Canadian Solar Industries Association
L'Association des Industries Solaires du Canada
150 Isabella St., Suite 605
Ottawa, Ontario
CANADA K1S 1V7

T • 1 (613) 736-9077
1 (866) 522-6742
F • 1 (613) 736-8938
E • info@cansia.ca

CanSIA
www.cansia.ca

Consultation Process for Developing a New Demand Side Management Framework for Natural Gas Distributors (EB-2014-0134)

The Canadian Solar Industries Association (CanSIA) is a national trade association that represents approximately 500 solar energy companies throughout Canada, representing both Solar PV and Solar Thermal sectors. CanSIA applauds the Ontario Government for its commitment to energy conservation and reduction of greenhouse gas emissions through its electricity conservation and demand management ("CDM"), and natural gas demand side management ("DSM") programs.

In the Directive to the OEB from the Minister of Energy on March 31, 2014, the Board amongst other things is required to establish a DSM policy framework. The Ministry of Energy directive clearly states its objectives to "reduce energy consumption to assist consumers in managing their energy bills, mitigating upward pressure on energy rates and reducing air pollutants, including greenhouse gas emissions".

> **Due to the vast amount of emission free and zero cost fuel available through the implementation of Solar Thermal as a conservation and demand management strategy, and given the siting ease, potential for strategic distribution of solar thermal, the ability to offset heating demand and provide conservation efficiency for homeowners, businesses and gas utilities alike CanSIA strongly advocates that solar thermal form a cornerstone of Conservation Demand Management Policy throughout the province.**

The DSM policy framework must recognize and implement Solar Thermal heating technologies in the development of future DSM/CDM programs, as solar thermal technologies provide an excellent way to meet all of the stated objectives in the Minister's Directive.

- Solar thermal heating is the most readily deployed technology to reduce GHG emissions caused by Natural Gas.
- Solar thermal provides an excellent way for the public to manage their energy costs and significantly reduce greenhouse gas emissions. The Ministry of Energy's 2013 Long-Term Energy Plan, *Achieving Balance*, emphasizes the use of Solar Thermal technologies as a way to heat water and supplement space heating needs.
- In the past Ontario had established itself as a leader with solar thermal heating technologies during the Ontario Solar Thermal Heating Incentive (OSTHI) program, through which a vast

majority of the solar heating systems in Canada were installed in Ontario for an impressive variety of large-scale commercial, industrial, agricultural and corporate installations. Unfortunately, with the elimination of this program, solar thermal installations have declined dramatically.

- The CDM framework provides a key strategic opportunity for utilities to meet their targets and objectives of energy savings and greenhouse gas reductions through the application of solar thermal technologies.

Conservation Demand Targets and GHG reductions

The following table indicates the value of a range of solar thermal technologies as they relate to both conservation and GHG reductions.

Values below indicate the annual energy yield (GJ) per m^2 of collector area, as well as the annual kg of avoided CO_2 per m^2 of collector area across Solar Thermal technologies.

This table represents the value of solar thermal technologies for Gas distributors to reduce/offset demand with solar thermal and reduce GHG gas emissions within their service territory.

Also given is a CanSIA recommended conservation target of 70 000 m^2 of collector area (demonstrated per technology) resulting in 112 000 GJ of reduced demand and 11,200,000 kg of avoided CO_2 in the example of residential solar hot water applications.

Table 1: Energy Demand and CO_2 reductions by technology

	Residential SHW	Commercial SHW	Commercial Air
Energy Yield - GJ/m^2/year	**1.60**	**1.64**	**2.11**
Conservation Yield GJ/Annual target (m^2)			
70000 m^2	**112,000**	**114,800**	**147,700**
Avoided kg of CO_2/ year/m^2	**160**	**97**	**127**
Avoided kg CO_2 /Annual target (m^2)			
70000 m^2	**11,200,000**	**6,790,000**	**8,890,000**

Source: NRCAN 2012 Survey of Active Solar Thermal Collectors

To meet the government's objective of integrating DSM programs with Province-Wide Distributor CDM programs and Local Distributor CDM programs to achieve efficiencies and convenient integrated programs for electricity and natural gas customers,

1) **CanSIA recommends that a standard metric be utilized to quantify energy savings and GHG reductions, as a factor of installed m² of collector area. This metric is readily quantified (see figure 1) to an energy yield and a GHG reduction value. This method is applicable across a range of solar thermal technologies and can facilitate planning initiatives and obtaining targets with respect to Demand and GHG reductions.**

With respect to the government objective that DSM shall be considered to be inclusive of activities aimed at reducing natural gas consumption, including financial incentive programs and education programs;

2) **CanSIA recommends that the demand and GHG reduction factors outlined above can be used to help form the basis of a fair incentive for consumers wishing to participate in a Solar Thermal CDM program.**

3) **CanSIA also recommends that this information may be used to help inform a methodology whereby lost revenues that result from CDM programs should not act as a disincentive to Distributors in meeting their CDM targets.**

Further to the above CanSIA strongly recommends that the Board take into consideration the findings of a report from the CD Howe Institute, whereby it was found that, with reference to previous incentive programs over a range of technologies, renewable electrical power and renewable heat were the lowest-cost GHG abatement strategies available for wide-scale implementation in Canada.

It should be further understood that the benefit of solar thermal technologies in its ability to offset natural gas demand and reduce the GHG emissions from that sector in no way limits or precludes its ability to reduce further electricity demand with respect to offsetting energy requirements met by substantial amounts of electricity for water and space heating in Ontario.

CanSIA recommends that the board take this into consideration and under advisement in the further development of conservation efforts on the electricity side.

CanSIA wishes to reiterate that the incorporation of Solar Thermal as a cornerstone of Conservation and Demand Side Management programs provides exceptional opportunity to:

1. **Achieve reductions in electricity and natural gas consumption**
2. **Assist customers in managing their energy bills**
3. **Mitigate upward pressure on energy rates**
4. **Reduce air pollutants – including greenhouse gas emissions**
5. **Help establish an updated natural gas conservation policy framework**

Closing

CanSIA recommends establishing an annual target of at least 50MW$_{Thermal}$ for solar thermal technologies. This represents about 70,000 m² of collector area per year. This could represent 14,000 residential scale systems (5 m² each), or 475 commercial scale systems (150 m²), or 70 industrial scale systems (1000 meter squared each) – but likely a combination therein.

CanSIA recommends that a performance based incentive relative to the demand and GHG reduction value be implemented to commercial, industrial and residential customers based on m² of collector area.

Solar thermal technologies are seen by many governments around the world as key pillars in their energy conservation and greenhouse gas emission reduction programs. CanSIA supports a long-term conservation and demand management performance based incentive rebate. Long-term, stable incentives will create the conditions for a viable solar thermal industry in Ontario, by increasing adoption rates, driving down the costs of installations over time, and supporting customer choice for emissions free generation to meet the province's objectives of reducing GHG emissions and of putting conservation first.

Additional considerations

CanSIA has developed a position paper to highlight the solar thermal industry in Canada: **SOLAR HEAT Sustainable Future, Clean Energy Solutions for Canada**. We have included a copy of this document, and would ask that it be reviewed and distributed to all members of the DSM Working group. The document includes:

- An overview of Solar heating technologies
- Benefits of Solar heating
- Market barriers
- Policy and program options
- State of the Canadian and global ST markets
- History of ST policies in Canada
- Canadian success stories
- Policy recommendations
- Solar Vision 2025

CanSIA believes believes that the four key *"Benefits of Solar Heating"* laid out in the **SOLAR HEAT Sustainable Future** document precisely match the mandate laid out by the Ministry of Energy in their directive of March 31, 2014: **Reduced greenhouse gas emissions, reduced energy bills, Energy conservation and Domestic Employment**. For this reason we feel that it is important for the OEB to include solar thermal in future programs.

Thank you for your review and consideration of this information. We will be happy to answer any questions that may arise from the Board or the DSM Working Group, and we look forward to working with you to discuss and work towards the effective implementation of these measures.

Yours sincerely,

John Gorman
President, CanSIA