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Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, Suite 2700
Toronto, ON M4P 1E4

Your reference
EB-2012-0337

Our reference
01015413-0031

Direct line
+1 (416) 216-1927

Email
john.beauchamp@nortonrose.com

Dear Ms. Walli:

EB-2012-0337 – Union Gas Limited – 2013-2014 Large Volume DSM Plan Application APPrO Response to GEC Motion and Update to Interrogatory Responses

In response to the GEC Notice of Motion filed on January 11, 2013, APPrO is filing updated interrogatory responses. We have provided updated responses to the following questions:

- GEC IR #16(b) – Exhibit D5
- GEC IR #18(a) – Exhibit D5
- GEC IR #18(d) – Exhibit D5
- GEC IR #31 – Exhibit D5
- GEC IR #32 – Exhibit D5

An electronic copy of the interrogatory responses have been filed on RESS.

Yours very truly,

Original signed by

John Beauchamp

JB/mnm

cc: All Interested parties

DOCSTOR: 2612800\1

ASSOCIATION OF POWER PRODUCERS OF ONTARIO

RESPONSES TO INTERROGATORIES FROM ENVIRONMENTAL DEFENCE

Interrogatories for Todd Williams (Managing Director, Navigant Consulting Ltd.)

INTERROGATORY #1

Ref: Navigant Consulting, *DSM Funding Options for Large Natural Gas Customers*, pages 17 and 18

(a) With respect to the responses to questions 4 to 10, inclusive, why do the sum of the "yes" and "no" responses for each question not add up to 100%?

(b) With respect to the responses to questions 4 to 12, inclusive, please state the number of responses that you received for each question.

(c) With respect to the responses to questions 4 to 12, inclusive, for each question please provide the names of the firms that responded to the question.

(d) According to page 8 of the Navigant report, 15 responses to the survey were received from plant managers representing 12 different companies. With respect to the responses to questions 4 to 12, inclusive, please provide a summary table of the responses by company (i.e. counting multiple responses from one company as one response). Please use a format similar to tables 4 and 6 of the Navigant report.

(e) With respect to the responses to questions 4 to 12, inclusive, did Ontario Power Generation, Brighton Beach Power Station or the Portland Energy Centre respond to one or more of these questions? If "yes", please provide their full responses to those questions.

(f) With respect to questions 4 to 12, inclusive, please provide the full responses of Veresen Inc. and its subsidiaries.

(g) With respect to questions 4 to 6 and 10 to 12, inclusive, please provide a table indicating all of the responses to those questions for each of the 15 survey respondents.

RESPONSE

1. (a) Unfortunately the values shown in Table 4 of Appendix B presenting the results for questions 4 to 10 are incorrect. The percentages stated in the text of section 3 of the report reflect the correct values. A corrected Table 4 is presented below. Note that the percentages are presented as a percentage of those who responded to each question. The table below also shows the number of responses to each question.

Question No.		No. of Responses		Percentage of Responses	
		Yes	No	Yes	No
4	Has your firm received technical or financial assistance through a Demand Side Management program offered by Union Gas (or your gas supplier)?	7	8	47%	53%
5	Has your firm received technical or financial assistance from a Conservation and Demand Management program offered by the OPA or your electric utility?	1	13	7%	93%
6	If incentives from Union Gas were used to contribute to project costs, please indicate whether this investment would have been made within three years if these incentives had not been available	8	5	62%	38%
7	Does your firm track energy savings achieved through the program?[1]	3	12	20%	80%
8	Do you use a third party to verify the level of energy savings achieved by energy management projects?	2	13	13%	87%
10	Does your firm plan to invest in energy management in the coming 3 years? (For yes responses, see below)	10	5	67%	33%

1. (b) Please see table presented in response to Environmental Defence IR #1 above.

1. (c) Navigant sent the survey to all APPrO members whose facilities use natural gas.

As indicated in the introduction to the survey form, responses were provided on the condition that they "be protected as confidential" unless as authorized in question 9. For the purposes of obtaining honest, untainted data, Navigant never discloses personal or confidential commercial information submitted by survey respondents without their consent. Information is collected on the premise that only aggregated information will be published and any/all personal confidential commercial information will remain confidential. This is standard industry protocol when conducting market research – requiring Navigant to disclose such information would impede its ability to obtain the data it requires to prepare useful results.

When conducting market research in Canada, Navigant subscribes to "*The Marketing Research and Intelligence Association Privacy Code*" published by the Marketing Research and Intelligence Association (MRIA). The MRIA is a Canadian not-for-profit association representing all aspects of the market intelligence and survey research industry, including social research, competitive intelligence, data mining,

[1] If individuals answered "Yes" to this question, they were asked to indicate the level of annual energy savings achieved over the past 3 years. No respondent answered this part of the question.

insight, and knowledge management. Principle 5 in the MRIA's code states that "The MRIA will not use or disclose personal information for purposes other than those for which it was collected, except with the consent of the individual or as required or permitted by law.

Most importantly, the survey respondents consider the information they have submitted to be confidential commercial information. For these reasons, Navigant cannot reveal company-specific answers to its survey.

1. (d) See response to Environmental Defence IR #1(c) above.

1. (e) See response to Environmental Defence IR #1(c) above.

1. (f) See response to Environmental Defence IR #1(c) above.

1. (g) See response to Environmental Defence IR #1(c) above.

INTERROGATORY #2

Ref: Navigant Consulting, *DSM Funding Options for Large Natural Gas Customers*, page 18

If the Ontario Energy Board ("OEB") were to permit the "opting out" option, do you believe that the expected magnitude of natural gas savings (cubic metres) would rise, fall or stay the same for the customers that opted out? Please fully justify your response.

RESPONSE

Navigant does not have sufficient information from the survey to respond to this question.

INTERROGATORY #3

Ref: Exhibit A, Tab 1, page 30

According to Union Gas, its large volume industrial DSM programs have a Total Resource Cost ("TRC") benefit/cost ratio of 8.1. Are you aware of any North American utility-sponsored industrial DSM programs that are more cost-effective than those of Union Gas? If yes, please provide the names of the utilities and the TRC benefit/cost ratios of their programs.

RESPONSE

Navigant's scope of work did not include assessing the TRC benefit/cost ratio of large industrial DSM programs across North America, so we are unable to respond to this question.

INTERROGATORY #4

In order to permit Ontario to achieve its 2014 & 2020 greenhouse gas emission reduction targets at the lowest possible cost, should all of the industrial natural gas energy efficiency opportunities that have a TRC benefit/cost ratio of 1.0 or greater be pursued? If your answer is "no", please fully justify your response, and please outline a package of other alternatives that would permit Ontario to achieve its greenhouse gas emission reduction targets at the same or lower cost.

RESPONSE

Navigant is not a policy expert on greenhouse gas emission reduction targets, and its scope of work did not include an assessment of Ontario's various greenhouse gas reduction opportunities.

Interrogatories for Sean Russell (Commercial Manager/Interim Plant Manager of London District Energy Inc., subsidiary of Veresen Inc.)

INTERROGATORY #5

Has Veresen pursued all of its energy savings opportunities with a TRC benefit/cost ratio of 1.0 or better? If "no", please explain why not.

RESPONSE

Energy efficiency programs are pursued on an ongoing and planned basis, taking into account various investment criteria which depend on the nature and scope of the specific energy efficiency initiative. Project benefit-to-cost ratios will change over time as equipment ages and requires further maintenance, with the input costs of fuel and with the price of electricity. This systematic pursuit of energy efficiency is part of LDE's regular business planning because it makes good business sense. Plant management is in the best position to determine which projects are economic and which ones are not. The economic tests applied to the various energy efficiency initiatives will be the same whether or not an opt-out program is approved by the Board.

LDE has included DSM funding in the past as a benefit in the overall economics of energy efficiency projects. This makes sense once the Board has approved a DSM program and the rates are set based on recovery of these DSM costs. At this point in time, the DSM program for 2013 and 2014 has not been approved, nor are the rates approved to recover such DSM costs. An appropriate economic analysis at this time should not only reflect the DSM funding that might be received to support an energy efficiency initiative, but should also reflect the real costs of providing the DSM program. These real costs of providing the DSM program are paid for by the rate payer and are a combination of both the higher distribution rates that result from recovery of the DSM program costs as well as the one-time costs charged to rate payers by Union related to the clearing of the DSM variance accounts at the end of the year. The variance accounts include variances in actual DSM spending as well as Union incentive payments.

It is worth noting that, at Exhibit B5.7, APPrO requested certain information and received the following response:

> Question:
>
> d) Please recalculate the percentage of the 'DSM amount' that is directly allocated to supporting energy-efficiency projects if the incentive payments are included in the calculation assuming 100% payout,
>
> Answer:
>
> d) If the 100% DSM Utility Incentive is included in the calculation 67% of the DSM amount is directly allocated to supporting energy-efficiency projects.

It is clear from this response that at a 100% incentive payout (and assuming no other variances), only 67% of the total amount paid by ratepayers ends up going to support energy efficiency projects. Put another way, for each $1,000 dollars of DSM funding received by customers from Union, the customer pays $1,500 in rates and other charges. If the real costs of providing the DSM program are included in the economic tests to evaluate energy efficiency projects, then in fact the DSM program should result in fewer energy efficiency projects being economic and subsequently pursued.

INTERROGATORY #6

Please fully describe Veresen's investment criteria for energy efficiency investments, including the required pay-back period, required rate of return, and maximum time horizon.

RESPONSE

See response to Environmental Defence IR #5 above.

INTERROGATORY #7

Does Veresen support a carbon tax?

RESPONSE

Veresen's views on a carbon tax are irrelevant to this proceeding.

INTERROGATORY #8

Does Veresen support a greenhouse gas cap and trade program for Ontario's large volume industrial natural gas consumers?

RESPONSE

Veresen's views on a greenhouse gas cap and trade program are irrelevant to this proceeding.

ASSOCIATION OF POWER PRODUCERS OF ONTARIO

RESPONSES TO INTERROGATORIES FROM
CME

INTERROGATORY #1

Ref: Exhibit B, DSM Funding Options for Large Natural Gas Customers

1. Navigant has presented a jurisdictional review of the "Opt-out" programs across North America. CME wishes to better understand how "Opt-out" programs in the different jurisdictions affect the overall DSM budget allocated to the ratepayers that do not "Opt out". To this end, please answer the following questions:

(a) In those jurisdictions that have implemented "Opt-out" programs, when customers "Opt-out" of the DSM program, and are thereby no longer allocated DSM costs in their rates, is there a corresponding decrease of the overall DSM budget? If not, do the customers that do not "Opt-out" pay more for DSM?

(b) In order to clarify (a) above, please address the following scenario. If the rate class is allocated a DSM budget of $1M, and there are ten (10) customers in that rates class, each of whom are allocated $100,000, and nine (9) of the 10 customers "Opt-out", how much would the one (1) remaining customer pay for DSM? Specifically, would the remaining customer who did not exercise their "Opt-out" option be allocated $100,000 or $1M?

RESPONSE

1. (a) Navigant does not have any information about whether the overall DSM budget in those jurisdictions that have implemented “opt-out” programs decreased. However, given the reduction in potential participants in jurisdictions that have implemented “opt-out” programs, Navigant expects that DSM spending for the rate class by the utility whose customers are eligible to opt-out would likely decrease.

1. (b) As mentioned above under CME IR #1, Navigant does not have this information for each jurisdiction that has implemented an opt-out program. However, because Navigant expects that DSM spending for the rate class by the utility whose customers are eligible to opt-out would likely decrease, we suspect that such a “remaining customer” (without regard to actual volume amounts) would likely be allocated an amount that is much closer to $100,000 than $1M.

ASSOCIATION OF POWER PRODUCERS OF ONTARIO

RESPONSES TO INTERROGATORIES FROM
UNION GAS LIMITED

INTERROGATORY #1

Ref: Section 3, Appendix A and B - Survey Sent to APPrO Members

(a) Please provide a list of all APPrO members that were sent a copy of the survey attached to the Navigant report titled DSM Funding Options for Large Natural Gas Customers (the "Navigant Report"). On the list please indicate each of the following: the name of the APPrO member, the plant name, the natural gas rate class effective January 1, 2013 and whether the APPrO member responded to the survey.

(b) Please provide copies of the surveys completed by APPrO members and referenced in the Navigant Report. Please identify on each survey the natural gas rate class effective January 1, 2013 of the respondent.

(c) Please provide copies of all correspondence between APPrO or Navigant and APPrO's members related to the survey.

(d) Please define the scope of the energy management program referenced in evidence at table 4.

RESPONSE

1. (a) See response to Environmental Defence IR #1(c).

1. (b) See response to Environmental Defence IR #1(c).

1. (c) Correspondence between APPrO or Navigant and APPrO members relating to the survey includes personal information which, in accordance with industry practice (see Environmental Defence IR #1(c) at Exhibit D1), is confidential.

In addition, any correspondence between APPrO and APPrO members related to the survey is irrelevant to the matters to be considered by the Board, and in any event, is not producible as it is subject to litigation privilege and common interest privilege

1. (d) It is not a defined term in the survey.

INTERROGATORY #2

Ref: Page 16, Table 3 - Spending on energy management for the past 3 years

(a) For each year 2009 through 2011 provide the amount of cumulative natural gas savings for each project and the incentives received.

RESPONSE

2. (a) See response to GEC IR #19 (f) for information related to the total incentives received over the three year period. Per footnote 17 on page 17 of the report, no respondents provided information on the level of annual energy savings realized.

INTERROGATORY #3

DSM Initiatives & Power Generation

Preamble: Navigant states at page 2 of the Navigant Report that most utility DSM initiatives are not designed to address the technologies and processes used in power generation.

(a) Which of the DSM program elements set out in the table at Appendix A, Tab 1, Appendix B, page 8 of Union's application do not address the technologies and processes used in power generation?

(b) Why do the elements identified in question 3(a) not apply to power generators in Ontario?

RESPONSE

3. (a) The vast majority of natural gas consumption for a natural gas generator is consumed in the generation process (with an average of 96% of natural gas consumption being used for generation as reported by the respondents to Navigant's survey). Navigant expects that there are very limited cost-effective opportunities to improve the efficiency of the generation process at gas-fired generation electricity facilities, many of which are new, state-of-the-art facilities (although members have indicated they support energy efficiency measures and invest in them when appropriate). Beyond the generation process, there are also limited opportunities to reduce natural gas consumption.

3. (b) See response to Union Gas IR #3(a) above.

INTERROGATORY #4

Ref: Section 2 - Jurisdictional Review

(a) Please list all of the 21 utility companies referenced at page 3 of the Navigant Report that do offer DSM programs and indicate for each of them:

(i) the jurisdiction in which they operate;

(ii) whether they are for natural gas, electric utilities or a combination of both;

(iii) whether opt-out provisions are offered, on what basis and what obligations are placed on the customer; and

(iv) whether self-direct provisions are offered, on what basis and what obligations are placed on the customer.

(b) Please confirm that all electricity generators pay for electricity conservation demand charges through the global adjustment.

(c) Please provide the Minnesota Public Utilities Commission's decision referenced on page 5 of the Navigant Report.

(d) Please confirm the reference to the Nova Scotia Utility and Review Board's review of Nova Scotia Power Inc.'s application of a DSM rider request on page 7 of the Navigant Report does not relate to opt-out provisions.

RESPONSE

4. (a)

(i) The quote presented in the report is from the Report to the Utah Natural Gas Demand-Side Management Task Force, Results of DSM Survey of North American Gas Utilities, January 28, 2004 – Final, prepared by GDS Associates, Inc., Page 2. The report is available at:

http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CDEQFjAA&url=http%3A%2F%2Fwww.dps.ny.gov%2F07M0548%2Fworkgroups%2FWGV_GDS_Final_Rpt_Task2_01-28-2004_updated_cover.pdf&ei=Za7pUP4whfnSAbT7gfAJ&usg=AFQjCNFmBeIKcZC8674ZpfsCMpjKY-saKg&bvm=bv.1355534169,d.dmQ&cad=rja

The 21 utilities included in the survey are listed in Table 1 of the report. The full list of respondents to the survey is listed at page 5 of the report in the table entitled "List of Respondents to The Survey of Gas DSM and Energy Efficiency Program Practices". They cover a broad range of jurisdictions throughout North America (including a number of northern jurisdictions).

(ii) All of the utilities covered in the report provided natural gas; some also provided electricity.

(iii) The report does not address opt out provisions.

(iv) The report does not address self-direct provisions.

4. (b) Yes they do, to the extent they consume from the IESO grid or from a distributor.

4. (c) The comments regarding Minnesota PUC's decision were based on personal communication with Minnesota PUC staff.

4. (d) The NSURB's decision did not relate directly to an opt-out provision, but both of Nova Scotia Power Inc.'s two largest customers submitted evidence in the subject proceeding requesting that they should be excluded from Nova Scotia Power Inc.'s DSM program offering (and not be required to contribute to costs of these program offerings). Evidence submitted by the two customers is available as Exhibits N-25 and N-26 in NSUARB Docket M00010 (please see Appendix "A" to Exhibit D3).

The NSUARB decision effectively deferred any contribution to DSM from these two electricity customers until the next Nova Scotia Power Inc. rate application. Since the decision, one of the customers has ceased operations and the other customer is on a special load retention rate mechanism that does not include any specific contribution towards DSM funding (NSUARB MO4862).

Appendix “A” to Exhibit D3

NSUARB FILE – NSPI – P-888

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF:	*The Public Utilities Act*, R.S.N.S. 1989, c. 380, as amended
	- and -
IN THE MATTER OF:	An Application by Nova Scotia Power Incorporated and a Hearing for Approval of Certain Revisions to its Rates, Charges, and Regulations

DIRECT TESTIMONY OF FRED HUSSEY, P. ENG.

ON BEHALF OF

NEWPAGE PORT HAWKESBURY LIMITED

August 7, 2008

Before the
Nova Scotia Utility and Review Board

IN THE MATTER OF:	***The Public Utilities Act*, R.S.N.S. 1989, c. 380, as amended**
	- and -
IN THE MATTER OF:	An Application by Nova Scotia Power Incorporated and a Hearing for Approval of Certain Revisions to its Rates, Charges, and Regulations

DIRECT TESTIMONY OF FRED HUSSEY

Q.1 Please state your name, occupation and professional qualifications.

A. My name is Fred Hussey. I am Vice-President, Engineering and Services for NewPage Port Hawkesbury Limited ("NPPH"). I have a Bachelor of Mechanical Engineering degree from Memorial University in Newfoundland. I have 33 years' experience in the pulp and paper industry. I have represented the Port Hawkesbury Mill in electricity matters for the past twelve years. I was a member of the Province of Nova Scotia's first Energy Marketplace Governance Committee.

Q.2 Please describe NPPH, and its place within the NewPage Group.

A. NPPH is a Nova Scotia company. It is a wholly-owned subsidiary of NewPage Corporation of Miamisburg, Ohio. There are twelve operating units within the NewPage Group making various grades of publication papers. The Port Hawkesbury mill is the most modern of these units.

NPPH owns and operates one newsprint machine and one Supercalendered (SC) paper machine with a combined capacity of 550,000

tonnes per annum, both located at Point Tupper on Cape Breton Island. The business has been in operation in Nova Scotia for 46 years with investments in excess of $1.4 billion over that period.

Q.3 Please describe your responsibilities within the NewPage Group.

A. I am responsible for engineering and services at NPPH, including in particular energy supply and management. As such, I am familiar with NPPH's current mill processes and energy needs, as well as its potential future developments, having been employed by the Company in a senior executive capacity for 20 years. I am also familiar with the operations of many other units within the NewPage Group in North America, as well as the Stora Enso Group both in Europe and in North America (as NPPH was previously a wholly owned subsidiary of Stora Enso Oyj). I am also generally familiar with the energy situation (particularly electricity) within the European and North American forest industry.

Q.4 Have you ever appeared as a witness before the Nova Scotia Utility and Review Board or any other regulatory tribunal?

A. I have appeared as a witness on behalf of Stora Enso Port Hawkesbury Limited ("SEPH") before the National Energy Board of Canada in its Hearings in late 1998 with regard to the proposed installation by Maritimes & Northeast Pipeline of the gas lateral from Goldboro, NS to Point Tupper, NS. I also appeared as a witness on behalf of SEPH before this Board in its hearings in 2000 with respect to the application by Nova Scotia Power Inc. (NSPI) for a Load Retention Rate, as a witness on behalf of SEPH in NSPI's 2002 General Rate Application, and as a witness together with our President and General Manager, Mr. Suther, on behalf of SEPH in NSPI's 2003 Extra Large Industrial Interruptible Rate ("ELIIR") proceeding. I have also filed evidence in the 2003 Generic Hearing and, together with Mr. Suther, in the 2-Part RTP Rate Case in 2003 and the 2005 General Rate Application. Finally, I filed evidence and

testified on behalf of SEPH in the hearing to establish a rate to replace NSPI's Extra Large Industrial Interruptible Rate in 2006.

Q.5 What is the purpose of your testimony?

A. The purpose of my testimony is to discuss the status of energy conservation issues at the Port Hawkesbury mill, our relative standing within the industry and why we believe NSPI's DSM cost allocation and recovery approach is not an effective way to incent further energy efficiency improvements within the forest industry sector.

Q.6 Please describe in general terms the operations presently carried on by NPPH.

A. NPPH operates an upgraded newsprint line, sometimes known as PM-1 (for "Paper Machine No. 1"). PM-1 produces 185,000 metric tonnes of newsprint and improved newsprint per year for sale on world markets, primarily the Northeast USA and Canada.

NPPH also operates a Supercalendered (SC) paper line, which opened in April 1998, sometimes known as PM-2 (for "Paper Machine No. 2"). PM-2 was designed to produce 350,000 metric tonnes of SC paper per year. Its capacity has been increased to 360,000 tonnes per year with plans in the near to mid term to increase it by an additional 30,000 - 40,000 tonnes per year.

The mill has continued to improve its energy efficiency while at the same time improving its product grades.

Q.7 Please describe NPPH's present energy usage requirements.

A. At present, NPPH purchases approximately 1.68 billion KWh of energy from NSPI, under the ELI 2P-RTP Rate. This is based upon PM-2 at full capacity and PM-1 electricity requirements following its restructuring.

This restructuring included the installation, completed in 2004, of the $90 million TMP pulp line (which was the catalyst for the ELIIR application in 2003), and an incremental speed increase on both paper machines. In addition, NPPH has in-house generation that is still in operation.

Plans have also been developed for a 60MW bio-fueled steam turbine to provide electricity and process steam which will be operated as a cogeneration facility tied in to the existing paper machine operations and a future sawmill. This would replace 410 GWh/a of electricity purchased from NSPI, thus reducing overall fossil fuel emissions and replacing it with a "green", carbon neutral electricity source.

Q.8 Can you briefly describe NPPH's paper making process?

A. Energy-intensive thermo-mechanical pulp (TMP) is produced at NPPH's Point Tupper location and is the primary raw material for the manufacture of both paper grades (PM1 & PM2). The pulping and storage capacity of the new TMP line was designed to accept a certain amount of interruption and increased consumption of RTP energy, and thus complement the utility's load profile, rather than adding to its more expensive peak demand.

The newsprint and SC paper manufacturing processes also use large quantities of process steam. This steam is derived from two principal sources: as a by-product from the energy supplied by the electricity used in the manufacture of TMP, and from the operation of NPPH's in-house boilers. These boilers are fired mainly by hog fuel (bark, wood waste and full tree chips) and supplemented by Bunker C oil or natural gas as required. Also, NPPH recently invested $2.5 million in a bio-sludge enrichment project to make more energy-efficient use of the waste product derived from effluent treatment.

The plan for a 60 MW steam turbine is a key part of NPPH's long-term vision for a "fossil fuel free" operation. Not only would it virtually eliminate fossil fuel for process uses and enhance by-product steam recovery, but it will also add to the renewable energy portfolio of Nova Scotia.

Q.9 Does NPPH have an active energy conservation program?

A. Yes, definitely. Energy conservation is a priority issue in our capital planning and daily operation. Monitoring and measurement by departmental area and individual process users is quite extensive and integrated into a real time computer based monitoring system. We have been actively involved in research activities and industry organizations such as Paprican and CIPEC in Canada, STFI in Sweden, and KCL in Finland, and also in using our own NewPage Group internal research resources to examine ways to reduce our energy consumption. NPPH has further reported to the former VCR (Voluntary Challenge and Registry Inc.) of Canada, for as long as that program existed, receiving gold medals for our action five years in a row. Our VCR reports are publicly available under:

http://www.ghgregistries.ca/challenge/cha_entity_e.cfm?No=375

In addition, our CO_2 and SO_2 emissions have been reduced by approximately 78% and 93% respectively since the peak years in the early 1990's. As noted above, we are working on a vision to make our paper making process fossil fuel free, by increasing biofuel usage and through energy conservation.

Q.10 Approximately how much does NPPH spend on energy efficiency and conservation efforts on an annual basis?

A. Since the year 2000, NPPH has spent $20 million on energy demand and conservation projects. In most cases the latest commercially available technology has been applied, such as premium efficiency motors, variable speed drives, efficient lighting. We have been focused on an integrated approach, in that energy projects not viable on their own can be carried out if they are integrated with other process improvements. In most cases electrical energy is applied in the most commercially efficient way, enabling us to recover and reuse downstream energy.

Q.11 Why is energy conservation a priority for NPPH?

A. The cost of electricity is typically one of the three largest cost components in the manufacture of newsprint and supercalendered paper, the others being fibre and personnel costs. For NPPH, electricity is the largest single component at the moment, even before the impact of any increase to NSPI's current rates are considered. Energy is approximately double the next two key components, making up some 25% of our total manufacturing costs.

Because NPPH's products are commodities sold on the world market, electricity prices are extremely important if the Company is to remain competitive with other producers selling into those markets.

Q.12 Do you believe that you have done all that is possible?

A. No, but we are constantly driven to find commercially proven solutions with an economic return.

Because of the impact of energy costs on our business, we are driven to search for and find innovative technical breakthroughs – or develop our own – which requires us to run pilot studies and mill trials involving high risks to our operations in order to achieve further improvements.

For example, we are currently working on three fronts:

1. Refiner plate design with three different manufacturers (This involves new approaches to the steel plates that interact with the raw wood fibre to produce plup.). These trials pose high risks for product quality and machine productivity, but are considered essential for the long term.
2. University and pilot based research on newly patented technology. Applying for this technology is very capital intensive and presents significant quality risks, so it must be developed at a pilot scale before being implemented at the mill level.
3. Updating our total mill mass and energy balance using a "Pinch Analysis" technique. This method will identify potential opportunities and structure the solutions in such a way that energy saved or displaced in one part of the process could be consumed elsewhere in the process.

Q.13 Has NPPH participated in any independent studies regarding its level of energy efficiency?

A. Yes. We participated in an independent energy audit (Nova Scotia Industrial and Manufacturing Energy Management and Benchmarking Study) sponsored by various government departments and the Utility (http://www.cme-mec.ca/pdf/EnergyBenchmarkingReport.pdf).

The results of that audit rank us very high in both absolute and relative terms (92% technical best practices and 100% in energy management.) The opportunities for improvements that were listed in the report were already in progress when the report was published, including:

1. Pursuing technologies to reduce electrical load in the TMP mill. This was already in progress on two fronts: plate design and process change through chip pre-treatment. Since the issuance of the report we have been conducting pilot trials with a second chip pre-treatment technology.
2. Additional Self Generation. The feasibility of a large biomass project requiring major capex has been evaluated and is awaiting approval.
3. Compressed air systems. The suggested menu of improvements is already implemented. Changing to newer slightly more efficient technology does not produce a satisfactory return.

Q.14 If NPPH is interested in energy efficiency and conservation, why do you want to be excluded from an energy-efficiency program such as Nova Scotia Power (or a future administrator's) Demand-Side Management program?

A. We believe that energy efficiency and conservation cannot be managed in an economically efficient way if it is an "electricity" only program. In a large industrial complex such as ours, it must be looked upon as an integrated process. Conservation in one area may result in a higher usage in another. Energy may also be recovered and reused in a different form or energy level.

There are some projects where energy efficiency is only one attribute and in many cases such projects are not viable on their own. However, when carried out as an integrated project where productivity and quality are the key economic drivers, such energy efficiency improvement projects can be achieved without meeting the required economic criteria or a "total resource cost test" as an independent project.

Q.15 Are there other reasons why the proposed system-wide approach to DSM is inappropriate for a company such as NPPH?

A. The other concerns that we have about a "systems benefit charge" approach are the time delays in execution and the bureaucratic cost of additional administration. We need to respond quickly to market and competitive cost pressures and to maximize the capital efficiency of every dollar spent.

Also, given the level of technology already installed, we need to take on higher risk improvements which would have difficulty meeting the total resource cost test. In other words, for our company the low hanging fruit has already been picked and what we need now are the technical breakthroughs that, as noted above, we are working diligently on.

Q.16 What assurances do the Board and other stakeholders have that NPPH has and will continue to undertaken energy efficiency and conservation measures if NPPH is excluded from the requirement to contribute to the Demand-Side Management plan?

A. We are in a commodity business where inflationary costs cannot be fully passed through to the customer in product prices. We are driven by the need for cost reduction if we are to remain in business. The cost of electricity, being our largest input, forces us to remain focused on this parameter all the time.

Competitors in other jurisdictions in the commodity market are not impacted to the same degree, preventing us from passing these costs through.

Q.17 In addition to its energy efficiency and conservation measures, has NPPH undertaken other efforts that have contributed to the avoidance of new generating plant in Nova Scotia to the benefit of all customers?

A. Yes. In order to enable load shifting to "off peak" power usage, we at NPPH in the period up to 2005 expanded our two existing pulping lines by 30%, and increased the size of the new (3rd) TMP pulping line by 33% and our storage capacity by 50%. The incremental capital cost for this extra capacity was approximately $15.5 million.

Q.18 Are there significant costs and risks associated with load shifting?

A. Yes. Longer pulp storage time reduces fiber strength which must be addressed with either higher initial strength or special treatment after the pulping process. Either of these actions require up to 5% higher specific energy or the addition of more costly kraft pulp (purchased from 3rd party suppliers to strengthen our TMP pulp). Additional risks arise when running the variable operations resulting from load shifting, as compared with steady state operations. These are unplanned downtime resulting from plate clashes, breakdowns when inventory is low, and periods when pulp must be produced without full heat recovery. All these factors are magnified when one is trying to optimize production over the limited off-peak period, as opposed to over all available hours.

Load shifting also makes balancing of our thermal energy more challenging and additional fuel costs are incurred.

Q.19 How else does NPPH contribute to the avoidance of new generating plant in Nova Scotia?

A. Normally, marginal cost is the indicator of high demand. The structure of the ELI 2P-RTP rate motivates us to reduce demand in peak periods.

Also, the priority supply interruptibility feature of our rate eliminates the need for very short term peak capacity.

Q.20 Does this conclude your testimony?

A. Yes, it does.

(1213579)

NSUARB FILE – NSPI – P-888

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF:	*The Public Utilities Act*, R.S.N.S. 1989, c. 380, as amended
	- and -
IN THE MATTER OF:	An Application by Nova Scotia Power Incorporated and a Hearing for Approval of Certain Revisions to its Rates, Charges, and Regulations

DIRECT TESTIMONY OF WILLIAM STEWART, P.ENG.

ON BEHALF OF BOWATER MERSEY PAPER COMPANY LIMITED

August 7, 2008

IN THE MATTER OF: The Public Utilities Act, R.S.N.S. 1989, c. 380, as amended

- and -

IN THE MATTER OF: An Application by Nova Scotia Power Incorporated and a Hearing for Approval of Certain Revisions to its Rates, Charges, and Regulations

DIRECT TESTIMONY OF WILLIAM STEWART, P. ENG.

Q: Please state your name, occupation and professional qualifications.

A: My name is William Stewart. I am the Manufacturing Services Manager for Bowater Mersey Paper Company Limited ("Bowater Mersey") in Liverpool, Nova Scotia. I am a graduate in civil engineering from the Technical University of Nova Scotia, and a registered professional engineer. I have represented Bowater Mersey in electricity matters since 1999.

Q: Please describe the operations of Bowater Mersey Paper Company Limited.

A: Bowater Mersey has operated a paper mill in Brooklyn, Queens County since 1929, initially as the Mersey Paper Company founded by Isaac Walton Killam, subsequently purchased by Bowater in 1956, which latterly has become AbitibiBowater. In 1969 Bowater added a sawmill near Bridgewater (which today is the largest operating sawmill in the province), and in 2008 acquired Brooklyn Power, a 21 MW biomass-fired cogeneration power plant adjacent to the paper mill. Bowater Mersey also owns 250,000 hectares of managed woodlands in Nova Scotia. Through its operations, Bowater Mersey provides direct employment for approximately 500 people, and through its contractors

and suppliers, provides a livelihood for many more throughout rural Nova Scotia.

Q: Where are Bowater Mersey's products sold?

A: The paper mill produces products for sale throughout the world, with principal markets being South America, Europe, Asia, the Caribbean and Middle East. Some paper is also sold locally in Atlantic Canada. The sawmill produces lumber for markets in both Canada and the United States. Brooklyn Power sells electricity to a third party under a confidential contract.

Q: What is the nature of Bowater Mersey's energy usage?

A: Most of the energy used by Bowater Mersey is in the form of electricity. By far and away the greatest amount of this is consumed by the paper mill, which relies on electricity-intensive thermo-mechanical pulping ("TMP") to convert wood chips into pulp. Thermo-mechanical pulping is an environmentally-friendly, low-emission, high-yield pulping process commonly used by paper mills producing uncoated paper grades.

Q: What are the benefits of the TMP process?

A: The TMP pulping process uses mechanical energy, rather than chemical energy, to convert wood into pulp, and thus is virtually chemical-free. It is very energy-efficient, in that the heat generated from the mechanical energy is conserved and recycled as steam for use in the manufacturing process, displacing the need for thermal energy from conventional combustion sources such as oil.

Q: What are the characteristics of the TMP process?

A: The TMP process is very electricity-intensive. The Bowater Mersey paper mill uses about 5-6% of all the electricity generated in Nova Scotia, and almost all of that is used in the TMP pulping process. The large amounts of electricity used by the TMP process make it particularly sensitive to electricity pricing.

Q: Is energy efficiency important to the TMP process?

A: As one might expect, energy efficiency is more important in a TMP process than in perhaps virtually any other industry. Electricity accounts for more than one-quarter of the total manufacturing cost of paper at Bowater Mersey, and is one of the largest input costs. Consequently, a great deal of time and resources are devoted to reducing electricity use and keeping it at the lowest possible level.

Q: What has Bowater Mersey done to reduce its energy usage?

A: Through capital additions, process modifications and careful monitoring and tracking, Bowater Mersey has successfully reduced the energy intensity of its manufacturing process. Electricity use has been reduced by approximately 1.3% per year on average during the ten year period from 1995 – 2004. At the same time, thermal energy use was reduced by almost 3% per year on average. This reduction in thermal energy use is all the more remarkable when one realizes that more than half of the thermal energy used in the manufacturing process comes in the form of heat recycled from the electrical energy input; as less electricity is input to the process, correspondingly less heat is available for recycling.

Q. Does Bowater Mersey burn oil or natural gas at the paper mill?

A. No. Bowater Mersey does not burn any fossil fuels in the manufacturing process. Thermal energy recycled from the electrical energy used in the TMP is supplemented by steam produced as a by-product of generating electricity from biomass at a neighboring power plant to our mill.

Q: Is the recycling of thermal energy from TMP important, given that for Bowater Mersey, steam is available from a neighboring power plant as a by-product of electricity co-generation?

A: The recycling of thermal energy from TMP is absolutely critical for Bowater Mersey, because the more thermal energy that is recycled, the less thermal energy is required from co-generation steam, which is therefore available for

electricity generation. Thus the recovery of thermal energy from electricity use is critically important to the generation of electricity. Thermal and electrical energy are inextricable intertwined in our process; one cannot be separated from the other.

Q: Given the reduction in energy use that has been achieved, how does energy use by Bowater Mersey compare with energy use by other paper mills?

A: Based on the best available data, Bowater Mersey is at or near the benchmark for low electrical energy use by a TMP paper mill. This is reflected in Bowater Mersey-specific results of a confidential energy benchmarking study prepared by the Pulp and Paper Research Institute of Canada in conjunction with a survey done for Natural Resources Canada, and is further supported by our own confidential analysis comparing energy use across AbitibiBowater paper mills worldwide. A third point of reference is in comparative data from a recent energy efficiency initiative, which indicates that, all else being equal, Bowater Mersey TMP refiner efficiency is at the global industry benchmark.

Q: What sort of things has Bowater Mersey done to achieve these energy reductions?

A: Most of the energy efficiency gains have been achieved through special modifications to the manufacturing process. Some of these have required installation of new equipment or components; others have involved modifications to operations and control strategies. Many of the initiatives have involved experimentation and research.

Q: How much does Bowater Mersey spend on energy efficiency?

A: The amount of money spent on energy efficiency each year varies depending on the opportunities and availability of capital funding. On average over the last five years, 22% of Bowater Mersey's capital investments have been in energy efficiency projects.

Q: How much does Bowater Mersey spend on energy efficiency research?

A: The amount of money spent on energy efficiency research varies each year and is highly dependent on the current progress in advancing the application of new technologies. Over the last five years, Bowater Mersey has invested an average of almost $250,000 annually in applied energy efficiency research.

Q: **Why spend money on energy efficiency research when commercial energy efficiency solutions are available?**

A: Most of the electricity consumed in a paper mill is used in specialized manufacturing processes that do not benefit from the more generic energy efficiency programs for heating, cooling and lighting typically found in most DSM programs. Even the industrial energy efficiency programs that promote the installation of specific equipment such as premium-efficiency motors, variable speed drives and energy information systems are redundant in the sense that all of those technologies have long ago been deployed in our mill. When a mill is operating at or near the benchmark energy use, as we are, new technology offers the only real opportunity for energy efficiency improvement.

Q: How do you know that Bowater Mersey has done all that it can to become energy efficient?

A: A recent survey entitled "Nova Scotia Industrial and Manufacturing Energy Management and Energy Benchmarking Study", jointly sponsored by Nova Scotia Power, the Canadian Manufacturers and Exporters, and the Province of Nova Scotia, found that Bowater Mersey employed 98% of all applicable best practices. (http://www.cme-mec.ca/pdf/EnergyBenchmarkingReport.pdf) The survey did identify that we can do more in the area of employee communication, which we are currently addressing. As long as electricity remains a critical part of our operating cost, we will need to continue to search for ways to become more energy efficient.

Q: Do others share the same view of Bowater Mersey's energy efficiency success?

A: As noted previously, comparison of energy efficiency between the 28 paper mills in AbitibiBowater shows that Bowater Mersey compares very favourably to mills with the same manufacturing process.

Q: Isn't it unusual that Bowater Mersey should be so energy efficient when compared to other TMP paper mills?

A: Because of the high cost of electricity in Nova Scotia, relative to our peers and competitors elsewhere, has made energy efficiency a virtue of necessity. Our TMP papermill in Nova Scotia pays a higher price for electricity than almost any other operating mill in AbitibiBowater, and as a consequence is driven to be as energy efficient as possible.

Q: If Bowater Mersey is interested in energy efficiency, why do you want to be excluded from an energy-efficiency program like Demand-Side Management?

A: There are several reasons why it is important that we do not participate in the DSM Settlement programs or the proposed third party-administered electricity DSM program.

First, the programs deal only with electricity, and not with all forms of energy. As mentioned earlier, electrical energy and thermal energy are integrally linked within a TMP papermill. A program that addresses only one form of energy and not the other will invariably lead to inefficient decisions and unintended consequences. A comprehensive program that deals with all forms of energy –such as is provided by Efficiency New Brunswick- is necessary.

Secondly, the greatest majority of energy consumed in a TMP paper mill – approximately 94% in our case – is consumed by specialized manufacturing processes. The attributes of these processes are unique to the products being produced, and do not benefit from conventional industrial DSM programs for efficiency upgrades for electric motors, lights, and air conditioning.

Thirdly, we have sufficient technical resources, both within our corporation and our research partners, to pursue future energy efficiency opportunities, and do not need the generic technical resources normally offered in conventional DSM programs.

Q: Are there other reasons why Bowater Mersey should be exempt from the electricity Demand-Side Management program?

A: The cost of participating in a DSM program that requires a systems benefit or similar charge would be an unwelcome burden on top of what are already very high electricity prices. Bowater Mersey has the technical resources, both locally and internationally, to engage in state-of-the-art energy efficiency initiatives, and has demonstrated the capacity and willingness to invest in these projects. Having either the utility or a third-party DSM administrator collect money from Bowater Mersey, and then – at best – possibly return those funds at some later date, **minus an administration fee,** would be bureaucratic and inefficient. We see such a program as a barrier to timely response to energy efficiency opportunities.

Q: At least one participant in the recent DSM discussions has proposed a self-administered approach to DSM, wherein investments in energy efficiency are credited as an offset to payment of a systems benefit or similar charge. What is your view on this type of arrangement?

A: Although this may work for some parties, we see the self-administration approach as adding both cost and additional bureaucracy to manufacturing operations, with the potential to create an annual spending obligation that may detract from the prudent and efficient use of capital. That said, we do not object to the approach being available for other ratepayers to use, if that approach fits their particular circumstances.

Q: Isn't one of the key benefits of Demand-Side Management the avoidance of the cost of building new generating plant, and isn't this a valuable consideration that everyone benefits from?

A: Bowater Mersey already contributes to the avoidance of the cost of building new generating plant through load shifting on the ELI 2P-RTP rate (now popularly referred to as 'time shifting' when applied to residential customers), and through priority supply interruptibility on that rate. Furthermore, how well DSM works to defer the building of new generation plant is a very open question in Nova Scotia at this time. Finally, all Nova Scotia ratepayers already benefit – and will continue to benefit – from Bowater Mersey's previous and ongoing investments in energy efficiency, which similarly help avoid the cost of building new generating plant.

Q: Is the 2-Part RTP the only rate on which Bowater Mersey contributes to avoidance of new generating plant?

A: No. Bowater also takes electric service on the Large Industrial Rate – Interruptible Rider at both the paper mill and sawmill. It is confounding to us that on the one hand, the value of avoided cost of new plant construction is considered an important aspect of DSM, yet the interruptible credit that is the incentive for industrial customers to take non-firm service has not been increased in over 12 years, despite demand and energy costs increasing on four separate occasions in the same time period.

Q: Does this conclude your direct testimony?

A: Yes

(1213576.3)

ASSOCIATION OF POWER PRODUCERS OF ONTARIO

RESPONSES TO INTERROGATORIES FROM
LIEN

Exhibit 2, A (Evidence of Todd Williams): DSM Funding Options for Large Natural Gas Customers

INTERROGATORY #1

Page 1 of the Executive Summary states: "Under an "opt-out" program a qualifying customer which chose to opt-out would not contribute towards the cost of DSM programs…"

(a) Please confirm that the opt-out program provides a customer with the choice to opt out of paying for Union Gas DSM programming for which the customer is eligible to receive an incentive, service or other benefit.

(b) Please explain whether or not the opt-out program provides the customer with the choice to opt-out of the customer's contribution toward Union Gas' low-income DSM programming

RESPONSE

1. (a) The definition of an "opt-out" program used in the report is presented on page 1 of the report. Essentially, a customer who "opts-out" would neither pay for the rate payer funded DSM program nor have access to any of the programs offered by the utility.

1. (b) Navigant understands that APPrO's position is that the opt-out program, if implemented, would only eliminate the DSM programs from the rates large users like generators would pay. The Board mandated low income allocation to rates T2 and Rate 100 would continue to be paid for by these customers.

INTERROGATORY #2

Page 1 of the Executive Summary states: "Under a "self-direct" program, a qualified customer would be able to directly access funds it has paid toward DSM programs and use those funds for energy efficiency projects."

(a) Please confirm that the self-direct program enables the customer to access its payment for Union Gas DSM programming for which the customer is eligible to receive an incentive, service or other benefit.

b) Please explain whether or not the self-direct program provides the customer with the choice to access the customer's contribution toward Union Gas' low-income DSM programming.

RESPONSE

2. (a) Navigant cannot confirm this statement. It is Navigant's understanding that only a portion of the total amounts paid by the customers is accessible by the customer for energy efficiency programs. Union notes in Exhibit B5.7 (d) that only 67% of the funds collected go to support DSM programs. Navigant understands that the remaining 1/3 of the funds paid by the customer are not accessible for DSM programs and relate to Union's incentive payments and other administration costs.

2. (b) Navigant understands that APPrO's position is that the self-direct program if implemented would not apply to the customer's contribution to Union Gas' low-income DSM programming. The Board-mandated income allocation to rates T2 and Rate 100 would continue to be paid for by these customers.

INTERROGATORY #3

Page 13, Appendix A (Survey Form), Question 11 asks: "If the option of "opting out" of DSM programs was provided by Union Gas would you do so? Customers opting out of the DSM programs would not contribute towards the cost of these programs and would not have access to technical advice or incentives offered by Union."

(a) Please explain whether or not Question 11 includes the opportunity for a customer to opt-out of payment for Union Gas' low-income DSM programming.

(b) Please provide any additional material that was provided to survey participants regarding the definition of "opting out."

RESPONSE

3. (a) The form used in the survey of APPrO gas-fired members is presented in Appendix A of the report. The description of the "opt-out" provision is presented as part of question 11 in that form and did not explicitly include an opportunity to opt-out of low-income DSM programming.

3. (b) No additional material was provided to survey participants regarding the definition of "opting out".

ASSOCIATION OF POWER PRODUCERS OF ONTARIO

RESPONSES TO INTERROGATORIES FROM
GREEN ENERGY COALITION

Evidence of Navigant Consulting

INTERROGATORY #1

Does Navigant agree that the observations in its evidence are limited to gas-fired electricity generators and are not necessarily applicable to large industrial gas customers who are not electricity generators?

RESPONSE

The survey described in section 3 of the report included only APPrO members, who are gas-fired electricity generators. The full report discusses various issues, some of which relate specifically to gas-fired generators and others which apply to all large industrial gas customers (as indicated in the report).

INTERROGATORY #2

Please explain what is meant by "A census approach" referred to at page 8.

RESPONSE

A census approach means that all of APPrO's gas-fired electricity generator members were included in the survey, rather than selecting a sample of the population.

INTERROGATORY #3

Navigant reports that it obtained results from 12 companies. Did Navigant attempt to calculate the level of statistical significance in the survey results to support a conclusion that the results are representative of the rate groups or of the power generating customers in the rate groups?

If so please provide.

RESPONSE

As indicated on page 8 of the report, responses were received from 12 of the 19 companies that were sent the survey. This response rate provides a 90% confidence interval with a 15% margin of error for APPrO members. We do not have information on the total number of unique companies represented in the overall rate group and therefore cannot calculate the statistical significance of the results for the rate group.

INTERROGATORY #4

What steps did Navigant take to ensure that there was no bias introduced into its survey results due to a tendency for APPRO members who most want change to participate in the survey?

RESPONSE

As indicated, all APPrO gas-fired generator members were invited to participate and follow-ups with non-respondents were conducted in an effort to maximize response rate. Based on Navigant experience, a response rate of 63% on this type of survey is very high. Navigant does not have any information about whether those APPrO members who "most want change" were more likely to respond.

INTERROGATORY #5

What qualifications does Mr. Williams have in the fields of polling and statistical analysis?

RESPONSE

Over the past 18 years, Mr. Williams has designed, implemented and analyzed more than 30 surveys (phone, mail, electronic) and has conducted more than 500 personal interviews of utility customers, utility staff and contractors. The results from these surveys have been used for purposes of employee compensation, performance planning, energy efficiency program design, product marketing, and energy savings from energy efficiency programs.

INTERROGATORY #6

Did the survey contain any questions that are not reported upon fully in the evidence filed? If so please provide.

RESPONSE

The survey form, in its entirety is presented in Appendix A of the report. It contained 12 questions. Summaries of all responses are presented in Appendix B, with the exception of question #9. Please refer to Environmental Defence IR #1(c), at Exhibit D1.

INTERROGATORY #7

At page 2 Navigant reports that 86% of members surveyed have an existing energy management program in place, yet at page 8 Navigant indicates that it received responses from only 12 of 19 companies it approached (63%). Please reconcile these statements.

RESPONSE

As stated in paragraph 6 of section 3: "Eighty-six percent of respondents indicated that they had an existing energy management program in place." The statement on page 2 was in reference to respondents to the survey.

INTERROGATORY #8

Please explain why the results do not add to 100% in Table 4 on page 17.

RESPONSE

See response to Environmental Defence IR #1(a), at Exhibit D1.

INTERROGATORY #9

Do the 7 responses in Table 5 at page 17 indicate that only 7 of the 19 reported respondents responded to this question? How many distinct companies did these 7 responses come from?

RESPONSE

The seven responses came from seven distinct companies.

INTERROGATORY #10

In which states are power generators served by gas distribution utilities?

RESPONSE

As discussed in the report, service arrangements for power generators vary by state. Navigant did not conduct a state-by-state survey to identify states in which power generators are connected to natural gas distribution utilities. However, as noted in the report, large customers such as power generators often have the ability to access the interstate pipeline.

INTERROGATORY #11

On p. 2, Navigant states that "Many US states do not have independent natural gas generators." Which states do have them?

RESPONSE

Navigant did not conduct a state-by-state survey of independent natural gas generators within the scope of this study and therefore cannot answer this question.

INTERROGATORY #12

On p. 2, Navigant states that "One of the considerations in the Minnesota Public Utilities Commission's decision to exclude generators from paying the DSM CRM was that this would effectively result in electricity consumers paying these costs twice…"

(a) Does Navigant agree with this conclusion?

(b) What is the basis for this statement?

(c) What were the other reasons or considerations?

(d) To the extent that a gas generator's cost of producing electricity is sufficiently lower than the marginal cost of production that sets wholesale market prices for electricity, isn't it true that the extra cost on the generators that is imposed by a gas DSM CRM would not have any effect on electricity consumers? For example, if the wholesale market clearing price of electricity was $0.050/kWh and a generator could sell electricity on the wholesale market for $0.040/kWh without paying a gas DSM CRM or $0.041/kWh while paying a gas DSM CRM, wouldn't the imposition of a gas DSM CRM have no impact on electricity consumers?

(e) To the extent that the savings from a gas DSM offering to generators were worth more in net present value terms than the cost of the measures (including both the DSM program cost recovered through a DSM CRM and the generators' own contribution to the cost of the measures), would Navigant agree that electricity consumers would not pay a second "cost"?

(f) Please provide a copy of the Minnesota decision that documents the reasons for excluding generators from paying the DSM CRM.

RESPONSE

12. (a) Navigant's objective in this study was not to review or critique the decisions of the regulators interviewed as part of this review, but rather to identify and report on how a number of neighbouring jurisdictions treat the costs of DSM programs with respect to large industrial customers.

12. (b) The statement is based on a telephone interview with staff at the Minnesota Public Utilities Commission.

12. (c) Navigant has no additional information on other reasons or considerations made by the Minnesota PUC. Please see response to GEC IR #12(b) above.

12. (d) Navigant did not conduct an analysis of how the cost of DSM programs would be reflected in market prices. Whether the costs associated with a DSM CRM would affect the marginal cost of production would depend on a range of factors, however, we note that natural gas generators determine

the marginal price of electricity (Hourly Ontario Energy Price or HOEP) in the Ontario market for many hours of the year.

12. (e) Whether electricity consumers would not pay a second "cost" would depend on many factors including the generator's investment recovery mechanisms and whether the savings realized by the gas generator affected their variable cost of production (and hence their supply bids into the electricity market).

12. (f) Please see response to GEC IR #12(b) above.

INTERROGATORY #13

Does Navigant believe that all cost-effective efficiency investments (with the term cost-effective

defined to mean those passing a TRC test) have been captured by APPrO members? If so, what is the basis for this conclusion? If not, why not?

RESPONSE

The survey results discussed in section 3 of the report are based on the survey questions included in the survey form presented in Appendix A. Navigant did not conduct energy management audits of respondent facilities or review the energy management plans of respondents and therefore has no basis for answering this question. Such an investigation was outside of the scope of this project. As indicated in the report, and as indicated by the responses received, we believe that generators are well motivated to pursue cost-effective energy efficiency investments.

INTERROGATORY #14

On p. 3, Navigant makes reference to Arizona, Colorado, New Mexico and several other states which "allow consumers to opt-out or 'self-direct' based on some level of consumption or demand." In which of these states is there an "opt out" option? In which is there a "self direct" option? In which are there both options?

RESPONSE

As indicated in the footnote associated with this statement, this information on the criteria used by various US States which permit opt-out or self-direct based on some level of energy consumption or demand was taken from the referenced report from the ACEEE. This same report was referenced in the "Review of Jurisdictions Which Offer a Self-Direct or Opt-Out Program Funding Mechanism for Large Customers" section of Union's application (see Exhibit A, Tab 1, Appendix A of EB0-2012-0337). Appendix III of the ACEEE report provides a state-by-state summary showing which states offer opt-out and self-direct options.

INTERROGATORY #15

Table 1 includes both Opt-Out and Self Direct states. Please produce a Table akin to Table 1, but including only "opt-out" states.

RESPONSE

Please see response to GEC IR #14 above.

INTERROGATORY #16

Navigant notes (p. 5) that in Minnesota generators are not charged a gas DSM CRM if they are over 50 MW in size.

(a) What portion of the generators served by Union Gas are above that threshold?

(b) What portion of generators which are members of APPrO are above that threshold?

RESPONSE

16. (a) Navigant does not have information on the capacity of all natural gas generators served by Union Gas as this was not part of the scope of this study.

16. (b) APPrO's member companies represent 24 distinct gas-fired electricity generation stations in Ontario. Twenty-one (21), or 88%, are above the 50MW threshold.

INTERROGATORY #17

On pp. 5-6, Navigant summarizes conclusions from its survey of Minnesota, Michigan, Wisconsin,

Illinois and Ohio. Please produce a table that provides the following information for each of these states:

(a) Whether the state has a specific carbon dioxide emission reduction commitment in place

(b) Whether the state has independent unregulated electricity generators

(c) Whether the gas-fired electricity generators are served exclusively by gas distribution

companies

(d) Whether the state ranks among the top 15 states, in terms of utility DSM efforts, as ranked according to ACEEE's most recent Energy Efficiency Scorecard.

RESPONSE

17. (a) Navigant did not review climate change, greenhouse gas or carbon dioxide policies in these jurisdictions as that was not within the scope of this study. As a result, this information cannot be provided.

17. (b) The study did not review whether each state has independent unregulated generators as this was not part of the scope of the study.

17. (c) Please see response to GEC IR #10 above.

17. (d) Navigant did not review the ACEEE's Energy Efficiency Scorecard and therefore do not have this information.

INTERROGATORY #18

On p. 8, Navigant states that it surveyed all APPrO members. It further states that 15 responses were received from plant managers representing 12 different companies. Finally, it notes that not all APPrO members receive service from Union.

(a) How many of the 15 respondents representing 12 companies receive service from Union?

(b) What is the total aggregate annual gas usage (e.g. in 2011) of the respondents who receive service from Union?

(c) When Union Gas reports the number of power generator customers it has, is that number analogous to what Navigant is calling "respondents" to its survey or to what Navigant is calling the "companies" that responded to its survey?

(d) If the results in Appendix B are expressed in terms of respondents, please provide results based on companies which are Union customers, not respondents.

RESPONSE

18. (a) Navigant confirms that 13 of 15 respondents (87%) are in the Union service territory. These 13 respondents represent 11 unique companies.

18. (b) Navigant did not ask the respondents to indicate their aggregate annual gas usage in 2011 and therefore cannot answer this question.

18. (c) In the report Navigant specifies the number of respondents to the survey and the number of unique companies represented in the response. We suggest the question of how Union Gas defines the number of power generator companies be addressed to Union.

18. (d) Attached at Appendix "A" to Exhibit D5 is a revised version of Appendix B from Navigant's report. It provides results based on responses received from plants served by Union (i.e. respondents served by Union).

Attached at Appendix "B" to Exhibit D5 is another revised version of Appendix B from Navigant's report. It provides results based on companies served by Union (rather than by respondent).

INTERROGATORY #19

Regarding Table 3 (summarizing responses to Question 3) in Appendix B to Navigant's report:

(a) What is meant by "internal resources" spent on the average capital costs of efficiency investments?

(b) What is meant by "external resources" spent on the average capital costs of efficiency investments? What are the external sources other than Union Gas DSM incentives?

(c) What is meant by "internal" operating costs?

(d) What is meant by "external resources" related to operating costs?

(e) What is meant by "average operating costs over period"? Are these averages for 3 years? Or are they annual averages?

(f) What exactly does the "incentive received" of $29,667 mean? Is this the average incentive for the 3 projects that received incentives? Is it the sum of incentives received for the 3 projects that received incentives divided by the 8 reported expenditures? Or it is something else?

(g) Did Navigant only ask about Union Gas financial incentives? Or did it also ask about technical assistance or other types of support Union Gas may have provided to the customers? If it did ask about non-financial support Union may have provided, please provide all responses made by customers in response to such questions.

RESPONSE

19. (a) Internal resources referred to resources from within the company.

19. (b) External resources referred to resources from outside the company.

19. (c) See response to GEC IR #19(a) above.

19. (d) See response to GEC IR #19(b) above.

19. (e) As shown in questions presented in the survey form (see Appendix B of report), respondents were asked to indicate if the data presented was for a 3 year period as requested or for a shorter period (if more limited data was available). Table 5 in Appendix B shows approximate investment per year.

19. (f) It represents the total incentives reportedly received by all survey participants over the period.

19. (g) The questions asked in the survey are shown in Appendix A of the report. Please refer to survey questions #4 and #5 which reference “technical or financial assistance”.

INTERROGATORY #20

Regarding Table 4 (summarizing responses to Questions 4-8 & 10) in Appendix B to Navigant's report:

(a) The sum of the percentages answering "yes" and "no" to these questions ranges from a low of 26% (responses to Question 5) to a high of 41% (responses to Question 10). Does that mean that the remaining 59% to 74% of customers asked these questions did not respond? If not, please explain what it does mean.

(b) Please provide the actual number of "yes" and "no" responses to each of these questions (rather than just percentages).

(c) On p. 8 of its report, Navigant states that 62% of those who received incentives to assist in a DSM project "indicated that they would have implemented the project within 3 years had they not received that assistance". Please reconcile that value with the summary of responses provided in Table 4. Specifically, please provide a detailed breakdown of the mathematical computation of the 62% value provided on p. 8.

(d) On p. 8 of its report, Navigant states that 47% of respondents indicated they had received some technical or financial assistance from their natural gas supplier. However, the summary of responses to Question 4 suggests that only 37% of respondents answered the question regarding assistance from their gas supplier, and of those 62% (23% who answered "yes" divided by 37% who answered either "yes" or "no") responded affirmatively. Please reconcile the difference between that value and the 47% value report on p. 8. Specifically, please provide a detailed break-down of the mathematical computation of the 47%.

RESPONSE

20. (a) Please see response to Environmental Defence IR #1(a), at Exhibit D1.

20. (b) Please see response to Environmental Defence IR #1(a), at Exhibit D1.

20. (c) Please see response to Environmental Defence IR #1(a), at Exhibit D1.

20. (d) Please see response to Environmental Defence IR #1(a), at Exhibit D1.

INTERROGATORY #21

In question #6 in this survey, Navigant asked whether efficiency investments made by customers would have been made within three years if Union Gas incentives were not provided.

(a) Why did Navigant ask only about financial incentives and not about technical assistance and /or other forms of support?

(b) Navigant conducts many DSM evaluations across North America, including studies to assess free ridership, spillover and net-to-gross ratios for large, custom C&I programs. When it conducts such studies, how many different questions related to free ridership, spillover and/or net-to-gross ratios would it typically ask customers?

(c) Would Navigant agree that because it asked only one question about only financial incentives, one could not draw conclusions about free ridership associated with the Union program from its survey results? If not, why not?

(d) Would Navigant agree that none of the questions it asked in this survey shed any light on potential for spillover effects? If not, why not?

RESPONSE

21. (a) Question 4 in the survey asked whether the firm "received technical or financial assistance" from the company's gas supplier and Question 5 asked whether the firm "received technical or financial assistance" from the OPA or an electrical distributor.

21. (b) The questions asked in the survey discussed in Section 3 of the report were not intended to quantify levels of free-ridership, spillover or net-to-gross ratios, as that was not the purpose of the survey. The number and type of questions that would be asked in a study to determine such issues would depend on program type and design.

21. (c) Please see response to GEC IR #21(b) above.

21 (d) The questions asked in the survey discussed in Section 3 of the report were not intended to ask about spillover effects. We therefore agree that they would not shed light any light on potential for spillover effects.

INTERROGATORY #22

Appendix B does not appear to provide any summary of responses to survey Question 7b (regarding the quantity of savings achieved as a result of Union Gas' program). Why not? If there were responses, please provide them.

RESPONSE

Please see footnote 17 on page 17 of the report.

INTERROGATORY #23

Please indicate if any of the summary of responses to questions provided by Navigant in its report (e.g. the percentage who used Union DSM assistance, the percentage who would have proceeded with the efficiency investments absent Union incentives, etc.) are statistically significant at the 90/10, 90/15 or 90/20 level of precision.

RESPONSE

Please see response to GEC IR #3 above.

INTERROGATORY #24

Has Navigant conducted any DSM Efficiency Potential studies for Ontario? If so, do these studies confirm that there is no opportunity for cost-effective efficiency investment among gas fired electricity generators that would not occur naturally within three years?

RESPONSE

Navigant has not conducted any natural gas energy efficiency potential studies for Ontario.

INTERROGATORY #25

Has Navigant conducted any free ridership or measure persistence analyses for DSM measures delivered to large industrial customers, including power generators in Ontario in the last 10 years? If so please provide copies. Do these studies conclude that there is 100% free ridership within 3 years or that there is measure persistence of three years or less for all measures due to 'natural' conservation among power generation customers?

RESPONSE

Navigant is aware of two attribution studies for industrial customers completed by Summit Blue Canada. Summit Blue was acquired by Navigant in January 2010. One study was done jointly for Enbridge Gas Distribution and Union Gas and the other study was done for Union Gas. With respect to the provision of the reports, as a matter of process, Navigant is bound by our contracts with clients for these studies, and suggests that GEC may wish to request those studies directly from Union Gas and Enbridge. Please note, however, that Navigant is not aware of any information in these studies specifically setting out the free ridership or measure persistence for power generation customers.

INTERROGATORY #26

Does Navigant conclude that all opportunities for societally cost effective energy efficiency among gas fired power producers has occurred within three years of the opportunity arising in recent years? If not, what proportion would be expected to occur 'naturally' (i.e. without DSM program support)?

RESPONSE

Navigant's scope of work did not include determining whether all "societally cost effective energy efficiency opportunities have occurred within three years of the opportunity arising in recent years". As indicated in the report, and as indicated by the responses received, we believe that generators are certainly well motivated to pursue cost-effective energy efficiency investments.

INTERROGATORY #27

Has Navigant compared the level of energy efficiency among large industrial customers, and in particular among gas power generators, in jurisdictions where opt out is allowed or no CRM occurs versus in jurisdictions with DSM programs that cover that customer segment? If so, please provide all results.

RESPONSE

No. This was not part of the scope of this study.

INTERROGATORY #28

Please provide any data or analysis of payback criteria for energy efficiency investment used by the APPRO members surveyed.

RESPONSE

Navigant has no information on the criteria used by APPrO members as this was not part of the survey (as presented in Appendix A of the report).

Evidence of Sean Russell

INTERROGATORY #29

Does LDE utilize maximum payback period, hurdle rate or other economic test to analyse energy efficiency investment choices? If so please provide.

RESPONSE

Please see response to Environmental Defence IR #5, at exhibit D1.

INTERROGATORY #30

Does LDE utilize tests other than economic return to the company to evaluate efficiency investment opportunities? If so please provide.

RESPONSE

Please see response to Environmental Defence IR #5, at exhibit D1.

INTERROGATORY #31

Has LDE ever undertaken an analysis of efficiency opportunities that finds measures that do not meet its economic investment criteria? Please provide.

RESPONSE

As explained in Environmental Defence IR #5, LDE pursues energy efficiency programs on an ongoing and planned basis, taking into account feasibility, which depends on the nature and scope of the specific energy efficiency initiative. Project benefit-to-cost ratios will change over time as equipment ages and requires further maintenance, with the input costs of fuel and with the price of electricity.

One energy efficiency opportunity that LDE reviewed and originally decided to forego involved recapturing steam condensate which required the installation of a line to return steam condensate from four of its customers back to the central plant. Prior to 2011, LDE did not consider this to be a financially feasible project, primarily due to the high costs associated with the excavation and rehabilitation required to install the condensate return piping. In 2011, LDE learned of the City of London's intention to undertake a road rehabilitation program on the street where these customers were located, exposing the roadway and affording LDE an opportunity to install pipe in parallel with the City. This significantly reduced installation costs and made the project economically feasible. There are other buildings on the LDE distribution system that are potential candidates for connecting to this condensate return system, and LDE continues to work closely with the City of London to expand the return system in conjunction with the City's planned rehabilitation projects in the downtown area.

It is important to note that while LDE has obtained Union Gas' DSM funding in the past, the funding has never been sufficient to turn an economically unfeasible project into a feasible one. With respect to the condensate return pipe project, for example, once the City decided to excavate the road, the project became feasible and would have been undertaken regardless of whether funding was available pursuant to Union's DSM Program. Indeed, when LDE made the decision to proceed, LDE had no idea what funding Union would provide for this project.

Another example is LDE's project with St. Joseph's Hospital. In 2010, LDE completed the installation of a 3-km high pressure steam and condensate return system connecting St. Joseph's Hospital to its central plant. While the 12" high pressure steam line was installed using conventional technologies, the condensate return systems utilized an innovative design intended to capture steam trap energy, which would normally have been discharged to the sewer or atmosphere. The condensate line was installed using 4" Stainless steel piping, and was designed to handle the higher temperatures and pressures involved with discharging the steam traps into the condensate line (as opposed to the traditional method of discharging steam traps to the sewer). LDE has been successful in capturing this energy for reuse at its facility. Similar to the condensate return pipe project, while LDE received DSM funding for this project, the project would have been undertaken regardless of whether funding was available pursuant to Union's DSM Program.

Further to this, while Union Gas DSM Program staff have been helpful in assisting LDE with administrative issues relating to LDE's application for funding and completion of the DSM program paperwork necessary for LDE to receive the funding, Union did not provide technical assistance to LDE during the design of the above projects, and LDE staff lost time completing these administrative tasks.

While initially LDE viewed itself as a proponent of DSM programs, and has received available funding to assist with certain efficiency projects, LDE no longer supports Union's DSM program because LDE now properly understands the real cost of the program. Specifically, LDE recognizes that it would be paying significantly more into the program than it would obtain from the program. LDE is of the view that the

ability to opt-out of the DSM program would allow LDE and other Large Volume customers to use their financial and other resources more efficiently since they would have more funds available to invest in energy efficiency measures and would not be required to expend time on administrative matters involved in Union's DSM program.

INTERROGATORY #32

Does LDE believe there are energy efficiency opportunities that do not meet its economic criteria for investment?

RESPONSE

As indicated in our response to GEC IR #31, there may be energy efficiency projects that are not economically feasible. While there are likely hypothetical efficiency projects that would not be considered economic by gas-fired generators, LDE does not speculate on future energy efficiency opportunities that have not yet been evaluated. As mentioned elsewhere, we evaluate energy efficiency opportunities on a case-by-case basis and apply the same investment criteria to all projects.

INTERROGATORY #33

Does LDE agree that there can be gas system benefits beyond those accruing to the participant due to DSM?

RESPONSE

LDE is not aware that Union will reduce any contract quantities as a result of implementation of energy efficiency measures. To the extent that there are "system benefits", these benefits accrue to the system at LDE's expense. LDE has, of its own volition, funded significant energy efficiency measures. Consequently, LDE does not expect to see any additional "system benefits" under an opt-out program.

INTERROGATORY #34

Does LDE agree that lowering gas demand can reduce commodity or transportation costs due to a shift in the demand versus supply balance?

RESPONSE

LDE is already funding significant energy efficiency measures at its own expense and will continue to do so, regardless of Union's DSM program. LDE does not expect to see any additional reduction in demand versus supply under an opt-out program.

INTERROGATORY #35

Does LDE believe that there are societal benefits beyond those accruing to the participant due to DSM?

RESPONSE

LDE is already funding energy efficiency measures at its own expense and will continue to do so, regardless of Union's DSM program. Consequently, LDE does not expect a diminishment in additional "societal benefits" under an opt-out program. It is not LDE's role to make this determination as single market participant, nor to bear the responsibility for ensuring broader societal benefits.

Appendix “A” to Exhibit D5

NAVIGANT

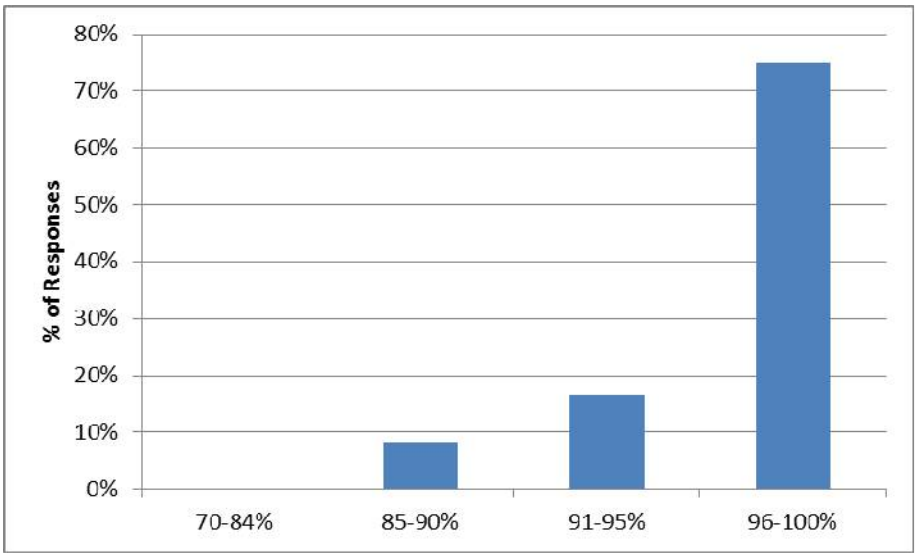
APPENDIX B: SURVEY RESULTS (REVISED - UNION CUSTOMERS ONLY)

Thirteen responses were received from 11 unique companies served by Union. Of all surveyed participants, 100% indicated they were a part of APPrO, with zero per cent being part of IGUA.

Question #1:

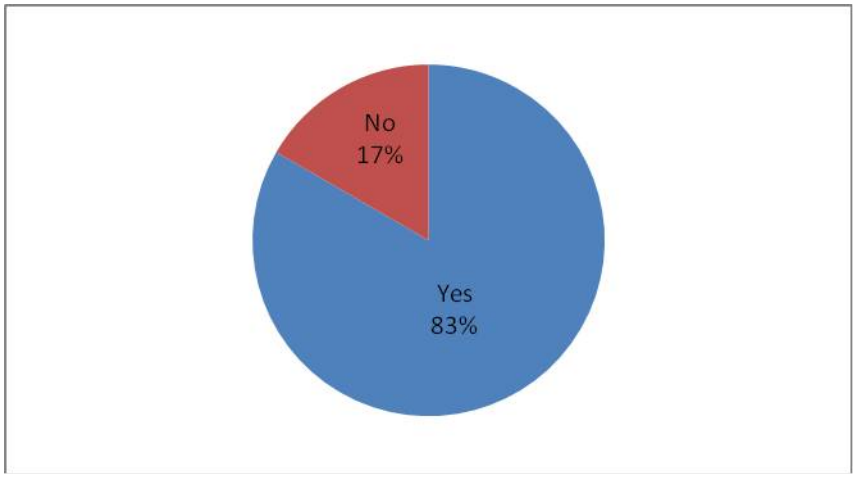
The average proportion of natural gas used as fuel in power production was 98%.

Figure 1: Proportion of natural gas used as fuel in power production



Question #2:

Figure 2: Respondents that currently have energy management programs in place



- 10 respondents responded indicating they had an Energy Management program in place. Two indicated they did not have a program and one did not respond. For the two firms with multiple plants, in each case one plant

indicated the presence of an energy management program while the other indicated no energy management program.

Question #2a:

Table 1: How long has your firm's energy management program been in operation?

Year Range	# of Responses	% of Total
1-10 years	4	40%
11-20 years	4	40%
21-30 years	2	20%

Question #3:

Table 2: Spending on energy management for the past 3 years

Number Reporting Expenditures	Average Capital Costs of Efficiency Investments		Average Operating Costs Over Period		Incentives Received	Source of Incentives
	Internal Resources	External Resources	Internal	External Resources		
8	$535,000	$499,956	$25,878	$19,667	$29,667	Union Gas (3)

Based on this small sample, incentives represented roughly 2.9% of the energy management investments made by this group.

Some of the comments received regarding energy management investments are listed below:

- New power turbine was purchased for gas turbine which improved heat rate. Operating costs/Materials was for replacement of leaking valves and defective steam traps.
- Installed VDF on auxiliary boiler (electrical and gas savings). Install heat trace management system (electrical savings).
- We have received a DSM payment for a construction project.
- Any project that may would be a fit we do anyway. We don't have the staff to track the information required to receive payment.
- Costs associated with steam trap repair/ replacement.
- The primary product produced this facility is electrical power. All of our resources are focused on the reliable an efficient operation of our facility. You could argue that our O&M budget is all spent to maintain the reliable and efficient operation of the facility. We have never broken down the actual O&M budget in terms of what we specifically spend on efficiency.
- Large investment included a controls upgrade for gas turbines including new fuel valves and fuel management software and hardware.
- We have had one reimbursement of 15K from Union Gas on an engine tuning task.

Questions #4-8, & 10:

Table 3: Responses to questions 4-8

Question #		Yes	No
4	Has your firm received technical or financial assistance through a Demand Side Management program offered by Union Gas (or your gas supplier)?	54%	46%
5	Has your firm received technical or financial assistance from a Conservation and Demand Management program offered by the OPA or your electric utility?	8%	92%
6	If incentives from Union Gas were used to contribute to project costs, please indicate whether this investment would have been made within three years if these incentives had not been available	62%	38%
7	Does your firm track energy savings achieved through the program?[1]	23%	77%
8	Do you use a third party to verify the level of energy savings achieved by energy management projects?	15%	85%
10	Does your firm plan to invest in energy management in the coming 3 years? (For yes responses, see below)	67%	335

Question #10, part 2:

Table 4: Approximate expected investment per year

Response #	Approximate Investment per Year ($)
1	250,000
2	20,000
5	40000
6	2,500
12	250,000
15	735,000

[1] If individuals answered "Yes" to this question, they were asked to indicate the level of annual energy savings achieved over the past 3 years. No respondent answered this part of the question.

Questions #11-12:

Table 5: Responses to questions 11-12

	Yes	No
If the option of "opting out" of DSM programs was provided by Union Gas would you do so? Customers opting out of the DSM programs would not contribute towards the cost of these programs and would not have access to technical advice or incentives offered by Union.	77%	23%
If provided with a "self-direct" option would you choose to do so? Under a self-direct arrangement your firm would not contribute towards the cost of DSM programs offered by Union but would be required to invest an equivalent amount in energy efficiency investments and to demonstrate the savings resulting from those investments.	15%	85%

Appendix “B” to Exhibit D5

NAVIGANT

APPENDIX B: SURVEY RESULTS (REVISION #2 - UNION CUSTOMERS ONLY FOR UNIQUE COMPANIES)

The following appendix summarizes survey responses received from companies which receive natural gas service from Union. Responses to the survey were received from 13 different facilities operated by 11 different companies served by Union. The results below are presented at the company level. Where the responses received differed between facilities operated by the same company those results have been stated separately.

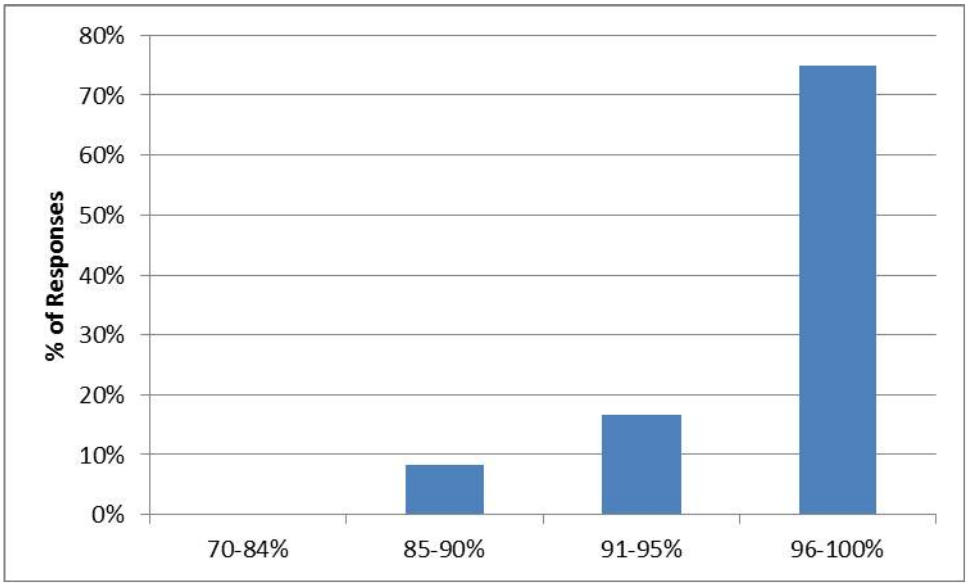
All of the surveyed participants indicated they were a part of APPrO. Two companies that responded to the survey provided responses from multiple facilities. In each case, two facilities served by Union responded to the survey from each company.

The graphs and summaries below present results based on the percentage of companies that responded to the question unless otherwise noted.

Question #1:

The average proportion of natural gas used as fuel in power production was 98%.

Figure 1: Proportion of natural gas used as fuel in power production

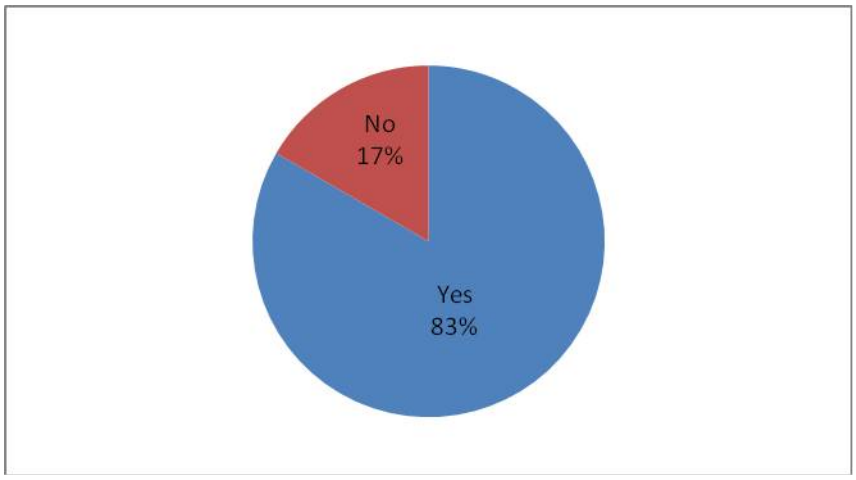


Of the two companies which reported for multiple facilities, the same proportion of natural gas use was reported for each facility operated by the company. Company 1 reported that 100% of gas purchased was used for power generation for both facilities; company 2 reported 95% for both facilities.

Question #2:

- The graph below shows the proportion of respondents which reported having an energy management plan in place.

Figure 2: Respondents that currently have energy management programs in place



- Of the 9 companies replying for a single facility, 8 responded indicating they had an Energy Management program in place and one did not respond. For the two firms with multiple plants, in each case one plant indicated the presence of an energy management program while the other indicated that they did not have an energy management program.

Question #2a:

- Of those facilities indicating that they did have an energy management program in place, 60% indicated that it had been in place for more than 10 years.

Table 1: How long has your firm's energy management program been in operation?

Year Range	# of Responses	% of Total
1-10 years	4	40%
11-20 years	4	40%
21-30 years	2	20%

Question #3:

Table 2: Spending on energy management for the past 3 years

Number Reporting Expenditures	Average Capital Costs of Efficiency Investments		Average Operating Costs Over Period		Incentives Received	Source of Incentives
	Internal Resources	External Resources	Internal	External Resources		

8	$535,000	$499,956	$25,878	$19,667	$29,667	Union Gas (3)

Based on this small sample, incentives represented roughly 2.9% of the energy management investments made by this group.

None of the companies which provided responses from multiple sites reported capital spending on efficiency investments. One company reported Operational spending at one plant.

Some of the comments received regarding energy management investments are listed below:

- New power turbine was purchased for gas turbine which improved heat rate. Operating costs/Materials was for replacement of leaking valves and defective steam traps.
- Installed VDF on auxiliary boiler (electrical and gas savings). Install heat trace management system (electrical savings).
- We have received a DSM payment for a construction project.
- Any project that may would be a fit we do anyway. We don't have the staff to track the information required to receive payment.
- Costs associated with steam trap repair/ replacement.
- The primary product produced this facility is electrical power. All of our resources are focused on the reliable an efficient operation of our facility. You could argue that our O&M budget is all spent to maintain the reliable and efficient operation of the facility. We have never broken down the actual O&M budget in terms of what we specifically spend on efficiency.
- Large investment included a controls upgrade for gas turbines including new fuel valves and fuel management software and hardware.
- We have had one reimbursement of 15K from Union Gas on an engine tuning task.

Questions #4-8, & 10:

Table 3: Responses to questions 4-8

		For the 9 firms which replied for a single facility	
Question #		Yes	No
4	Has your firm received technical or financial assistance through a Demand Side Management program offered by Union Gas (or your gas supplier)?	56%	44%
5	Has your firm received technical or financial assistance from a Conservation and Demand Management program offered by the OPA or your electric utility?	11%	89%
6	If incentives from Union Gas were used to contribute to project costs, please indicate whether this investment would have been made within three years if these incentives had not been available	88%	12%
7	Does your firm track energy savings achieved through the program?[1]	22%	78%
8	Do you use a third party to verify the level of energy savings achieved by energy management projects?	18%	82%
10	Does your firm plan to invest in energy management in the coming 3 years? (For yes responses, see below)	78%	22%

For the two companies which each reported on two facilities:

- Question 4 – Each indicated yes for one facility and no for one facility.
- Question 5 – Company #1 – replied "yes" for one facility and "no" for the other.
  - Company #2 replied "no" for one facility and did not respond for the other facility.
- Question 6 – Company #1 replied "No" for both locations.
  - Company #2 replied "Yes" for one location and "no" for the other.
- Question 7 – Company #1 – "No" at both locations. Company #2 replied "yes" at one location and "no" at the other.
- Question 8 - Both companies reported "no" at both facilities.
- Question 10 - Both companies replied "no" at one facility and "yes" at the other facility.

[1] If individuals answered "Yes" to this question, they were asked to indicate the level of annual energy savings achieved over the past 3 years. No respondent answered this part of the question.

Question #10, part 2:

Table 4: Approximate expected investment per year

Response #	Approximate Investment per Year ($)
1	250,000
2	20,000
5	40000
6	2,500
12	250,000
15	735,000

Neither of the companies which provided responses from multiple facilities indicated an investment amount.

Questions #11-12:

Responses below are for the nine companies which replied for a single facility.

Table 5: Responses to questions 11-12

	Yes	No
If the option of "opting out" of DSM programs was provided by Union Gas would you do so? Customers opting out of the DSM programs would not contribute towards the cost of these programs and would not have access to technical advice or incentives offered by Union.	89%	11%
If provided with a "self-direct" option would you choose to do so? Under a self-direct arrangement your firm would not contribute towards the cost of DSM programs offered by Union but would be required to invest an equivalent amount in energy efficiency investments and to demonstrate the savings resulting from those investments.	11%	89%

For the two companies which each reported on two facilities:

- Question 11 – Company #1 indicated they would choose to "opt out" at both facilities. Company #2 indicated that they would opt out at one facility but would not do so at the other facility.
- Question 12 – Company #1 indicated they would choose to "self-direct" at one facility but not at the other. Company #2 indicated that they would not choose to "self-direct" at either facility.