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Our File No. 174118

September 27, 2018

VIA COURIER

Ontario Energy Board
2300 Yonge Street
Suite 2700
Toronto, Ontario
M4P 1E4

Attention: Kirsten Walli,
Board Secretary

Dear Ms. Walli:

Re: EB-2017-0127 / EB-2017-0128: Union Gas Limited and Enbridge Gas Distribution Inc. - Mid-Term Review DSM

Please find enclosed herewith BOMA's Submission.

Yours truly,

FOGLER, RUBINOFF LLP

Thomas Brett
TB/dd
Encls.
CC: All Parties *(via email)*

EB-2017-0127
EB-2017-0128

Ontario Energy Board

Union Gas Limited and Enbridge Gas Distribution Inc.

Mid-Term Review of Demand Side Management

Building Owners and Managers Association, Greater Toronto ("BOMA")

WRITTEN SUBMISSION

September 27, 2018

Tom Brett
Fogler, Rubinoff LLP
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P.O. Box 95, TD Centre North Tower
Toronto, ON M5K 1G8
Counsel for BOMA

BOMA's Written Submission

BOMA is pleased to provide this single submission in response to both EB-2017-0127 and EB-2017-0128. Overall BOMA is supportive of the utilities' progress, given the constraints of the current DSM Framework, and supports their recommended changes for 2018 and 2019.

BOMA has also drawn on the experience of some of its most sophisticated members in achieving high performance buildings as a starting point for the next framework. The following excerpt from a case study shows that there are greater opportunities for conservation by using Performance-based Conservation as the basis for a new DSM Framework in Ontario than by continuing to rely on the existing framework after 2020.

> *Simcoe Place: Enerlife has been working with Cadillac Fairview since 2011 at their million square foot, Class A commercial office building in downtown Toronto. Leading the Integrated Building Performance Team, Enerlife has raised the building's performance from Energy Star 85 to over 95, and the building is on its way to Energy Star 98 when current projects are complete. Guided by a 2010 Roadmap Report, the Team has worked towards and surpassed REALpac's "20 by '15" energy target.[1] The Integrated Building Performance Team:*
>
> - *Applied systematic testing and investigation to uncover and correct inefficiencies in just about every building system.*
> - *Improved operations, maintenance and automation have combined with evidence-based retrofits to optimize performance of heating and cooling systems, transformers, elevator machinery and lighting, making Simcoe Place one of the most energy-efficient commercial properties in North America.*

[1] The Real Property Association of Canada (REALpac) adopted an energy consumption target for office buildings of 20 equivalent kilowatt-hours of total energy use per square foot of rentable area per year (20 ekWh/ft2/year), to be achieved by 2015. In other words, "20 by '15 ". The target represents a reduction of up to one half of today's energy use in Canadian office buildings. Achieving the target will lead to estimated energy cost savings in the order of $1.85 billion/year, and greenhouse gas emissions savings of 7.5 Megatonnes/year contributing 5% of Canada's national 2020 goal.

- *Enerlife's ongoing work at Simcoe place is focused on ensuring that established performance standards are maintained and continuously improved in future, with performance-based service contracts, operator training and documentation.*

Comments on the Utilities' Submissions

BOMA appreciates the tremendous effort that Union Gas Limited ("Union") and Enbridge Gas Distribution Inc. ("Enbridge") have extended to respond to the Ontario Energy Board's ("Board") request despite many competing priorities within their Demand Side Management ("DSM") Program, the exigencies of responding to the added expectations related to the Cap and Trade Program, all within issues outside of the control of the DSM Program such as merger efforts, the impact of the magnitude of resources added to the conservation market as result of the provincial Green Investment Fund and its subsequent abrupt and unplanned closure. All of this took place against the uncertainty of new, but much delayed, DSM evaluation process. Nevertheless, Union and Enbridge have continued to deliver significant DSM Results.

Comments on Union Submissions (EB-2017-0127)

Union was asked by the Board to report specifically on the following items during the Mid Term Review of the Demand Side Management (DSM) Framework.

1. Adaptive Thermostats – Submit results of adaptive thermostat pilot program (Section 5.2.3)

2. Mass-market Residential Program – Explore conservation measures and technologies for a mass-market residential program

3. Market Transformation Programs – Provide a summary of market needs and demonstration of how Market Transformation programs are prioritized

4. Open Bill Access – Develop and expand access to bill for financing purposes related to energy efficiency investments

5. Outcome-based Performance Metrics – Provide information related to additional outcome-based performance scorecard metrics

6. Target Adjustment Mechanisms – Provide suggestions on appropriate changes to the target adjustment formula

7. Integration and Coordination of DSM and CDM Programs – Provide a progress report related to integrated conservation programs developed with the IESO namely The Home Reno Rebate Offering and The Commercial/Industrial Direct Install Offering

8. Integrated Resource Planning – Submit a transition plan to incorporate DSM into 2 infrastructure planning activities (Section 12)

9. Proposed 2019-2020 DSM Scorecards 5 9.2

10. Proposed DSM Budget and Shareholder Incentive Reallocation Procedure.

BOMA supports all of Union's proposed changes to the DSM Framework specific for their programs for the next two years.

BOMA has reviewed Union's extensive submissions and agrees with the analysis provided for each item.

Comments on Enbridge Gas Distribution Submission (EB-2017-0128)

Enbridge was asked to report on the following:

1. Fixed Net to Gross: Value Utilize a fixed net to gross value for the remainder of the Multiyear term.

2. Budget or Target Adjustment (Target Adjustment Mechanism (TAM)): Provide a 10% budget increase to program budgets or 10% target decrease.

3. Modify Shareholder Incentive formula: Revise the incentive formula to align the benefits to rate payers and shareholders.

In addition, Enbridge has requested the following:

1. Exempt TAM for Programs with Deferred Incentives: For programs with deferred incentive payouts, use fixed targets with an appropriate escalation factor instead of the target Adjustment Mechanism (TAM).

2. Consistent Productivity Factor: Utilize a consistent productivity factor of 2% for all programs.

3. Transfer of two programs from Market Transformation to Resource Acquisition: Move Run It Right and Comprehensive Energy Management programs from Market Transformation to Resource Acquisition and assign an appropriate weight.

4. Changes to Scorecard Weighting: Change the scorecard weighting between the three programs to ensure Market Transformation programs continue to receive a high level of focus.

5. Leaders and Energy Literacy: Provide funding for funding for 2018-2020 program years.

6. DSM Participant Incentive Deferral Account: Introduce a Participant Incentive Deferral Account to allow the company to properly fund programs with future incentive obligations.

7. Saving By Design: Change the threshold for customers to qualify for building incentives for Residential Savings by Design (SBD) to 10% above the new 2017 Ontario Building Code.

8. Home Energy Conservation: Align with Union Gas Home Reno Rebate program to prescriptive incentive model.

BOMA supports all Enbridge's proposed changes to the DSM Framework specific for its programs for the next two years.

BOMA has reviewed Enbridge's extensive submissions and agrees with the analysis provided for each item.

BOMA Has Concerns

BOMA is concerned that the scope of the Mid Term Review should have been broadened to address the issue of what the next DSM Framework should be. BOMA suggests that work on the next DSM Framework must begin as soon as possible so that both Union and Enbridge can plan programs in advance for delivery to customers after the end of the current framework and avoid the delays caused by the establishment of the current framework. BOMA notes that the IESO Mid Term Review included a significant section addressing the principles for the next CDM Framework.

BOMA would like to draw the attention of the Board to a presentation provided during the mid-term review which is included with this submission and a proposed pilot program to demonstrate a program design that could be used for all public sector buildings in Ontario.

BOMA's concerns stems several facts:

- The current methodology for estimating natural gas conservation potential drastically underestimates the available savings and their cost effectiveness.

- The Technical Resource Manual which the utilities must use to determine the cost effectiveness of technologies is based primarily on US data for electric utilities, primarily in the southwestern United States.

- The current framework relies on estimates, assumptions and deemed savings of typical buildings rather than actual metered data in the facility in question.

- The current framework based as it is on the traditional California Standard Practice was developed for electric utilities.

- The current framework's evaluation approach fails to recognize the savings demonstrated at the meter yet rewards utilities who convince customers to install equipment that may inadvertently increase gas consumption.

- The current framework's focus on "net to gross" and "free ridership" could be replaced with a program concept which engages utility staff as customer advisors rather than promoters or subsidizers of specific equipment resulting in greater proven and positive improvements for customers and the environment.

BOMA has already raised its preference for metered data over estimates. Reference: EB-2012-0451, Exhibit L.EGD.ED.1 (Emphasis Added)

> *Performance based conservation begins with identifying high energy intensity buildings through benchmarking and then works systematically towards identifying and fixing the inefficiencies causing the high use in each building. The nature of the inefficiencies runs the range of errors in design and construction, through equipment deterioration over time, to changes in use and operation of the building, and poor performance of controls and automation systems. It is the compound effect of these problems that leads to gas use levels in some buildings* ***which is 3 to 5 times*** *what is needed and already achieved by comparable, more efficient buildings. Fixing these problems requires a systematic methodology. The work involved in equipment repairs and replacement, right-sizing and rebalancing, refurbishment and re-programming, typically provides relatively short payback periods.*
>
> *Rather than relying on technologies, assumed penetration levels and engineering calculations, the Performance-Based Model analyzes actual, benchmarked energy use of different building types and establishes the potential savings due to all buildings reaching intensity levels already achieved by one half (median) or one quarter (top-quartile) of the peer group.*
>
> *Simply bringing high gas use intensity buildings down to meet median base and heating energy levels of existing buildings yields overall percentage savings in the order of almost 19% for commercial and 12% for apartment buildings.*
>
> *Going further to meet top-quartile performance levels raises the potential to over 31% for commercial buildings and almost 24% for apartments. It should be noted that attainment of today's top quartile gas use is by no means the greatest savings level that can be planned for and expected within the timelines in question.*
>
> *One quarter of existing buildings are already performing at or better than this level. Energy efficiency initiatives such as such as REALpac's 20 by '15 Target and TRCA's Town Hall Challenge and Greening Health Care programs use top quartile gas use to set energy targets.*
>
> *Measures to improve efficiency in high gas intensity buildings go beyond those included in the current DSM Potential Study and are typically site-specific equipment repairs, upgraded control of buildings systems, and testing, tuning and rebalancing of heating plant and systems.*

Such projects show generally good Total Resource Cost ("TRC") test values, can be implemented quite quickly, and serve to improve building performance as well as energy efficiency. They

require a systematic approach to identify target buildings, engage owners, isolate the inefficiencies, implement the necessary improvements and verify the results.

The Way of the Future

Increasingly, sophisticated BOMA members are using actual metered data to determine their savings. Performance-Based Conservation is transforming the knowledge and practice of energy conservation in buildings. This has led to unprecedented energy savings in a growing number of buildings and portfolios which are now among the most energy efficient in North America.

From major commercial landlords to leading hospitals, school boards and municipalities, performance-based conservation is helping owners and managers achieve the full energy and environmental potential of their buildings. Using this approach, provides unique expertise and resources to achieve exceptional performance in individual buildings and across portfolios. Insight and knowledge are grounded in one of the largest online building performance databases in North America, and close working relationships with leading owners and partners.

Whatever a building owners' goals are, performance-based conservation can help them achieve deeper savings in less time and at lower cost than traditional approaches. This integrated building performance process which actively engages all the players and leaves nothing on the table and consistently delivers deeper savings by systematically addressing the interdependent roles of best design practice, operational excellence and active occupant engagement.

BOMA suggests a better and more focused DSM Framework based on these principles will enable the utilities to improve the efficiency of a wider range of customers than currently targeted and help those customers who need assistance in understand their consumption and diagnosing the

short falls in their existing systems; many of which are not related to the efficiency of the specific equipment but to a failure of the overall system to operate efficiently.

True this approach is a drastic change but – no longer would ratepayers have to pay money for estimates of potential, incentives for equipment and for evaluations of results. They would pay only for the value added by the performance-based conservation approach their utility delivers.

The suggested pilot program is also included with this submission.

Building Towards a
Sustainable Future

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PROPOSAL FOR A PILOT PERFORMANCE-BASED VENTILATION SYSTEM BALANCING AND CONTROL PROGRAM FOR K-12 SCHOOLS

A pilot DSM program is proposed which will unlock substantial new gas savings while providing high cost-effectiveness for customers and low or no free ridership for utilities

September 28th, 2018

Background

The DSM Mid-Term Review has highlighted a number of interrelated issues and interests among stakeholders:

1. **The findings from the 2017 Sustainable Schools report (2014-15 data) which indicated that the achievable natural gas savings potential for the schools' sector is several times larger than presented in the 2016 Achievable Potential Study, and that most of the savings are to be found in a relatively small number of high-potential schools.**
2. **The findings from the Sustainable Schools charrettes funded by Union Gas that more than half of the total gas (and electricity) savings in high-potential schools are associated with highly cost-effective re-balancing and upgraded control of ventilation systems, and that such projects are generally not being implemented by school boards.**
3. **The submissions from some intervenors that the gas companies should be funded and incentivized to deliver greater gas savings.**
4. **The general concern to reduce free-ridership.**
5. **The request from the gas companies to create accounting mechanisms to enable multi-year incentive programs.**
6. **The interest among a number of intervenors to work towards more savings being measured at the meter rather than by calculation.**

Recommendation

It is recommended that the parties work together to create a pilot program for 2019-20 which will deliver significant incremental gas savings with high cost-effectiveness, while informing the development of next-generation programming for commercial buildings after 2020.

1. **Up to 5 high-potential schools from each of up to 3 boards for each utility company (identified through the Sustainable Schools analysis).**
2. **Savings measured at the meter in 2019 and 2020.**
3. **Hybrid customer incentives based on combination of up-front calculated savings and annual savings at the meter.**
4. **Evaluating possible scorecard modifications for the next DSM framework based on participation, up-front calculated savings and multi-year savings measured at the meter.**
5. **Demonstrating the comprehensive utility role in school board engagement, project definition, baseline determination and savings verification, negating free ridership.**

Potential Scale

Preliminary TRC and PAC test numbers are shown below for 3 boards with 5 schools each and a 10-year measure life. Input parameters can be varied to produce a compelling customer value proposition with a program cost and savings which are workable for the utilities.

	Total Resource Cost (TRC) Test
Costs	
Participant Cost	$1,560,000
Program Cost	$1,178,177
Total	$2,738,177
Benefits	
Gas + Elec Savings	$3,077,877
Non-Energy Benefit	15%
Total Benefit	$3,539,558
Test Results	
Net B($)	$801,381
C/B Ratio	0.77

	Program Admin Cost (PAC) Test
Costs	
Program Admin Cost	$527,813
Incentive Cost	$650,364
Total	$1,178,177
Benefits	
Gas + Elec Savings	$3,077,877
Test Results	
Net B($)	$1,899,700
C/B Ratio	0.38

Ontario Energy Board DSM Mid-Term Review Stakeholder Meeting

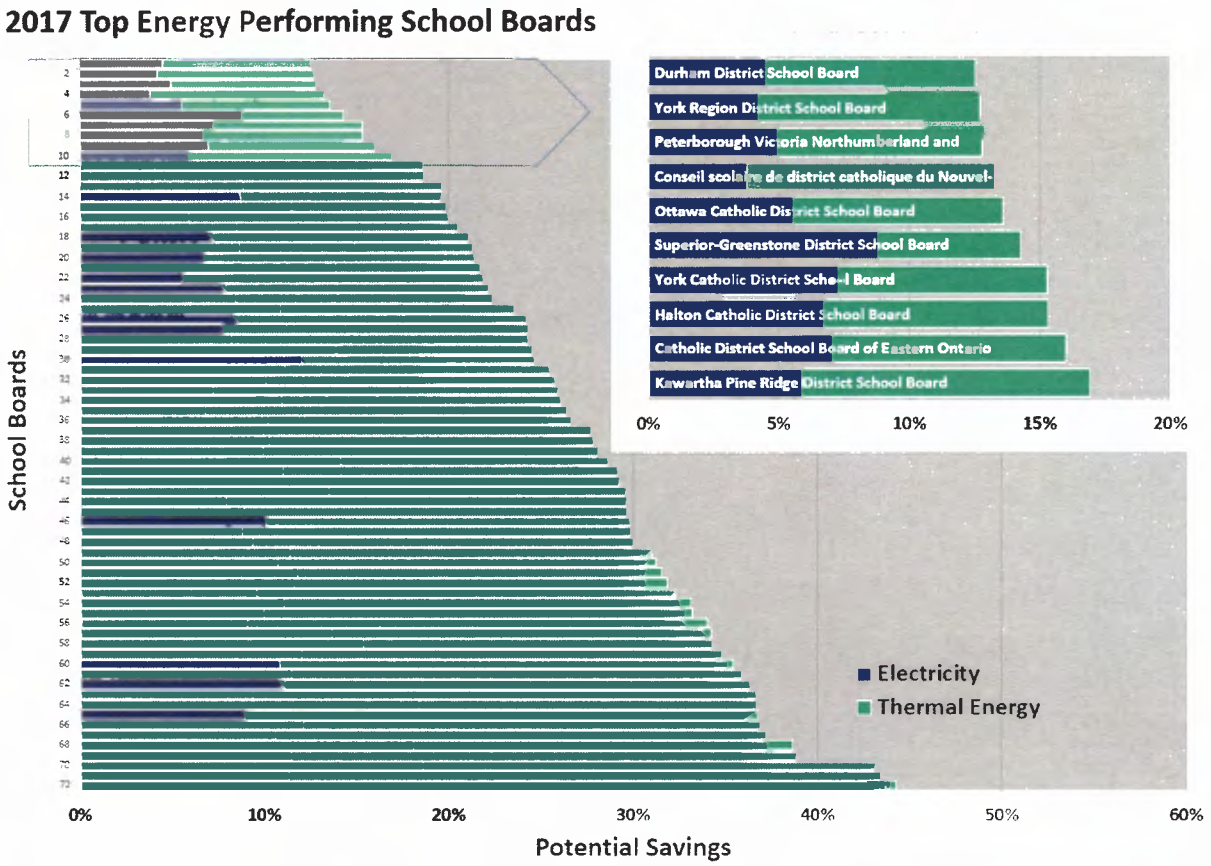
September 6, 2018

Building Towards a Sustainable Future

Agenda

- 2017 Top Performing School Boards Report
- Achieving the Gas Savings Potential
  - Union Gas Charrettes
  - Simcoe County District School Board Project
- Maximizing Achievable Savings
- Conclusions
- Next Generation DSM Programs

2017 Sustainable Schools (SUS) Top Performing School Boards Report



- Since 2007 Sustainable Schools has been reporting on top performing schools across Canada, establishing the magnitude of energy savings potential and directing school boards and utility companies to where the savings are to be found
- Boards are ranked by their total energy savings potential (thermal and electrical energy)

Based on 2014-15 energy use data from Ontario Ministry of Energy's Broader Public Sector database

2017 SUS Top Boards Report

All facilities (71 school boards):

- **5,000** buildings analysed
- Overall total energy savings potential: 29.8%
  - electricity - **262,000** MWh/year (13%)
  - natural gas - **140.5** million m3/year (38.6%)
- Utility cost savings potential: **$71.7 million** per year
- GHG emissions reduction potential: 294,000 tonnes of CO2e/year

High savings potential buildings (>$10,000/year in savings):

- **1,987** buildings (40.7% of total)
- Savings potential:
  - electricity - **247,000** MWh/year (94% of total)
  - natural gas – **98.4** million m3/year (70% of total)
- Utility cost savings: **$59.7 million** per year (83% of total)
- GHG emissions reduction: 213,000 tonnes of CO2e/year

Energy Savings Charrette Pilot Project

- in July 2017, Union Gas partnered with Toronto and Region Conservation (TRCA) to undertake a pilot project with two Ontario school boards with high gas savings potential (Hamilton Wentworth DSB with 31% and Waterloo Region DSB with 33% overall achievable savings potential)

- the project developed energy conservation action plans for 10 high energy conservation potential schools for each board through in-depth energy analysis and Energy Savings Charrettes

- the plans can help the boards and their utility companies prioritize future energy conservation measures and projects, and also feed into upcoming 2019-2024 ECDM Plans

Hamilton Wentworth DSB 2015-16 Energy Savings Potential

		Electricity						Gas						Total $ savings potential
		Consumption		Cost	Target Savings			Consumption		Cost	Target Savings			
School	School Type	Actual (kWh/sq.ft.)	Target (kWh/sq.ft.)	($)	(%)	($)	(kWh)	Actual (ekWh/sq. ft.)	Target (ekWh/sq. ft.)	($)	(%)	($)	(m3)	
Ancaster High	Secondary	5.8	5.2	$ 152,006	10.2%	$ 15,564	103,760	17.6	6.6	$ 68,692	62.7%	$ 43,053	187,187	$ 58,617
Sir Winston Churchill	Secondary	5.6	4.9	$ 147,071	13.3%	$ 19,631	130,874	16.9	8.5	$ 65,343	49.7%	$ 32,457	141,119	$ 52,089
Mary Hopkins	Elementary	4.8	3.4	$ 35,651	30.1%	$ 10,747	71,649	16.5	5.4	$ 18,063	67.1%	$ 12,120	52,696	$ 22,868
Orchard Park	Elementary	6.4	5.5	$ 161,852	14.0%	$ 22,597	150,647	14.5	8.2	$ 53,921	43.7%	$ 23,557	102,422	$ 46,154
Sir Wilfrid Laurier	Elementary	8.9	4.4	$ 108,635	50.0%	$ 54,264	361,761	11.2	5.4	$ 20,281	51.5%	$ 10,442	45,400	$ 64,706
Glendale	Secondary	6.6	5.6	$ 137,564	15.3%	$ 21,100	140,665	12.2	6.6	$ 37,699	46.0%	$ 17,332	75,358	$ 38,432
Queen Mary	Secondary	7.8	4.4	$ 113,052	43.8%	$ 49,536	330,239	10.5	5.4	$ 22,489	48.4%	$ 10,894	47,366	$ 60,430
Westmount	Elementary	5.2	4.9	$ 119,696	6.0%	$ 7,232	48,210	13.0	6.6	$ 44,497	49.5%	$ 22,007	95,682	$ 29,238
Waterdown	Secondary	10.4	6.9	$ 361,845	33.6%	$ 121,734	811,560	6.6	5.6	$ 33,875	14.4%	$ 4,884	21,233	$ 126,618
Sir Allan MacNab	Secondary	2.7	2.7	$ 77,878	0.0%	$ -	0	10.0	6.7	$ 42,332	33.0%	$ 13,951	60,657	$ 13,951
				$1,415,248	22.8%	$ 322,405	2,149,366			$407,193	46.8%	$190,698	829,121	$ 513,103

Alectra schools in yellow; Hydro One schools in green

Waterloo Region DSB 2016-17 Energy Savings Potential

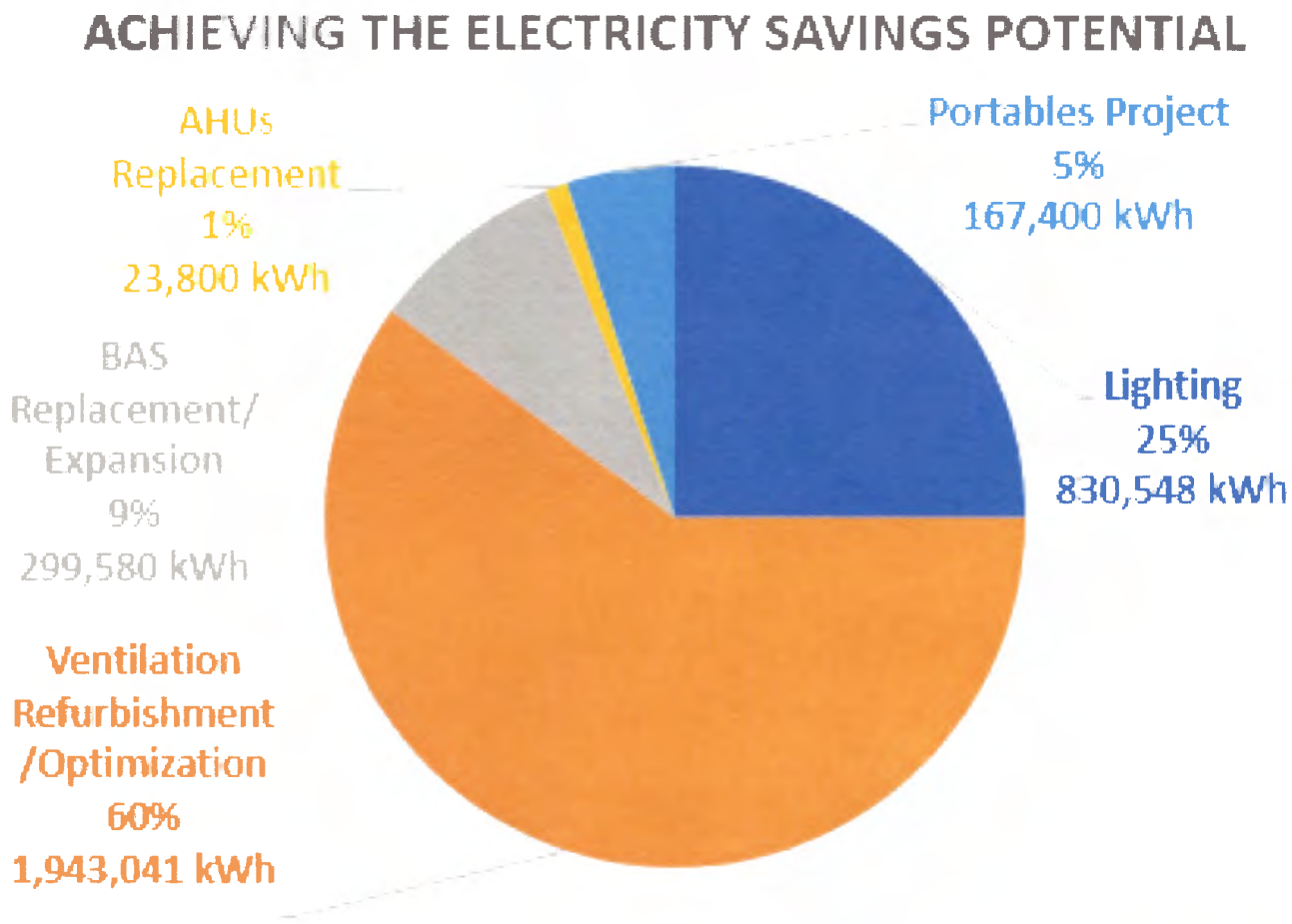
		Electricity						Gas						Total $ savings potential
		Consumption		Cost	Target Savings			Consumption		Cost	Target Savings			
School	School Type	Actual (kWh/sq.ft.)	Target (kWh/sq.ft.)	($)	(%)	($)	(kWh)	Actual (ekWh/sq. ft.)	Target (ekWh/sq. ft.)	($)	(%)	($)	(m3)	
Breslau PS	Elementary	6.6	5.6	$ 57,947	15.3%	$ 8,874	59,158	15.0	5.4	$ 19,439	63.8%	$ 12,410	53,956	$ 21,284
William G Davis PS	Elementary	4.2	4.1	$ 34,307	3.2%	$ 1,094	7,296	18.3	5.4	$ 22,126	70.4%	$ 15,582	67,749	$ 16,677
Waterloo Oxford DSS	Secondary	5.9	5.6	$ 158,805	6.2%	$ 9,900	65,998	16.2	6.5	$ 64,288	59.8%	$ 38,463	167,230	$ 48,363
Galt CI	Secondary	6.7	5.4	$ 177,633	18.8%	$ 33,322	222,148	15.1	6.6	$ 59,372	56.5%	$ 33,533	145,795	$ 66,855
Preston HS	Secondary	5.2	4.8	$ 130,998	8.4%	$ 10,983	73,221	15.8	6.6	$ 58,703	58.4%	$ 34,302	149,139	$ 45,285
Elmira District SS	Secondary	6.1	5.7	$ 139,266	6.9%	$ 9,654	64,361	14.4	6.6	$ 48,632	54.3%	$ 26,385	114,716	$ 36,039
Clemens Mill PS	Elementary	9.2	5.0	$ 77,364	45.8%	$ 35,399	235,990	11.0	5.4	$ 13,691	50.6%	$ 6,931	30,134	$ 42,329
Waterloo Collegiate	Secondary	5.6	5.3	$ 151,542	6.5%	$ 9,789	65,258	14.3	6.6	$ 56,997	54.2%	$ 30,881	134,265	$ 40,670
Saginaw PS	Elementary	7.9	4.4	$ 54,756	44.5%	$ 24,385	162,570	11.4	5.4	$ 11,772	52.5%	$ 6,180	26,867	$ 30,565
Sandowne PS	Elementary	6.6	4.3	$ 44,257	34.2%	$ 15,116	100,772	12.6	5.4	$ 12,574	57.1%	$ 7,177	31,205	$ 22,293
				$1,026,874	15.4%	$158,516	1,056,772			$367,594	57.6%	$211,843	921,056	$ 370,359

Energy + Inc. schools in yellow; Waterloo North Hydro Inc. schools in orange; Kitchener Wilmot Hydro Inc. schools in green

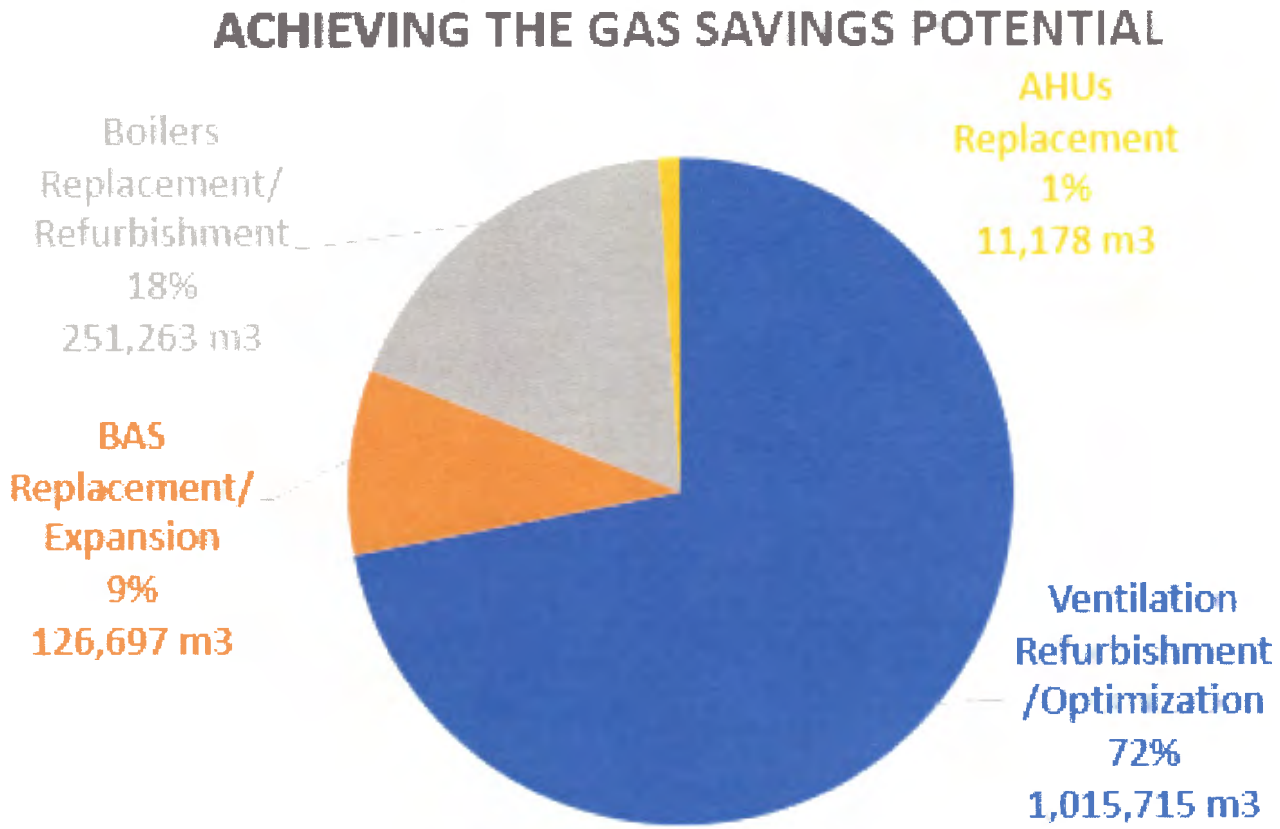
Summary of Projects Identified Through the Charrettes (20 schools)

Measure	Description	Total	Payback	% of Overall Total	# out of 20
Lighting	Budget	$697,286	5.7	4%	8
	Electricity Savings	$116,277		25%	8
Ventilation Refurbishment/Optimization	Budget	$2,596,066	3.8	15%	20
	Electricity Savings	$272,026		60%	16
	Gas Savings	$304,715		72%	20
BAS Replacement/ Expansion	Budget	$2,670,643	32.7	15%	9
	Electricity Savings	$41,541		9%	7
	Gas Savings	$38,009		9%	6
Boilers Replacement/Refurbishment	Budget	$8,932,937	117.7	52%	10
	Gas Savings	$75,379		18%	10
AHUs Replacement	Budget	$2,260,637	337.4	13%	5
	Electricity Savings	$3,332		1%	1
	Gas Savings	$3,353		1%	1
Portables Project	Budget	$140,000	5.3	1%	5
	Electricity Savings	$23,436		5%	5
Total Capital Cost		$17,297,568	-	-	-
Savings	Electricity	$457,012	-	-	-
	Gas	$421,456	-	-	-
	Total	$1,492,564	-	-	-
Overall Simple Payback (years)		11.59	-	-	-

Union Gas Charrettes - Achieving the Electricity Savings Potential



Union Gas Charrettes - Achieving the Gas Savings Potential



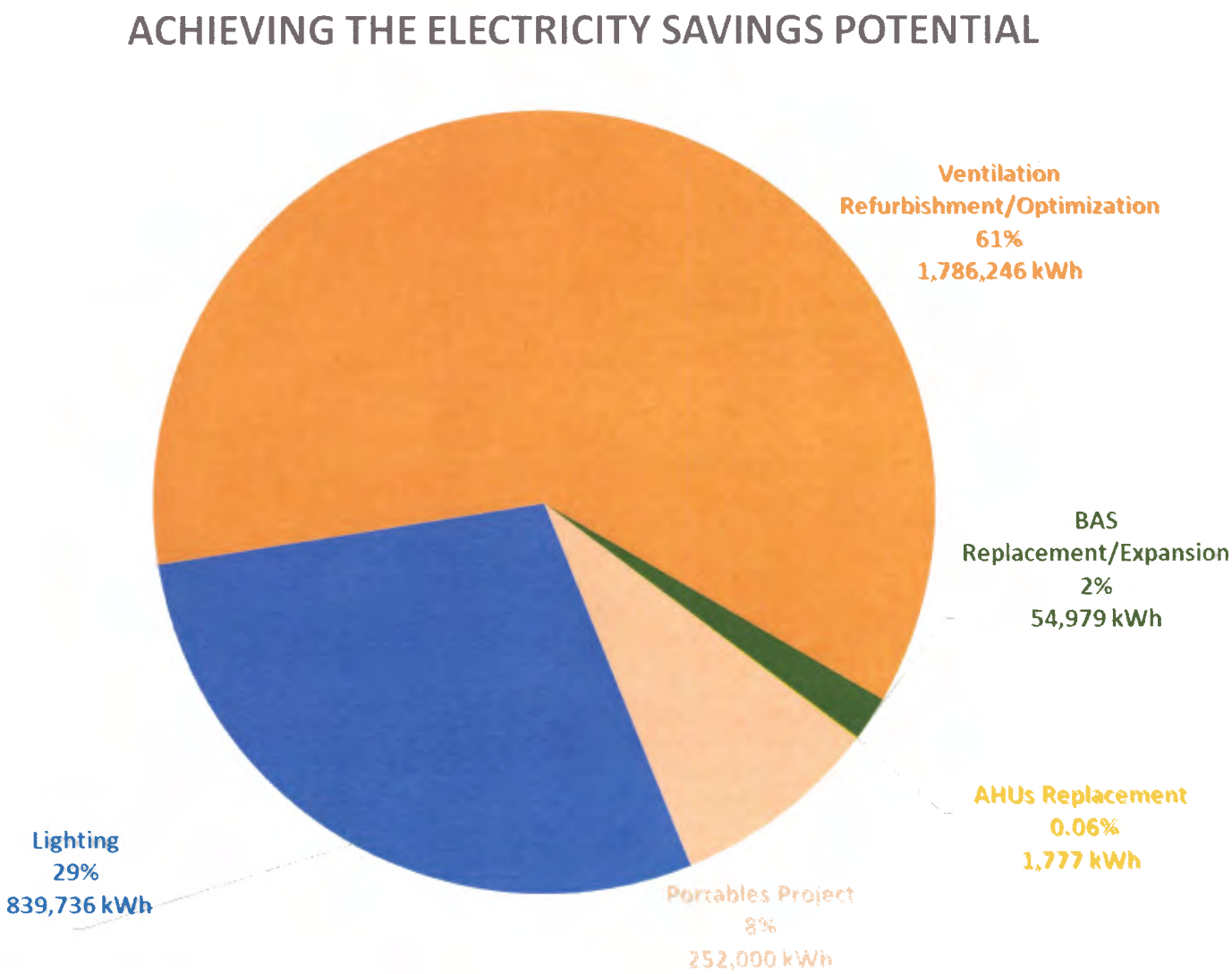
Simcoe County DSB Project

- 29 schools
- Total savings potential of $721,00/year
- 11% electricity savings potential
- 38% gas savings potential
- Measures included: Lighting, Ventilation Refurbishment/Optimization, BAS Replacement/Expansion, Boilers Replacement/Refurbishment, AHUs Replacement and Portables HVAC Controls

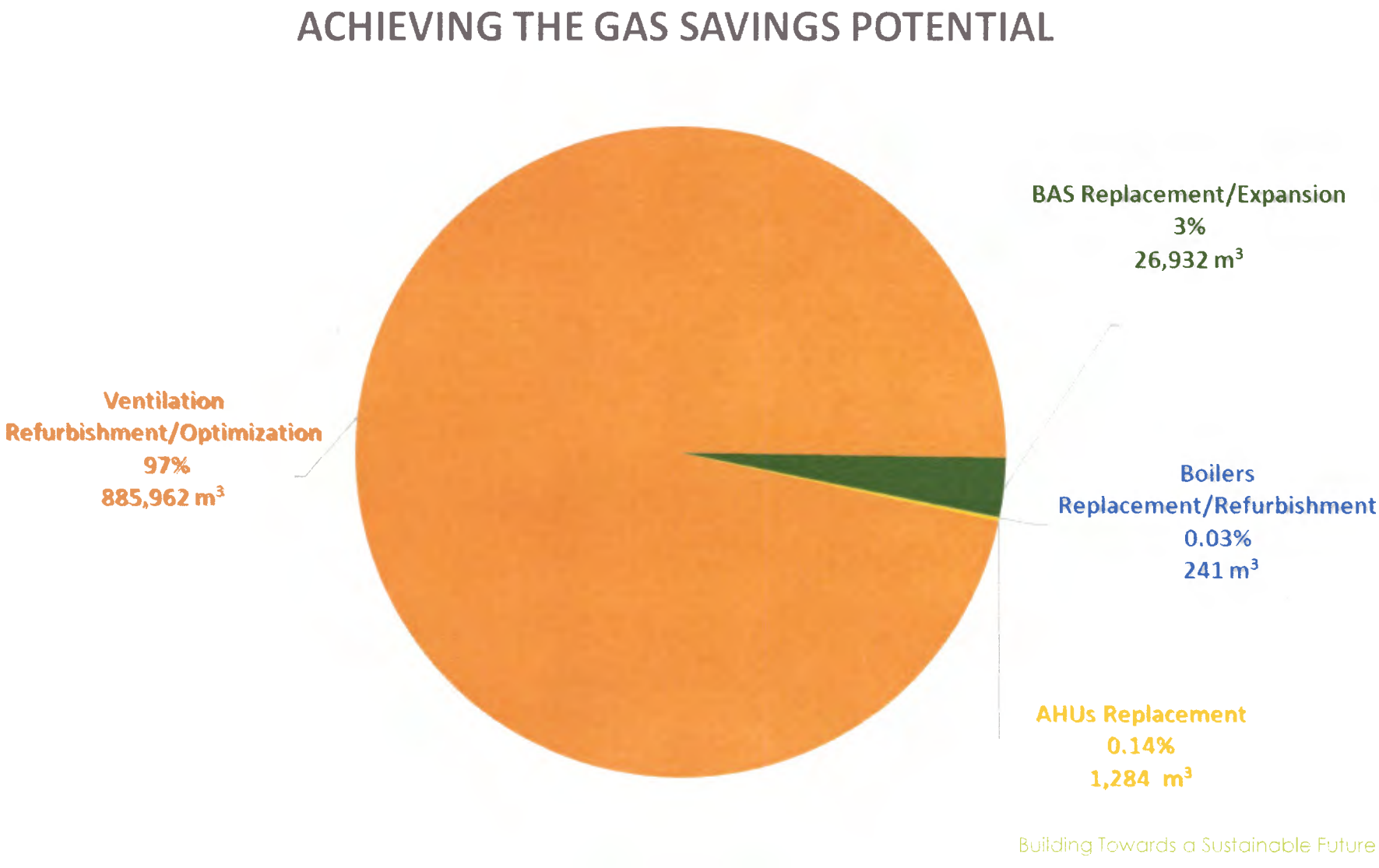
Summary of Simcoe County DSB Projects (29 schools)

Measure	Description	Total	Payback	% of Overall Total	# out of 29
Lighting	Budget	$ 769,408	5.55	18%	15
	Elec. Savings	$ 118,936		29%	15
Ventilation Refurbishment/Optimization	Budget	$ 2,904,995	4.77	68%	29
	Elec. Savings	$ 250,074		61%	25
	Gas Savings	$ 265,789		86%	27
BAS Replacement/Expansion	Budget	$ 240,500	15.12	6%	2
	Elec. Savings	$ 7,953		2%	2
	Gas Savings	$ 7,305		2%	2
Boilers Replacement/Refurbishment	Budget	$ 20,017	331.68	0%	1
	Gas Savings	$ 60		0%	1
AHUs Replacement	Budget	$ 85,787	145.29	2%	1
	Elec. Savings	$ 267		0%	1
	Gas Savings	$ 321		0%	1
Portables Project	Budget	$ 220,500	5.54	5%	5
	Elec. Savings	$ 35,280		9%	5
Total Capital Cost		**$ 4,241,207**			
Savings	Elec. Savings	$ 412,510			
	Gas Savings	$ 308,434			
	Total Savings	$ 720,944			
Simple Payback (yr)		5.07			

Simcoe County DSB - Achieving the Electricity Savings Potential



Simcoe County DSB - Achieving the Gas Savings Potential



Maximizing Achievable Savings

- Ventilation Refurbishment and Optimization Projects: More than 70% of the total gas savings potential and approximately 60% of the electricity savings potential is found in Ventilation Refurbishment and Optimization projects. These projects applied to the majority of schools across all 3 boards and provide the best paybacks of all.
- Capital Projects: All 3 boards included schools requiring major capital replacements of obsolete/end-of-life boilers, air handling units and/or building automation systems. Design and performance standards are necessary to deliver the full savings potential of these projects.
- Lighting Projects: Power density as well as light level standards are required for lighting conversions to LED to deliver the full savings potential.
- Portables Projects: Equipment and controls upgrades of HVAC units in portables make up approximately 10% of the total electricity savings potential in the schools and provide a good payback.

Conclusions

- The natural gas savings potential in the schools' sector as a whole is far greater than is currently thought. The Sustainable Schools analysis for the 2014-15 school year determined the achievable potential to approximately 140 million m3/year or 38% of total annual consumption.
- Some boards have greater gas savings potential than others, ranging between 6% to 32% board-wide
- Some individual schools within the boards have far greater potential than others. 8 of the 20 schools taking part in the Union Gas Charrette have potential greater than 100,000 m3/year as opposed to only 2 of the 29 schools in the Simcoe County DSB project
- High-potential boards, and high-potential schools within each board, are readily identified through the Sustainable Schools analysis and should be the focus of DSM efforts aimed at maximizing savings.

Suggested Principles for Next Generation DSM

- Focus on high-potential owners, high potential buildings and high-potential measures
- Multi-year agreements
- Savings measured at the meter
- Graduated incentives based on approaching targets
- Utility company roles of:
  - account manager
  - technical consultant
  - portfolio responsibility

Questions?

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