



*The Energy Solutions People*

# Demand Response

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*Dan MacDougall*

*Managing Director, Demand Response Solutions*



# Agenda

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- **About Rodan**
- **What is Demand Response**
- **Essential Ingredients**
- **Challenges & Obstacles**
- **Future Considerations**

# About Rodan

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- **Specialists in energy information**
  - Largest independent Meter Service Provider in Ontario
  - IESO licensed Meter Service Provider
  - Load Control Operator for the residential peaksaver® Program for 37 LDC's
  - Demand Response Service Provider
    - Northern York DR
    - DR3
    - Custom programs for LDC's



# What is Demand Response

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- In the Context of the Smart Grid...

***“Demand Response is the practice of making non-dispatchable loads, dispatchable”***

# Essential Ingredients

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- **Successful Demand Response requires...**
  1. Load and performance transparency
    - o Rapid, granular feedback
    - o Accessible by contributor and manager
    - o Consistent, fair baseline methodology
    - o Cost effective
  2. Willing and able contributors
    - o Curtailment is behavioural, not technical
    - o Financial strength to afford 'luxury' of participation
    - o Aggregation should allow mix of contributor abilities

# Essential Ingredients

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...cont'd...

3. Administrative simplicity
  - o Concise program rules and terms
  - o Complexity dampens enthusiasm for small-medium contributors
  - o Compliance rules consistent with quality of resource
4. Consistent, rational dispatch protocol
  - o Use the resource when warranted
  - o Curtailment contributors are motivated by helping the community – the money alone is not enough.

# Challenges & Obstacles

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## 1. Many Stakeholders

- OPA – Funding Manager; Program Creator
- IESO – Technical Certifier; Dispatcher
- LDC – Electric Service Provider; Meter Owner; Information Provider
- Rodan – Negotiator; Interpreter; Risk Manager; Facilitator
- Contributor



# Challenges & Obstacles

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## 2. Metering and Validation Requirements

- Retail loads held to a wholesale metering standard
- Starting points are all over the map
  - o Interval/non-interval
  - o 5 min/15 min
  - o Pulse outputs
  - o Phone/Ethernet availability



# Challenges & Obstacles

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## 3. Demands on LDC's

- Provision of interval meters
- Meter data access requests
- Historic load information
- Meter information
  - o Make and model
  - o Serial number
  - o Registration number
  - o Seal expiry.....



# Challenges & Obstacles

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## 4. Market Immaturity

- Prospective contributors watching the lead of early adopters
- Unwillingness to accept remote/automatic dispatch
- Unwillingness to invest capital to develop DR capacity
- Early adopter “shock”



# Challenges & Obstacles

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## 5. Lack of Generation Resources

- Distributed (behind the meter) Generation is a key component of DR Portfolio
  - Curtailment alone is too volatile
  - Need sizeable proportion of generation resources if performance standards are high
- Ministry of Environment developing “DR-specific” permitting criteria for generators
  - 9 months and waiting....



# Challenges & Obstacles

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## 6. Energy is a Low Priority

- Economic crisis threatening survival of potential contributors
- Credit crisis restricting investments in building DR capacity (and conservation)
- Reduced manufacturing activity eroding DR capability
- In a conflict between supporting the grid or satisfying a customer, the grid always loses
- Nobody loses their job for not saving energy



# Future Considerations

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- **Automatically Dispatch Large Contributors**
  - Requires acceptance of DR as a normal part of operations
    - o Especially true for curtailment contributors
  - Price premium for added certainty and to reflect control investment
  - Attention to health and safety impacts

# Future Considerations

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- **Mid Market Contributors**
  - Collectively large
    - o 10's of thousands
  - Individually 'small'
    - o < 250 kW peak demand
  - Lack interval meters
  - Can't afford same M&V terms as large contributors

# Future Considerations

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- **Residential Contributors**

- Consolidate dispatch and control with meter data channels
  - o Avoid duplication of assets
  - o Lower costs
- Stream price signals to promote cost-driven behaviour
- Requires deep penetration of 'smart' appliances or automation technologies

# Q&A – Thank You

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**Dan MacDougall  
Managing Director,  
Demand Response Solutions**

**RODAN ENERGY & METERING SOLUTIONS INC.**

165 Matheson Blvd. East, Suite 6  
Mississauga, ON L4Z 3K2  
(905) 625 9900 x 236  
dan.macdougall@rodanpower.com

**[www.enerShift.com](http://www.enerShift.com)**