



Economic Demand Response Pilot

Workshop

November 20, 2003

Agenda

8:30 - 8:40

Context and Next Steps

8:40 - 9:00

Background and Objectives

9:00 - 10:15

Detailed Review of Proposal

10:15 - 10:30

Break

10:30 - 12:15

Detailed Review of Proposal
Continued

12:15 - 12:45

Discussion of Potential

12:45 - 1:00

Wrap up

Some Context

- This is very much a work in progress - we are still in the design stage
- Workshop is to be a two way discussion between stakeholders and IMO staff
- Further IMO Board approval is required
- Known issues include: interaction with Bill 210; impact on LDCs; and requirements/role of aggregators in the market
- Pilot program must be be implementable and practical for both the market and the IMO
- Target is barriers to “natural” demand response

Next Steps

- Design finalization
 - With further opportunity for stakeholder input
- Seek approval and market rule amendment (early 04)
- Roll out (early 04)

Background

- Consultation on Priorities (January 2002) and Navigant's Blueprint for Demand Response in Ontario (April 2003)
- IMO Demand Response Action Plan in response to the Blueprint for Demand Response In Ontario
- Pilot Economic DRP - part of Demand Response Action Plan
- Economic Demand Response Workshop

Objectives

- To build DR capability and infrastructure
- To “kick start” demand response
- To overcome barriers to (“natural”) price responsiveness in Ontario’s competitive electricity market
- Not a preparation to implement full scale program

Identified Barriers

- Lack of awareness / understanding
- Regulatory rules / codes / legislation
- Lack of communication / monitoring / settlement infrastructure
- Uncertainty regarding financial recovery / return (capital recovery and benefits stream)

Input Being Requested

- Will the proposed pilot program help electricity consumers to ultimately become more demand responsive either directly or indirectly?
- Will the proposed pilot program attract sufficient interest and provide sufficient revenues to allow for infrastructure improvements/emplacement?

Workshop Logistics

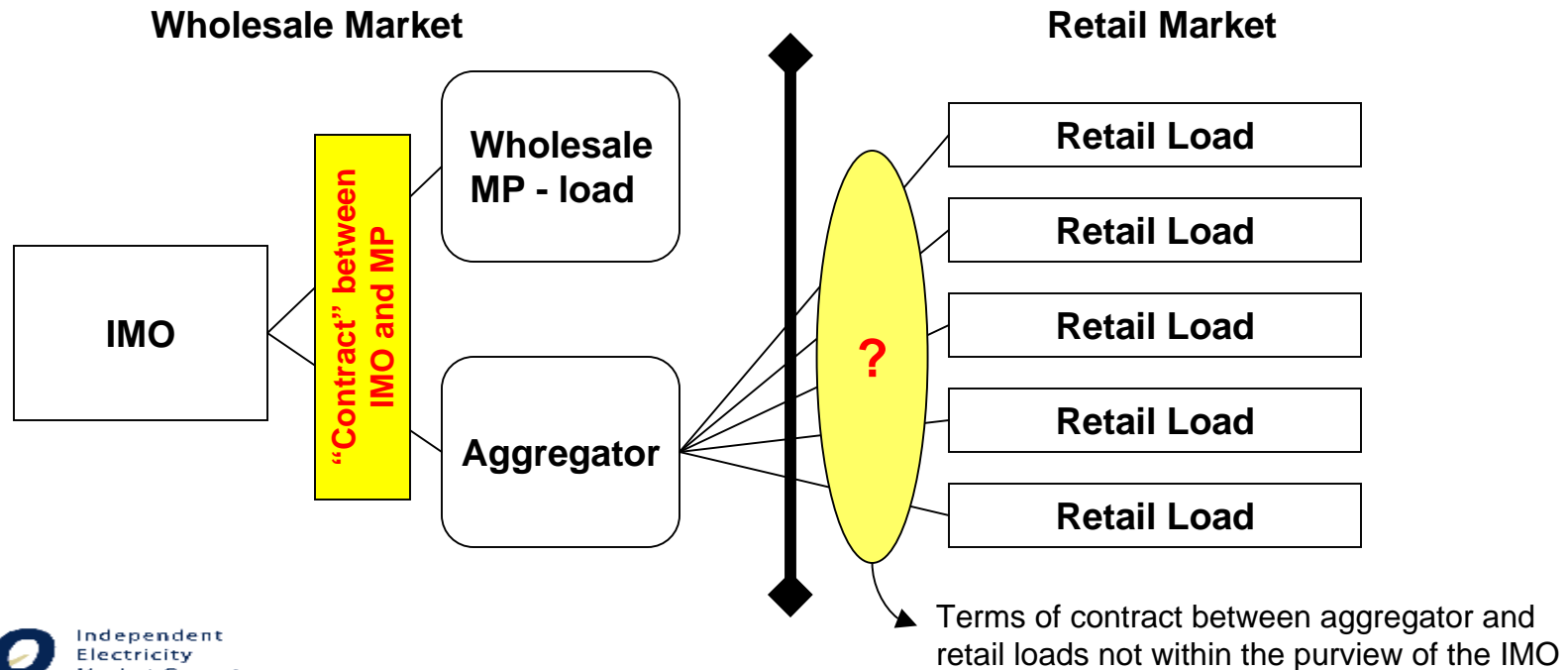
- Issues and concerns will be captured on flip charts
- Seeking advice and providing explanations - clarify and inform
- Parking lot - for issues that are not directly related to the pilot
- Summary of issues and concerns will be provided and posted

Summary of Proposed Economic Demand Response Program

- Temporary program
- Pilot participants would be compensated for reducing demand in a facility or an aggregation of facilities based on the pre-dispatch price when they make decision to provide demand response
- Participants have a choice of notification periods and pre-dispatch threshold prices
- Requires pilot participants to demonstrate how they will overcome stated barriers to demand response
- The IMO reserves the right to limit participation in the pilot program based on the program's objectives, target market segments, barriers, system reliability, and market impact

IMO Contract with Market Participant

- Either the load or the aggregator must be registered as a market participant in the IMO market



Eligibility

- Need to demonstrate how inclusion in the pilot overcomes one of the stated barriers
- Need to be part of target market
- Need to demonstrate “incremental” demand responsiveness

Eligibility cont'd

- Individual loads with IMO compliant metering or interval meters
- Embedded loads with interval meters represented by an aggregator
- Non-interval metered loads represented by an aggregator provided that a statistically reliable sample of the group have interval meters from which the demand response can reliably be determined

Minimum Bid Size

- 500 kW
- Maximum bid size
- Aggregation location concerns
- Minimum size of aggregation

Term of Agreement

- Two years
- Terms of up to three years may be considered by the IMO in specific circumstances where pilot participants are making significant capital investments and require a longer term

Price Threshold

- Participants may choose from one of the following pre-dispatch price thresholds
 - \$120/MWh
 - \$150/MWh
 - \$200/MWh
- Pilot participants may switch to a different price threshold once per year, but the change would only be applied prospectively, not retrospectively

Frequency of Events

	Predispatch Price					
	One hour ahead			Three hours ahead		
	120	150	180	120	150	180
Total Number of Hours*	625	333	190	655	339	201
Percent of the time	7.20%	3.90%	2.20%	7.60%	3.90%	2.30%
Total Number of events	122	96	60	125	88	58
Number of one hour "events"	30	44	21	49	35	21
Number of "events" of duration 2 hours or longer	92	52	39	76	53	37
Number of "events" of duration 4 hours or longer	48	29	17	48	34	20
Number of "events" of duration 6 hours or longer	37	18	12	34	22	12
Number of "events" of duration 8 hours or longer	23	11	6	25	12	5
Number of "events" of duration 10 hours or longer	17	7	2	21	9	3
*Nov 1 2002- Oct 31, 2003						
	Predispatch Price					
	One hour ahead			Three hours ahead		
	120	150	180	120	150	180
Total Number of Hours**	922	560	402	954	565	406
Percent of the time	7.10%	4.30%	3.10%	7.30%	4.30%	3.10%
Total Number of events	177	137	100	179	126	91
Number of one hour "events"	50	58	32	70	47	30
Number of "events" of duration 2 hours or longer	127	79	68	109	79	61
Number of "events" of duration 4 hours or longer	71	50	36	73	52	38
Number of "events" of duration 6 hours or longer	55	35	27	54	40	28
Number of "events" of duration 8 hours or longer	40	25	19	42	27	19
Number of "events" of duration 10 hours or longer	30	19	13	37	22	15
**May 1, 2002- Oct 31, 2003						
Note: Initial analysis and should not be relied upon for business planning.						

Notice Period

- Pilot participants may choose one of two “notice periods”:
 - Three hours (pilot participant’s demand response decision to be based on pre-dispatch prices three hours prior to the hour when demand response will be provided).
 - One hour (demand response decision to be based on pre-dispatch prices one hour prior)
- Pilot participants may switch to a different notice period once per year, but the change would only be applied prospectively, not retrospectively

Demand Response Payment

- Pilot participants will be provided with compensation for the actual demand response provided
- Options for price paid for the demand response
 - pre-dispatch price and the notice period chosen
 - dispatch price
 - threshold (or bid) price
- There is no minimum requirement for any given period

Max and Min Event Duration

- The pilot program design is based on energy in an hour rather than a minimum duration
- The maximum event duration is 16 hours, regardless of pre-dispatch prices

Pilot Participant Notification

- Special web page with pre-dispatch prices and alarm features
- Pilot participants must inform the IMO of their intention to provide demand response

Provision of Operating Reserve

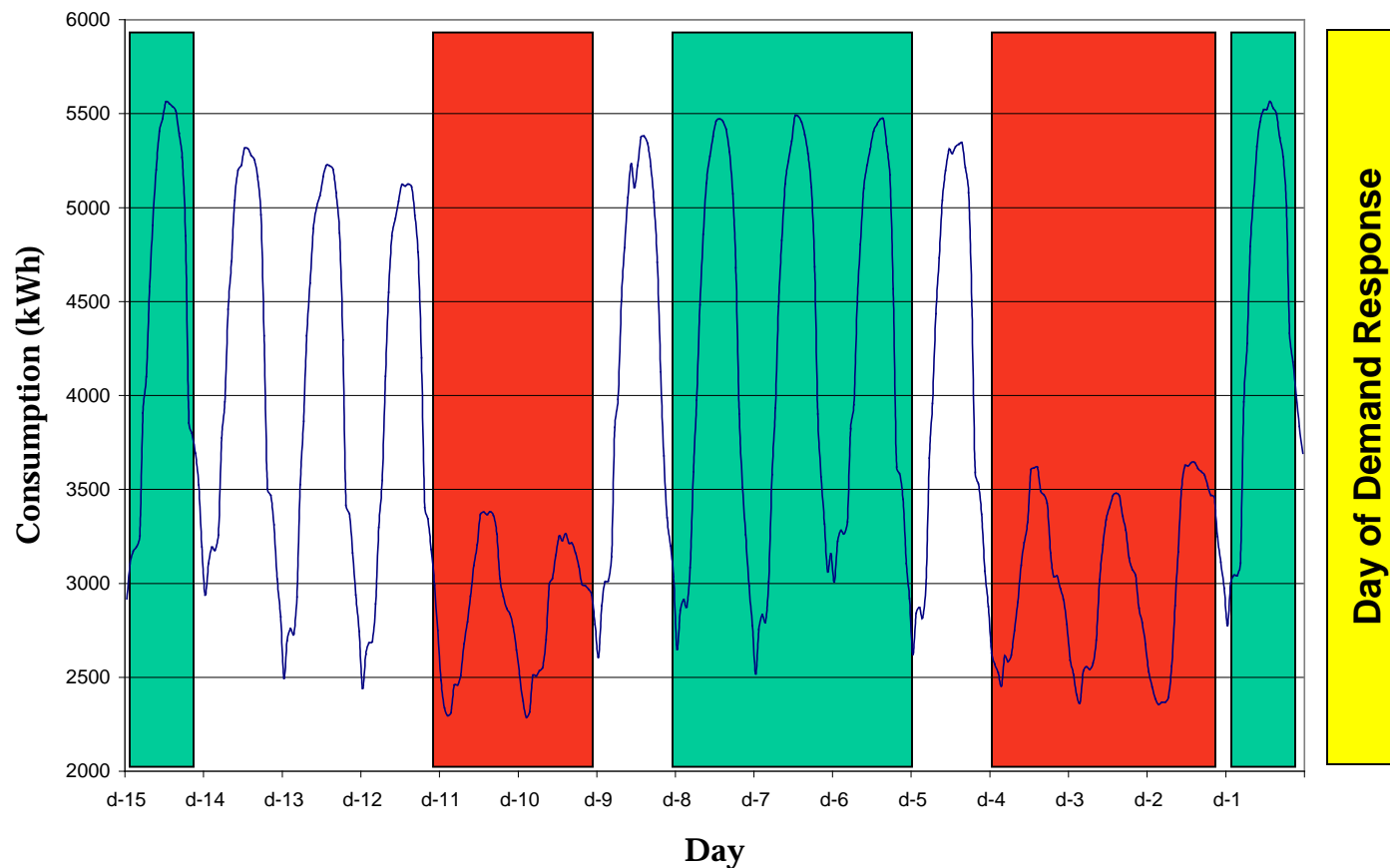
- Pilot participants choosing a “one hour” notice period that can demonstrate to the IMO’s satisfaction that they can meet the qualifications for being an OR provider may be eligible to provide operating reserve to the IMO
- Pilot participants offering such operating reserve will receive the market clearing operating reserve price for the periods for which OR is provided
- During periods when the pre-dispatch prices exceed the pilot participant’s threshold price, the pilot participant will be deemed by the IMO to have withdrawn its offer for OR

Baseline Methodology

- Based on the highest five of the previous ten weekdays (excluding holidays)
- Baseline for pilot participants who advise and can demonstrate to the IMO that the demand response they will be providing is weather sensitive will be adjusted to reflect this weather-sensitivity

Baseline Methodology Example

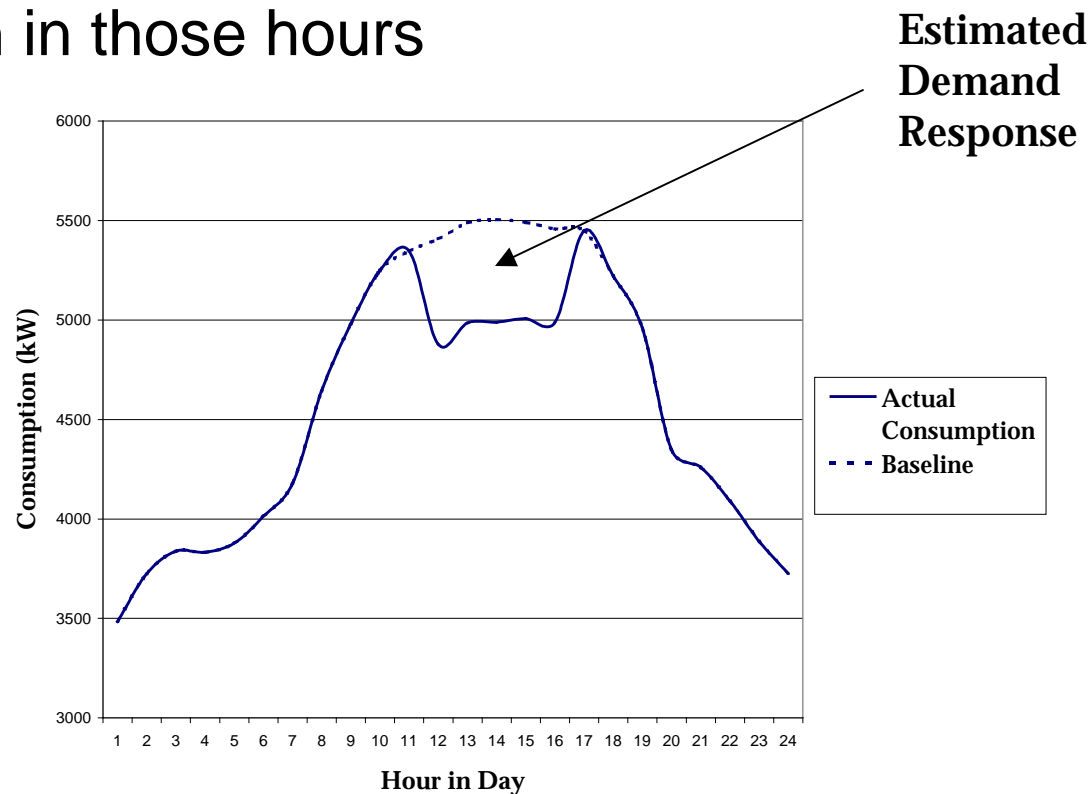
- “High five” days shown with blue boxes, excluded days shown with red boxes



Baseline Methodology

Example con't

- Demand Response occurs from 11AM to 4PM
- Estimated Demand Response is the difference between the baseline consumption for those hours and actual consumption in those hours



Calculation of Demand Response

- Based on the calculated baseline less their actual metered load during the event, for that same period
- For pilot participants with non-interval metered load, the demand response provided by the pilot participant will be based on the calculated baseline less the load profile of the interval-metered sample for that same period adjusted for the total size and consumption of the pilot participant group

Program Sunset

- The Economic Demand Response Pilot Program will run only until 2006 or such other time as may be determined by the IMO. Such sunset provisions will be indicated in the contract or the market rules that enable the pilot.

Open Questions

- Should demand response be voluntary in real time?
- Is there any need or benefit to dividing the potential pilot participants into geographical classes as was done for the Emergency DRP? I.e. the Northwest and rest of Ontario – are there other divisions that may be beneficial?
- Should there be any limits set to the number of times a pilot participant can actually provide demand reductions under the pilot program?
- How best to address compliance, free ridership, program shifting, and sustaining natural DR?