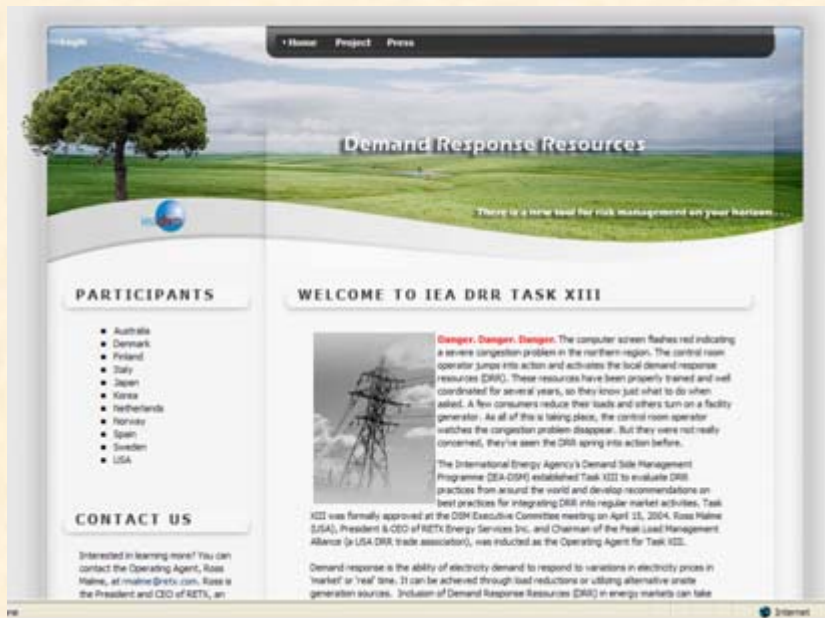


# Demand Response Resources



## IEA DSM Task XIII Helsinki Workshop



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Operating Agent

April 2005

# Demand Response Resources



## Agenda

- Task XIII Purpose and Objectives
- Project Task Work and Tools
- Subtask 8: DR Implementation Strategy
- Project Web Portal

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## Project Vision

- Promote the development of Demand Response Resources (DRR) by providing a roadmap for integrating DRR into liberalized markets.

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## Task XIII Project Objectives



- #1 - Identify and develop the country-specific information needed to establish the potential for demand response.
- #2 - Perform the market and institutional assessment needed to set realistic goals for the contribution of DRR to sector objectives.
- #3 - Mobilize technical and analytic resources needed to support the implementation of DRR programs and track their performance.

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## DRR Project Participation

- **Countries Participating**
  - Australia, Denmark, Finland, Italy, Japan, Korea, Netherlands, Norway, Spain, Sweden, USA
- **Countries Interested**
  - China, India, South Africa, Thailand, Mexico, Dominican Republic
  - Tanzania, Kenya, Zimbabwe, Canada

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## DRR Project Schedule

Activity	2004	2005	2006
Phase 1			
Subtask 1 – Project Objectives	—		
Subtask 2 – Country Objectives Market Characterisation	—————		
Phase 2			
Subtask 3 – Market Potential of DRR	—————		
Subtask 4 – DRR Valuation		—————	
Subtask 5 – Role and Value of Technologies		—————	
Subtask 6 – Business Plan Development			—————
Phase 3			
Subtask 7 – Communication, Collaboration and Workshops	—————	—————	—————
Subtask 8 – Implementation			———
Education, Management and Administration	—————	—————	—————
Executive Relations, Education and Evangelising	—————	—————	—————
Project Management and Administration	—————	—————	—————



## Task 1: Country Objectives

- Description
  - Each country drafts a set of project objectives and a work plan
- Status:
  - Each country created stakeholder groups
  - In-country objectives and work plans were created
- Project Tools
  - Task XIII Project Guidebook
  - Sample Work Plan: USA & Australia



## Task 2: DR Resource Base

- Description:
  - Survey participating countries to define DR resource base and market structures
- Status:
  - Each country completed Marketplace Overview data sheets.
  - Compiled list of DR programs with some performance figures
    - Program operating structures/tariffs
    - Reliability, Economic, & TOU/RTP
- Project Tools:
  - Country Comparison Report
  - Marketplace Overview data sheets
  - Communication Toolkit



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## Task 2: DR Resource Base

- Norway DR Products:
  - Consumer flexibility by efficient use of ICT: This project evaluated the implementation of two-way communication devices that modulated the use of water heaters in relation to spot energy prices. The project demonstrated a 0.3 KWH reduction per household when activated. If this was extrapolated out to all Norwegian households, it could account for about 600 MW of DR capacity.
  - Regulating capacity from medium size consumers: In this project Statnett contracted with a few demand aggregators to provide 25 MW worth of capacity. The project was designed to test what it takes to market services to consumers and show that an aggregator can provide the balancing services needed by the system operator.

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Market	New York ISO	Cinergy (Ohio, USA)	ISO New England
Product	Emergency Demand Response (2003)	PowerShare (2003)	Price Response (2003)
Product Category	Emergency/Reliability	Economic/Voluntary	Economic/Voluntary
Number of Participating Consumers	1111 (311 DG, 800 load shedding)	531 (1 DG, 530 load shedding)	330 (34 DG, 296 load shedding)
Available Capacity	579 MW (278 DG, 301 load shedding)	175 MW	116 (55 DG, 61 load shedding)
Market Peak Demand	30,983	12,336	25,384
DR percentage of Peak Demand	2%	1.4%	0.45%



## Task 3: DR Market Potential

- Description:
  - Develop tools to assess DR market potential
- Status:
  - Draft tools presented at last Experts Meeting
  - Waiting on additional data from Countries to improve benchmark database
- Expected Tools
  - DR Product Benchmarks w/ translation methodology
  - Consumer market survey forms
  - Review and discussion of known modeling techniques



## Task 4: DR Valuation

- Description:
  - Develop methodology for valuing DR
- Status:
  - Creating NPV methodology based on long term market operations
  - Draft method was recently circulated for review and comment
  - Expect final draft in July 2005
- Expected Tools
  - Standardized Benefit / Cost Tests for DR
  - Technical Guidebook describing methodology for incorporating DR into system planning models
  - Layman Guidebook for regulators and/or industry executives describing DR value to the marketplace



## Task 4: DR Valuation

- Methodology:
  - Calculate NPV of DR by using existing long term system modeling techniques
  - Provide sample calculations to illustrate process
- Rational:
  - Differences in costs between a resource plan with DRR, without DRR, and with varying amounts of DRR provide estimates of the value of DRR as a resource appropriate addressed in a planning environment.
  - Correctly addressing the benefits and costs of DRR in this context will produce a resource plan with the appropriate amount of DRR.

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## Task 4: DR Valuation

- Sample markets:
  - USA market: fossil and nuclear based
  - Nordic market: hydro dominated
- Sample DR Products
  - Interruptible Product – Known amount of load reduction based on a two-hour call period. Customers will be paid a capacity payment for the MW's pledged and there will be penalties if MW reductions are not attained.
  - Direct Load Control Product – Known amount of load reduction with 5 to 10 minutes for notification.
  - Dispatchable Purchase Transaction – A call option where the model looks at the “marginal system cost” and decides to “take” the purchase when that price is less than the marginal system cost.
  - Real-Time Pricing Product – Modeled as a resource using price elasticity factors to calculate demand reduction.



## Task 5: DR Technologies

- Description:
  - Catalogue available DR technologies
- Status:
  - Created case study template and database organization
  - Countries currently collecting DR technology case studies
  - Expected task completion: September 2005
- Project Tools:
  - Database of DR Technologies currently being used w/ case studies & cost/benefits if available
  - Database of DR Technologies in R&D
  - Database of Consumer Marketing materials
    - DR programs
    - DR technologies

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## Task 6: Market Barriers & Potential Solutions

- Description:
  - Characterize barriers and offer recommended solutions
- Status:
  - Operational Issues Work Group will convene today
  - Expected task completion: September 2005
- Project Tools:
  - DR Product database
  - Market infrastructure requirements for DR
  - Identification of unique DR operating characteristics
  - List of regulatory concerns and how they were addressed





## Task 7: Project Communications

- Description:
  - General project management and promotion/marketing
- Status:
  - Host periodic teleconferences with each Country Expert
  - Participate in country stakeholder meetings
  - Various conference speaking engagements
- Project Tools:
  - Project Web Portal
  - Newsletter: “Demand Response Dispatcher”
  - Presentations from speaking engagements



## Task 8: Project Delivery & In-Country DR Implementation Strategy

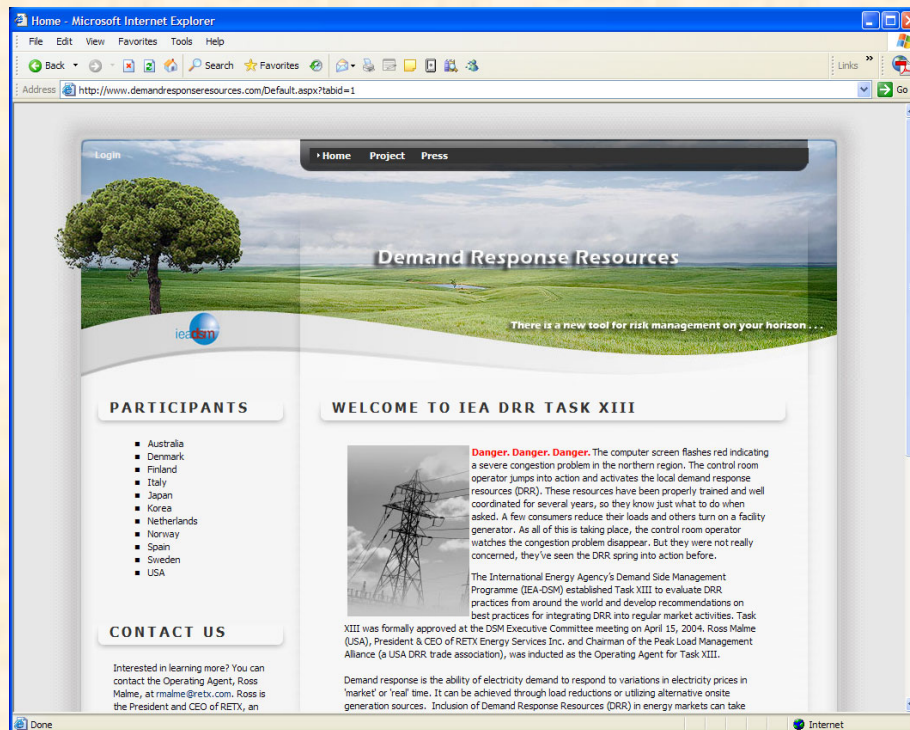
- Description:
  - Host regional workshops
  - Promote the use of the project tools in each country
- Status:
  - Country Experts are drafting Implementation Strategies
  - Workshop locations and timing will be determined during June Experts meeting
- Project Tools:
  - Final project toolkits
  - Task XIII Project Guidebook – a manual for developing DR Products

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## DRR Project Portal

[dsm.iea.org/NewDSM/Work/Tasks/13/task13.asp](http://dsm.iea.org/NewDSM/Work/Tasks/13/task13.asp)  
[www.demandresponseresources.com](http://www.demandresponseresources.com)



- New guidebook updates
- New research in library
- New project roadmap
- New site map
- New meeting info
- New presentations
- Search engine coming

# Demand Response Resources



## Task Information Plan- Publications

- Demand Response Resources Newsletter
  - 3 issues published in November, January, and April
- Project Guidebooks
  - Distributed at last Experts Meeting including A4 versions
  - 2 updates distributed through the project portal
- IEA Publications
  - Open Newsletter, Spotlight Newsletter
- Electricity Today – Dan Violette and Ross Malme
- Restructuring Today – Dan Violette
- Project Announcements
  - Phase II Solicitation
  - DR Market Implementation Strategy Announcement

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## Task Information Plan - Presentations

- USA
  - PLMA Spring Meeting (2005)
  - NARUC Spring Meetings (2005)
  - DistribuTECH (January 2005)
  - US DRCC Road Shows (Winter/Spring 2005)
  - PIER California DR Workshop (February 2005)
- Europe
  - Renewable Resources, Brussels ( December 04)
  - EU JRC Advanced Metering Workshop, Ispra (March 2005)
  - Task XIII Web Conferences
- Asia
  - Task XIII Web Conferences



## Next Experts Workshop

- Next meeting scheduled in Stockholm, Sweden
  - June 13-14, 2005
  - Discussion on valuation implementation
  - Review of market potential tools
  - Progress on technology assessment
  - Progress on market barriers and solutions
  - Discussion on DR Market Implementation Strategies