

## Description of integrated pilots/demonstrations/field tests/existing practices

1. Winter Peak Demand Reduction Scheme – Ireland

2. What is integrated with DSM

DG	<input checked="" type="checkbox"/>
Energy storage	<input type="checkbox"/>
Smart grid technologies	<input type="checkbox"/>

3. What is the level of commercialization

Research project	<input type="checkbox"/>
Demonstration	<input type="checkbox"/>
Field test	<input checked="" type="checkbox"/>
Existing practice	<input type="checkbox"/>

4. Where to find more information?

- IEA DSM, Task XV, Database
- Electricity Supply Board National Grid (2004). "Results of the Winter Peak Demand Reduction Scheme (WPDRS) Season 2003/04". Document available at: [http://www.eirgrid.com/EirGridPortal/uploads/Regulation and Pricing/2003\\_04 WPDRS Results.pdf](http://www.eirgrid.com/EirGridPortal/uploads/Regulation and Pricing/2003_04 WPDRS Results.pdf)
- Electricity Supply Board National Grid (2004). "WPDRS 2004/05: Introduction to WPDRS and Results from 2003/04". Presentation available at: <http://www.eirgrid.com/EirGridPortal/uploads/Regulation and Pricing/2004 WS1 - Intro and Results.pdf>
- Walsh. M. (2004). "Ancillary Services & Demand Side Management". Presentation available at: <http://www.eirgrid.com/eirgridportal/uploads/regulation and pricing/Michael walsh - as and dsm.pdf>

5. Objectives of the case

Winter demand is very "peaky" in Ireland. Ensuring security of supply is expensive. Encouraging customers to manage electricity usage can reduce costs.

6. Business rationale/model

7. Technologies used

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### 8. Short description of the case

In 2003/04, the Winter Peak Demand Reduction Scheme (WPDRS) was open to:

- customers in the eligible market (ie large commercial and industrial customers);
- who were supplied by one of the three independent electricity suppliers (ie retailers);
- who had appropriate interval metering (ie quarter-hour metering).

A similar scheme, the Winter Demand Reduction Initiative, was available to customers supplied by the incumbent electricity supplier, ESB Public Electricity Supply (ESB PES).

Customers applied in advance through their supplier to join the WPDRS. In 2003/04, each customer committed to reducing consumption between 5 and 7 pm every business day from November to February. This reduction was achieved through reducing energy use or utilising on-site generation.

Customers received a payment for reliably delivering this committed reduction. In 2003/04, the total available payment was EUR210 per megawatt-hour of load reduction. Of this total, EUR160 per megawatt was a reliability payment and EUR50 per megawatt-hour was an energy payment.

### 9. Achieved/expected results (operational savings, CO<sub>2</sub>, efficiency enhancement)

In 2003/04, a total of 639 customers was eligible to take part in WPDRS and 186 (29%) signed up. A total of 106MW of committed load reduction was offered by these customers, whose total baseline demand was 410MW.

The four largest contributors to the eligible load reductions offered were from: cement and paper industries (38% of eligible customers reductions offered), manufacturers of agricultural products (24%), office/banking/retail (23%) and refrigeration/meat industry (17%).

Of those customers who signed up to the WPDRS, 29% succeeded in reliably reducing consumption to their committed level and earned full payment. A further 9% curtailed to their committed level on average, but had high daily variation in their curtailment. A further 19% set their committed level incorrectly, but had low variation in their curtailment. A further 18% set their committed level incorrectly, and also had high day-on-day variation in their curtailment. Finally, 25% of participants entirely failed to curtail.

No overall change in participants' methods of curtailing load was evident over the four months.

Four participants exported electricity from on-site generators to the grid and produced roughly 13MW of load reduction between them.

In 2003/04, the WPDRS paid out a total of EUR2.4million to the participants (customers), comprising EUR610,000 in energy payments plus EUR2,392,000 in reliability payments, less EUR598,000 in capped reliability rebates. This yielded a cost of EUR180 per

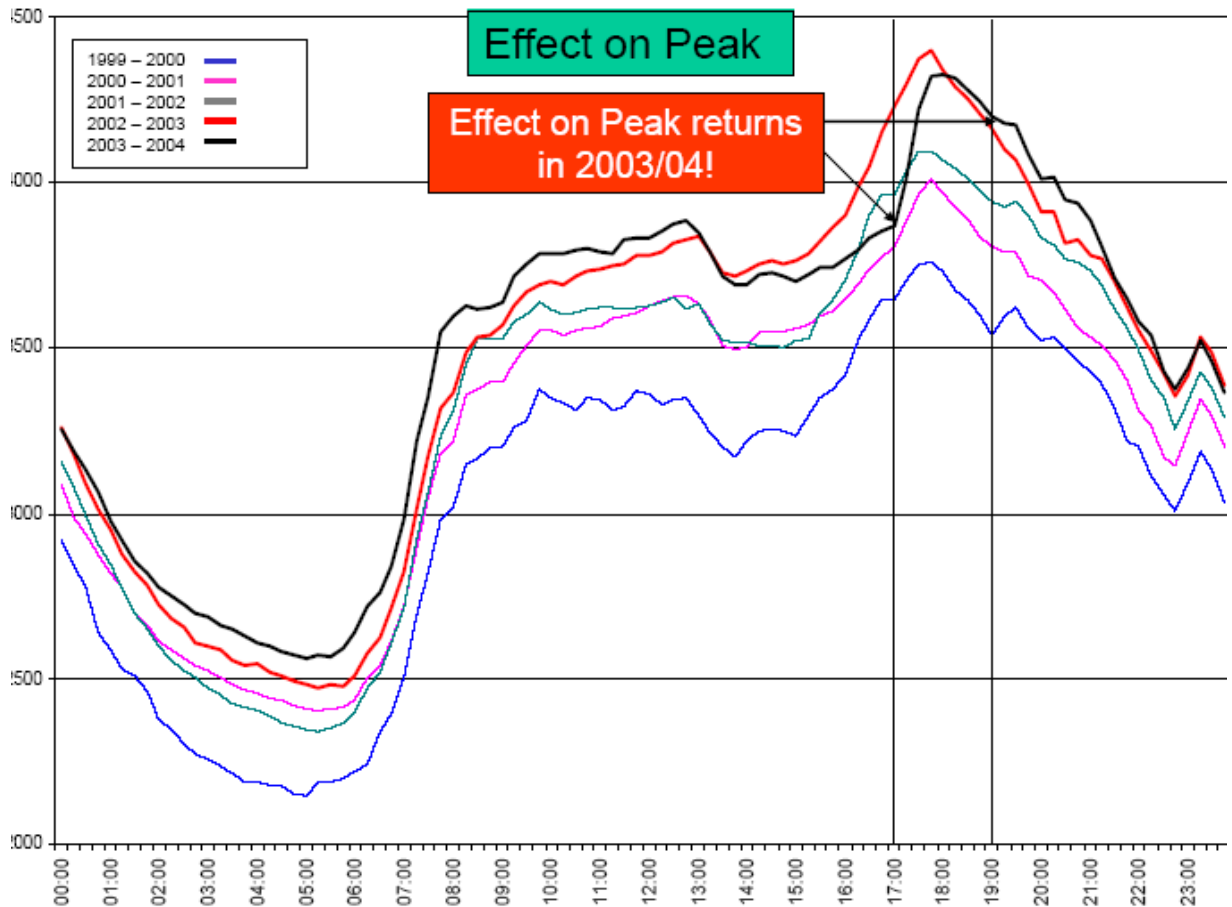
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megawatt-hour reduction. The three independent electricity suppliers received a 5% administration payment of EUR120,000.

Overall, those participants who were successful earned nearly EUR20,000 each over the four winter months, making it a lucrative scheme for those who could curtail their consumption to committed levels.

In 2003/04, the peak load reduction achieved was an average of 82.5MW in November, 83.0MW in December, 84.4MW in January and 81.3MW in February. This was 1.85% of the winter peak load of 4320MW.

Compared with 2002/03, the peak on the system was reduced by about 80 MW and its shape was altered from a sharp peak occurring at about 5.30 pm to a flatter peak occurring from about 5.30 to about 6.30 pm (see figure below). The demand reduction achieved through the WPDRS led to the 2003/2004 winter peak being 1.8% lower than the 2002/03 peak, even though demand for the entire year increased by roughly 3%.



### 10. Lessons learnt



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The load reduction achieved was quite reliable on a daily basis; 95% of the time, the achieved load reduction lay between 72MW and 88MW.