Evaluation Report and the Annual Report, as described in the DSM Draft Guidelines, will provide the Board with the necessary information about the success of DSM programs without imposing unnecessary costs and administrative burdens on gas distributors.



Issue #12: DSM Stakeholder Input

Question:

- To what extent should the Board allow stakeholder involvement and input in DSM programs?

Stakeholder Comments:

- Stakeholders have suggested that:
 - The Board's annual review of DSM plans should include an evaluation of the role of the DSM Consultative, including the role of the Evaluation and Audit Committee ("EAC"), and
 - The Board should also direct the utility in how to incorporate input from the DSM Consultative and EAC into DSM program development, evaluations, and the approval of results.
- Other stakeholders suggest that the Board develop its own audit capability, or retain third party experts to review the DSM data provided by distributors.
- Enbridge contends that because the utilities are responsible and accountable for their DSM activities, it is imperative that the role of stakeholders, either through the DSM or its EAC, be ***advisory*** in nature, and not authoritative.



Issue #12: DSM Stakeholder Input, Continued

Experience in Other Jurisdictions:

- Of the 20 jurisdictions reviewed for this report, ten have relatively formal processes for involving stakeholders or the general public in the design, implementation, or evaluation of DSM programs.
- Stakeholder involvement pertains only to the development of DSM plans and does not address program evaluation (California, Massachusetts, Maine, Minnesota, and Manitoba).
- Advisory councils composed of consumer advocates, utility representatives, and other interested parties that provide input and feedback to regulators (Connecticut, Iowa, and Maine).
- Feedback is provided throughout the DSM program evolution, including planning, program implementation, and assessment phases (New Jersey).
- Defined process for involving stakeholders in all phases of DSM programs on a quarterly basis, but this involvement occurs outside the regulatory process (Gaz Metro in Quebec).
- The remaining ten jurisdictions involve stakeholders only informally, on a volunteer basis, or not at all.



Issue #12: DSM Stakeholder Input, Continued

Recommendations:

Stakeholder input is critical to the success of energy efficiency and conservation programs. But utilities are ultimately responsible to the Board for these programs. Stakeholder involvement throughout the process can be beneficial as long as it does not cause excessive delays in pursuing innovative measures or technologies that will improve energy efficiency and conservation.

- Continue to solicit stakeholder input in the manner prescribed by the existing DSM Framework.
- The Board's existing DSM Framework strike the appropriate balance between allowing stakeholders the opportunity to participate in the development, design and evaluation of DSM programs while recognizing that gas distributors are ultimately responsible and accountable for these programs.



Issue #13: Integration of Gas & Electric DSM

Question:

- Should the Board encourage or require the integration of gas and electric DSM programs?

Stakeholder Comments:

- Several stakeholders have proposed that natural gas and electricity conservation programs should be integrated in order to reduce customer confusion, increase customer participation and reduce delivery costs.
- In mid-2009, the Conservation Working Group developed a set of guiding principles for natural gas utilities in developing low-income DSM programs in 2010 and beyond.
 - One principle that received wide support from the group was that whenever possible, the utilities should work with municipal and provincial social services agencies to provide assistance to low-income customers.
 - Utilities should also provide integrated and coordinated delivery of gas and electric DSM programs to the degree feasible.



Issue #13: Integration of Gas & Electric DSM, Continued

Experience in Other Jurisdictions:

There is wide variation in the degree to which state and provincial policies require collaboration between natural gas and electricity conservation and demand management programs. Some jurisdictions explicitly require combined programs, and others require clearly separate efforts. Most, however, fall somewhere between these two extremes, allowing companies to increase the effectiveness of certain programs by combining efforts when possible.

- Single policy initiative or set of DSM programs that applies to both gas and electric utilities, which creates synergies and economies of scale for companies wishing to combine efforts for different kinds of customers (New Jersey, Maine, Connecticut and British Columbia).
- Same plans cover gas and electric utilities - companies focused on a single market have found that by collaborating, they can achieve efficiencies by combining efforts in certain programs such as home energy audits (Southern California Gas and Southern California Edison).
- Other jurisdictions permit combined programs, but do not require them (Manitoba, New York, Wisconsin, Iowa, Oregon and Colorado).
- Gas and electric utilities are bound by the same set of policies regulating target setting, program evaluation, etc., but by law the two types of programs must be administered by different Program Administrators (Massachusetts).
- Almost no collaboration between gas and electric utilities, by policy fiat or otherwise (Quebec and Washington).



Issue #13: Integration of Gas & Electric DSM, Continued

Recommendations:

The integration of gas and electric DSM programs appears to offer some benefits in terms of reducing administrative costs associated with separate programs, and may improve penetration of some programs.

- Encourage gas and electric utilities to integrate certain phases of their DSM programs, such as program delivery (e.g., home energy audits) or low-income community programs.
- Consider ways gas and electric utilities can coordinate, if not integrate, their DSM programs to improve customer participation and achieve administrative efficiencies.
- DSM programs for low-income customers that are implemented on a community basis provide a unique opportunity for cooperation between gas and electric utilities to capture synergies in communications and delivery of programs.



Issue #14: Alternative DSM Frameworks

Questions:

- Should the Board consider alternative DSM frameworks to replace the existing one?

Stakeholder Comments:

- Representatives of ratepayer interests believe that the current DSM Framework has failed and should be replaced by a fundamentally different framework.
- This will require re-thinking how DSM is measured, what shareholder financial incentives are provided, and the role of gas distribution companies in program development, delivery and evaluation.
- These stakeholders argue that the current DSM framework uses an “artificial construct” that relies heavily on input assumptions to calculate results and incentives for distributors.
- One representative characterized the current DSM framework as having the following disadvantages:
 - Requires an enormous amount of time, effort and money on the calculation of costs and benefits;
 - Is quite complex and the complexity promotes game playing on the part of the utilities and stakeholders;
 - Engenders distrust and animosity between utilities and stakeholders; and
 - Makes ratepayers cynical about DSM activities.
- Proposal: an approach where DSM activities would be evaluated based on “top down” empirical evidence related to reduction in normalized average gas consumption per customer class or specific end-users.
- Others argue that the current DSM Framework is overburdened with bureaucracy.
- Evaluation has become extremely contentious because it determines levels utilities are compensated through LRAM and SSM. Stakeholders have suggested that a simpler system should be adopted.

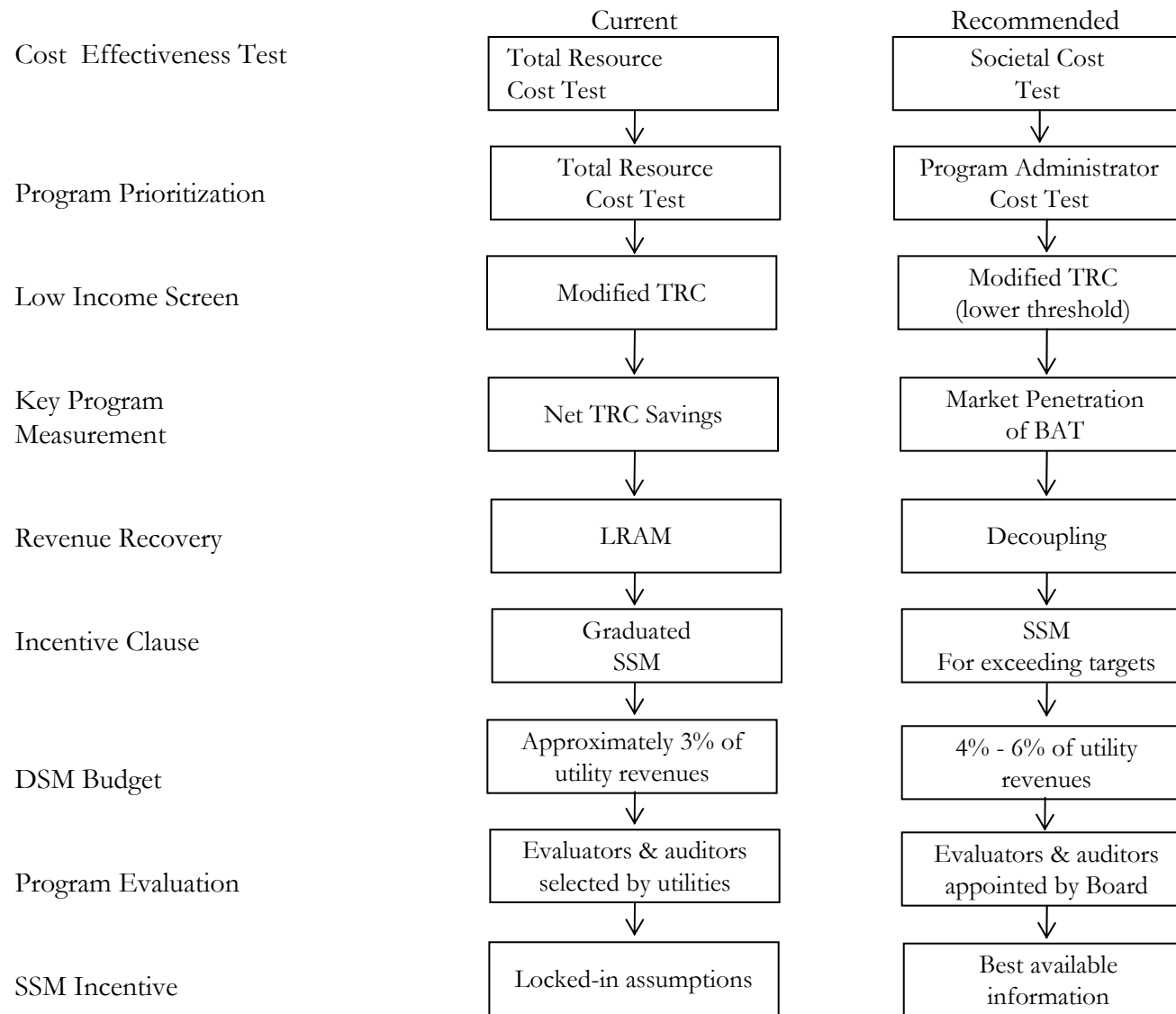


Issue #14: Alternative DSM Frameworks, Continued

- Concentric does not offer any specific recommendations with regard to alternative DSM frameworks. In our opinion, the evidence related to the relative merits of third-party administrators is inconclusive.
- If Ontario's DSM program were failing to achieve the Board's policy objectives, then it might be reasonable to consider whether the administration should be turned over to a third party entity. However, we have not seen evidence suggesting this is the case.
- We agree with stakeholders that the DSM framework in Ontario could be enhanced, but we do not believe that the current framework should be abandoned and replaced by something entirely different. Rather, we recommend modifications to the existing framework and to the parameters of the framework.



Recommended Changes to OEB DSM Framework



Overview of Concentric Energy Advisors

Concentric Energy Advisors is a leading management and financial advisory firm focused on the North American energy industry. Concentric's regulatory experts engage in addressing public utility regulation challenges throughout North America's energy industry daily. They are closely attuned to the latest rate-setting practices, policies and trends, including decoupling, cost tracking mechanisms, the interface of integrated resource planning with ratemaking, and alternative regulation mechanisms. Our experts routinely participate in rate-related proceedings and forums at the municipal, state, provincial and federal levels, and provide clients with a complete menu of ratemaking and regulatory advisory services, including:

- Cost-of-service studies
- Marginal cost studies and pricing
- Rate structure development
- Tariff design
- Cost-of-capital and return-on-equity
- M&A related testimony
- Revenue and expense adjustment clauses
- Management prudence
- Rate base (including fair value determination)
- Revenue requirements
- Demand forecasts
- Demand side management programs
- Incentive ratemaking
- Earnings attrition analysis

