

# CYBERGRID

European Demand Response Center





## Description

Project focuses on development of an automated European Demand Response Center (EDRC) through aggregation and intelligent networking of industrial/commercial consumers and suppliers with integration of Renewable Energy Sources (RES). The project aim is economical and ecological optimization of balancing energy actions, such as peak power, grid stability and congestion issues. The project result will be a functional EDRC which integrates several industrial/commercial sites in order to achieve best possible knowledge of demand response technology potential.

## Common electricity systems facing challenges like:

- Global increasing energy consumption
- Increasing share of distributed RES
- Aging infrastructure
- Long lead times for new infrastructure projects
- Environmental issues
- Substitution of traditional peaking-power plants



 Dieses Projekt wird aus Mitteln des Klima- und Energiefonds gefördert und im Rahmen des Programms „NEUE ENERGIEN 2020“ durchgeführt.

EU has 27 countries and 27 different markets for VPPs based on DR.

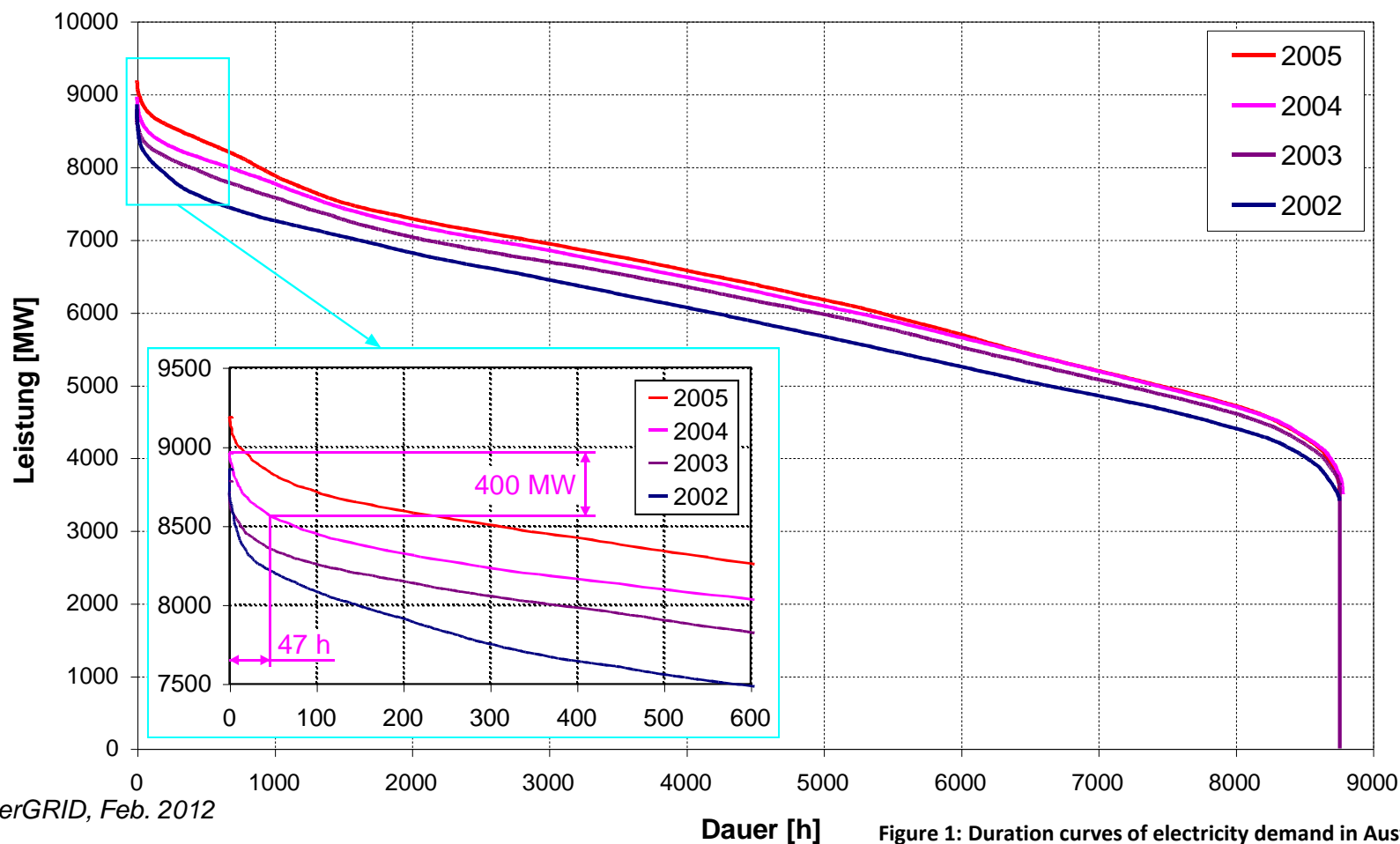
The only way to access targeted markets efficiently is in partnership with strong market players – TSO's, Utilities and ESCO's.

Good overview is provided by SEDC's snapshot of EU DR potential and the barriers.

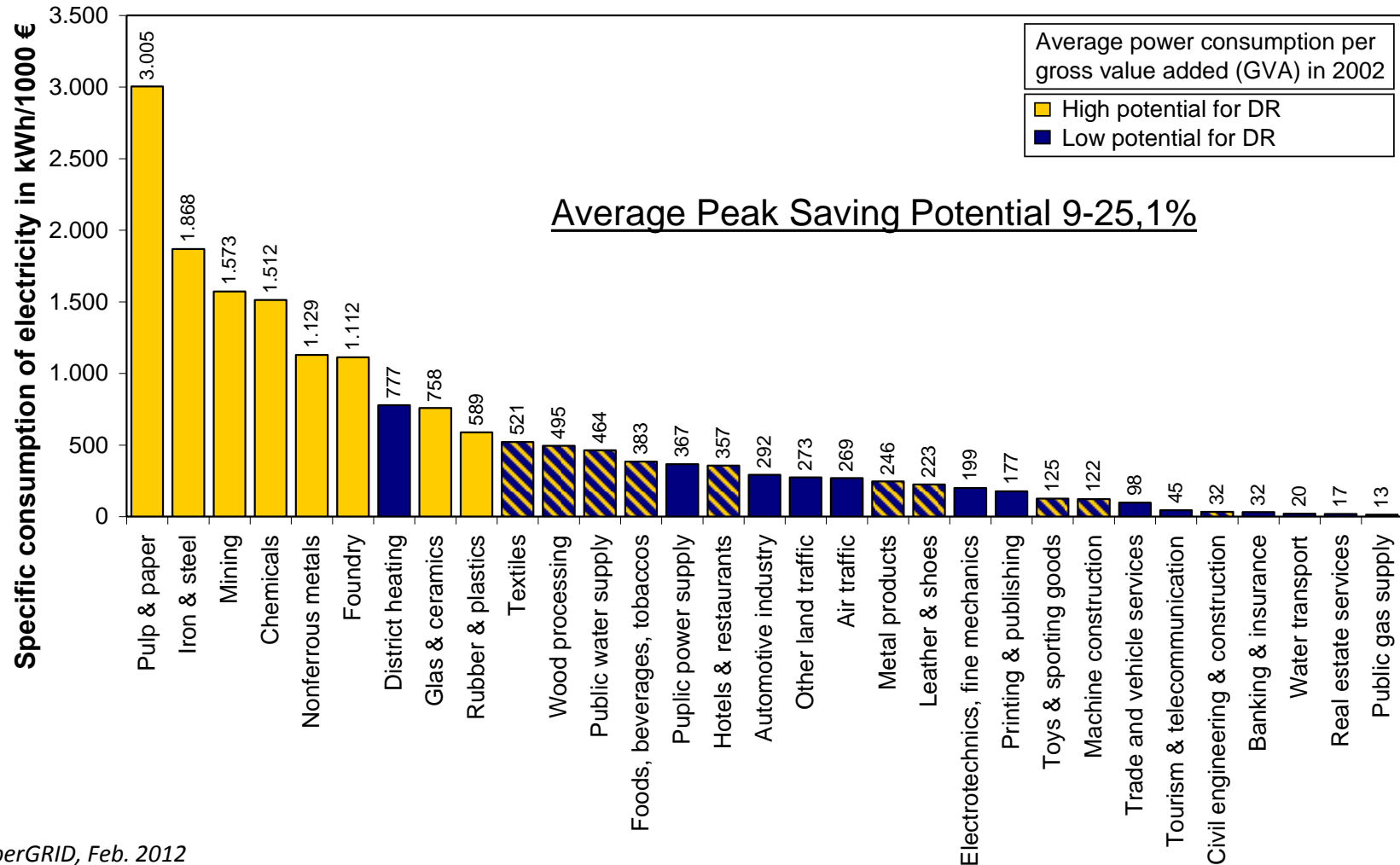
## SUMMARY:

This project focuses on development of an automated European Demand Response Centre (EDRC) through aggregation and intelligent networking of industrial and commercial consumers and suppliers with integration of renewable energy sources (RES) for economic and ecological optimization of balance energy actions, such as peak power, grid stability and congestion issues.

Demand response measures in Austria could be equivalent to the capacity of a state-of-the-art combined cycle unit (400 MW) or even more.



## Demand Response potential by industry





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Project partners



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## Project partners

- cyberGRID – technology provider
- Brimatech – market research
- Graz University of Technology, Institute for Electricity Economics and Energy Innovation
- Austrian Power Grid (APG) – TSO
- Start 03/2011 – 10/2012
- **7 LOIs from companies in different industries**

## Aims of the project:

- Identification of applications and use cases from different stakeholder perspectives
- Profound know-how of demand response potential and innovation environment in Austria
- Identification of drivers and barriers
- Identification of stakeholder needs and requirements
- Development and evaluation of algorithms and business models
- Deduction of recommendations and relevance for the legal and regulatory framework



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# FOCUS OF THE PROJECT

- Regional focus
  - Austria
  - European perspective and validation through international expert workshops
  - Follow-Up project within EU FP 7 Program ICT Call – “iBADGE” “Cross-Border Balancing Market – Tool: Austria, Italy and Slovenia”
  - Follow-Up Commercial: “Cloud” for Stakeholders across Europe
  
- Stakeholder focus
  - Energy-intensive consumers (industry), consumers with emergency power generator, transmission system operator, distribution system operator, regulator, traders, municipal utility, suppliers, etc.
  - Energy-intensive industry (consumer/prosumer): selection based on the energy consumption/1000€ production
  - 7 industries were selected based on their potential for DRM
  - Private households were not considered

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## VPP DRIVERS / HOW TO DEFINE VALUE

### COMMERCIAL VPP – MAX FINANCIAL OUTCOME

- The electricity retailer' challenges are:
  - Retaining customers
  - Increasing revenues

### TECHNICAL VPP – OPTIMIZE POWER SUPPLY & DISTRIBUTION

- The power sector specific challenges are:
  - Increasing share of RES; distribution of RES
  - Underinvested aging infrastructure with long lead times for new projects
  - Public resistance against new projects (transmission lines, nuclear, coal, etc.)
  - Increasing consumption
  - Environmental issues

# Optimizing Energy Value Chain







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