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# Microgrids and their Grid Impact



# PowerStream is a distributor operating in a relatively advanced grid



- Ontario was an early mover in Smart Grid: smart meters, distribution automation, wind/solar FIT, etc.
- Gov't actively promoting storage and microgrids: e.g. 50 MW storage procurement by ISO



- Municipally owned distributor; 2000 MW peak
- Active board aligned with need to transition to integrated energy services provider
- Now operating in unregulated businesses, e.g. solar and submetering
- Microgrids identified as early threat/opportunity

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OEA  
COMPANY OF THE YEAR  
Presented to  
PowerStream Inc.  
An organization of excellence  
in the Greater Toronto Area

Worldwide Microgrids expected  
to grow to 9,000 MW by 2020

Will microgrids destroy traditional  
utilities... or save them?

E-Bay, Ellison  
Embrace Microgrids  
in Threat to Utilities

## BUSINESS AS UNUSUAL

Microsoft the latest to "unplug" from  
utility power

Microgrids: Are They Our  
Aging Grid's Bail-Out Plan?

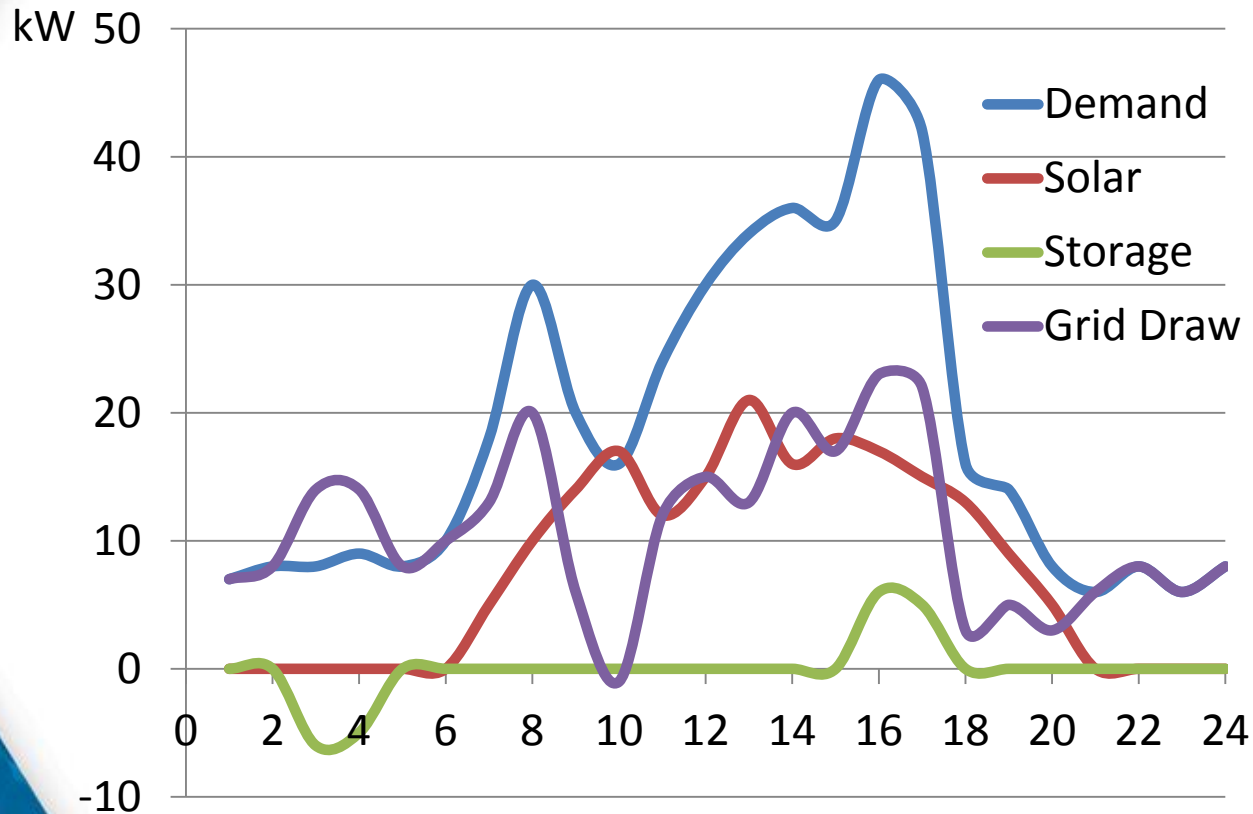
Denmark to provide 100% renewable  
electricity, heat, and transportation

Citibank: Utilities are dinosaurs waiting to die

# Micro Grid demonstration pilot



# The new grid load



- Peak drops 50%
- Net kWh drops 40%

# The new customer bill

	Before	After
Peak kW	46	23
kWh	471	260
Demand (\$)	\$460	\$230
Consumption (\$)	\$1505	\$782
Bill (\$)	\$1965	\$1012

- Demand charges drop 50%
- Consumption charges drop 50%
- Total bill drops 50%
- **Revenue increases 5x**

# Value creation opportunities

For the customer:

- Price security
- Price reduction
- Energy security
- Green branding

For the grid:

- Congestion relief
- Peak shaving
- Ancillary services
- Etc.

*Multiple contracts/markets needed to capture all possible value and allow best pricing:*

- Customer contract*
- Government conservation money*
- ISO and other grid contracts*

# Emerging business model

## Hypotheses

- Customers not able or interested in the “how” just the “so what”
- Technology is rapidly changing – not able to identify winning product
- Economics must be core driver of offering – other benefits (e.g. green) help but do not close

## Business Model

- Provide service rather than product
- “Integrated energy services provider”
- Technology agnostic
- Provide combined offering (e.g. CHP subsidizes EV Chargers) to meet customer vision

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**Thank you**

[www.powerstream.ca/microgrid](http://www.powerstream.ca/microgrid)

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