

Action Plan for Smart Grid Investments in Ontario

1. Context - In the 2009 Ontario Budget, the Government allocated

“\$50 million over five years to enable the research, capital and demonstration projects necessary for the development of a smart grid in Ontario”¹

now referred to as The Smart Grid Opportunities Fund.

2. Urgency - We need to proceed with urgency to develop specific demonstration projects because the requirements of the Green Energy Act are far reaching, they envisage a significant transformation of the existing infrastructure and put specific obligations on utilities and agencies (OPA, IESO, OEB, TSSA).

3. GEA Policy Framework - The funds will be directed to smart grid research and demonstration projects consistent with existing policy framework and initiatives currently under development with MEI and the Smart Grid Forum. Three areas of focus have been identified:

(i) Consumer Control

(ii) Utility Flexibility

(iii) Adaptive Infrastructure

Potential projects and expected outcomes will be directly traceable to these three areas of focus identified as being relevant for implementation of smart grid technologies in the Ontario context.

4. Key Requirements - The Smart Grid Opportunities Fund is required to help bridge the critical "knowledge" and "performance" gaps related to emerging technologies and end use application.

(i) Need for Scale- Relatively large scale research and demonstration projects are required to yield high quality "actionable" information for Ontario wide deployment.

(ii) Need to Reduce Risk - to ratepayers and utilities by ensuring emerging technologies and ideas are tested through a careful selection of research initiatives integrated into demonstration projects to gain the necessary confidence for timely implementation.

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

(iii) Spur economic development and innovation - Improved knowledge base and rapid implementation by utilities is intended to spur "downstream" commercialization activities, new enterprise formation and economic opportunities.

(iv) Establish Consumer Acceptance - by assisting the utilities and the OEB in planning and approvals processes and in judging the cost effectiveness of investments.

5. APPROVALS PROCESS and Release of the Smart Grid Opportunities Fund will require significant coordination, project management and administrative responsibility.

(i) OCE has the necessary administrative capability for responsible management of the funds and has an established record

(ii) Given the urgency to proceed in a timely fashion and the larger role of utilities in determining the relevance and scope of specific projects, there will be a need to develop specific criteria to either supplant or enhance existing OCE processes.

(iii) The Chair OCE to hold primary accountabilities for the development and deliverables of specific projects . The MEI and the Ontario Smart Grid forum to provide guidance and advice.

6. The Ontario Smart Grid Forum with OCE Is Ready to Proceed to Implementation - We are ready to initiate specific projects consistent with government policy framework and needs of utilities and consumers of Ontario.

(i) Early work has already been underway on these projects. The strategy is to build on existing strengths and activities but expand the scope to meet new needs identified by utilities and stakeholders.

(ii) See Attachment A provide the guiding principles for selection of projects and the Backgrounder highlights demonstration projects for immediate investment under the Smart Grid Forum Fund.

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Attachment A with Backgrounder on Specific Projects

Guiding principles for Selection of Ontario Smart Grid Forum Projects

The guiding principles and criteria for evaluation of projects to be funded under the \$50M allocation in the budget are as follows:

Principle 1 - Must Enhance Value to the Ontario Grid

Selection of projects to be 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

Principle 2 - Must enhance economic development prospect to exploit Ontario advantage, specifically through:

- (i) Economic development opportunities, employment and new enterprise formation for global markets in parallel with large scale Ontario wide outs
- (ii) Building on Ontario strengths in the universities, colleges and centres of research

Principle 3. Must be large scale demonstration projects under aggressive time lines

- (i) Project scope and scale must be sufficiently large to yield high quality actionable recommendation ready for implementation by utilities and Ontario businesses
- (ii) Envisage 6-10 signature projects to (> \$ 5 -8M) with minimal duplication amongst projects to cover the three focus areas. Phased project timelines may vary from 1-5 years

Principle 4- Leverage of Funds with Utility and Private Sector Investments

- (i) The \$50M government funds will be leveraged with utility and private sector funds, either as cash investments or "work-in-kind"
- (ii) Development of expertise, ensuring project relevance to the needs of the utilities and strong collaboration amongst partners is the goal.

{Dan McGillvary to Finalize the Backgrounder Document. The intent of that document is to provide confidence that we do have a clear idea of what to do next in terms of specific projects and initiatives)

Grouping ²	Green Energy Act Focus Areas	Why an Ontario “Natural Advantage”?
Micro-Grids	Utility Flexibility	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
Information and Communication Technologies	Consumer Control Adaptive	<ul style="list-style-type: none"> • Ontario’s widespread and varying geography has already prompted early experimentation in a wide array of communications technologies to support the smart

² NOTE: Specific project examples are provided in a separate distribution item from the Ontario Centres of Excellence.

Grouping ²	Green Energy Act Focus Areas	Why an Ontario “Natural Advantage”?
	Infrastructure Adaptive Infrastructure	metering initiative and other communications needs of the electricity sector. <ul style="list-style-type: none"> • 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.