Ontario Smart Grid Forum

February 6, 2010

DRAFT – Principles and Selection Criteria for Smart Grid Opportunities Fund

Background:

The Smart Grid Opportunities Fund is a line item allocation in the2009 Ontario Budget whose official description in that document is as follows:

> *"$50 million over five years to enable the research, capital and demonstration projects necessary for the development of a smart grid in Ontario"*[1]

At a previous meeting of the Forum, it was agreed that assisting the Ontario Government in developing a suitable process for administering and directing this fund was within the scope of the SGF terms of reference and it was also appropriate for individual members to make specific suggestions in that regard. To this end, the SGF Working Group met on February 4th and devoted a considerable portion of its agenda to discussing this matter.

Inputs into the February 4th SGF Working Group Meeting:

The Working Group has reviewed the relevant background materials on a variety of smart grid development projects both nationally and internationally. In addition, the Ontario Centres of Excellence provided a specific proposal outlining their capacity to provide the necessary administrative assistance to manage the fund consistent with Government objectives and due diligence requirements for its agencies. This proposal will be distributed separately to the February 9th meeting of the Forum.

Principles for project classification and selection criteria:

At a high level, the goal is to ensure funds are directed to smart grid projects that yield maximum benefit to Ontario and, specifically, they should be consistent with the policy roadmap under development to support evolution of the Smart Grid envisaged in the *Green Energy Act*. The three identified areas of focus are – namely:

1. Consumer Control
2. Utility Flexibility;
3. Adaptive Infrastructure

By classifying potential projects within these three categories, they are directly traceable back to the primary policy instrument that enables and encourages the implementation of smart grid technologies in Ontario. In addition, the group identified some of the key elements that would enhance public acceptability of such investments.

[1] Queen's Printer for Ontario, *2009 Ontario Budget*, page 26

Outlined below are the proposed[2] guiding principles and criteria for evaluation of projects to be funded under the $50M allocation in the budget.

P1. Enhanced Value to the Ontario Grid

Judged on the basis of:

(i) improvement to the cost performance of the system resulting in lower cost to consumers over the long term;

(ii) reliability, security and safety of the transmission and distribution system infrastructure

P2. Enhanced economic development prospect to exploit 'Ontario advantage,' specifically through:

(i) new enterprise formation and employment

(ii) innovation building on Ontario strengths in the universities, colleges and centres of research

(iii) leverage private sector funds to expand project scope for markets beyond Ontario

P3. Implementation of large scale demonstration projects under aggressive time lines

(i) Project scope and scale should be large (6-10 projects, >$5-8M) to reduce utility risk.

(ii) Projects must yield high quality actionable recommendation ready for implementation by utilities on a large

(iii) Phased project timelines to vary from 1-5 years

The Working Group believes the following attributes are key attributes required to gain support for the necessary investment. They include:

- Demonstrated value **and** the ability to clearly communicate that value to the public at large;
- Stimulate economic growth and private sector activity in smart grid innovation;
- Bring benefits to the entire economic value chain in which the project resides;
- Represent both a strong area of need and an area of Ontario natural advantage

[2] It should be noted that the above principles and criteria were not put before the working group in the form of the words provided within this particular document, but rather they reviewed a separate document prepared by the Ontario Centres of Excellence.

Finding Ontario's "Natural Advantage":

The working group also spent some time discussing whether or not there are currently any identifiable groupings of projects which leverage any form of "natural advantage" offered by virtue of being located in Ontario. On this matter, some groupings of project types were identified and briefly summarized in the table below as two why Ontario provides a natural advantage to them or why the opportunity is more natural to Ontario. It should be noted however, that these groupings have not been proposed to the exclusion of other, potentially valuable projects meeting the criteria described earlier in this paper.

Grouping[3]	**Green Energy Act Focus Areas**	**Why an Ontario "Natural Advantage"?**
Micro-Grids	Utility Flexibility	• Early projects are being driven by unique needs of Ontario geography and remote communities • Spin-off advances and intellectual property being leveraged by the Ontario participants
Integration of DG renewables Distribution system automation Large-scale solar projects to support reliability	Utility Flexibility	• Early adopter solar projects in Ontario are yielding valuable research and innovation opportunities in areas beyond intermittent energy production. • Research capacity and depth exists in the Ontario university system to support • Spin-off advances and intellectual property being leveraged by the Ontario participants
Electric Vehicles	Adaptive Infrastructure	• Ontario's historical prominence in the auto sector • Early outreach between the automotive sector, utilities and academia (e.g. Plug 'N Drive) could be evolved to yield more substantive cooperation ahead of many competing jurisdictions • Research and innovation capacity for grid assessments as well as "green autos" exists in the Ontario university system
Projects that leverage the Smart Metering Infrastructure	Consumer Control	• Early adoption of smart metering has yielded a centralized data repository with a rapidly growing data series for researching customer response and use of other complementary smart grid technologies. • Potential for leveraging existing experience to move forward with net metering, home area networks and other related consumer control technologies

[3] NOTE: Specific project examples are provided in a separate distribution item from the Ontario Centres of Excellence.

Grouping[3]	Green Energy Act Focus Areas	Why an Ontario "Natural Advantage"?
Information and Communication Technologies	Consumer Control Adaptive Infrastructure Adaptive Infrastructure	• Ontario's widespread and varying geography has already prompted early experimentation in a wide array of communications technologies to support the smart metering initiative and other communications needs of the electricity sector. • Industry Canada has already made specific frequency spectrum allocations to support smart grid technologies ahead of other jurisdictions. • Several start-up Ontario firms already working with the OCE and other utility partners.

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