



Feedback on Demand Response from Selected Industries

International EDRC Workshop | 16 February 2012

- Brimatech's role in the EDRC project
- Stakeholders and user groups
- Selection criteria (industries, size)
- Methodology, industries analyzed
- Reasons for not being interested in demand response (DR)
- Interest in DR systems and potential for DR by industry branch
- Summary of potential loads
- Conclusions & discussion

- **Identification of relevant stakeholders and user groups**
- **Identification of user needs and requirements**
- **Research and analysis of possible business models (ongoing)**

Electricity market Austria

- Network operator (transmission and distribution)
 - Supplier
 - Producer
 - Trader
- Independent network service provider

End consumer / Prosumer

- Industry
- Trade
- Households

Other Stakeholders

- E-control, APCS, Energy stock exchange markets, Österreichs Energie, Industry unions, Austrian chamber of commerce, Ministries, Eurelectric, ...

- Selected energy-intensive industries:
 - Paper, cardboard, pulp
 - Mining, industrial rocks, minerals
 - Iron, steel, non-ferrous metals
 - Chemical industry
 - Glass, ceramics, cement
 - Rubber and plastics
- Size: 250 employees minimum



- Total of 70 companies were contacted, 36 interviews conducted
- Face to face and telephone interviews, follow-up questionnaire
- Contents: „soft facts“ (e.g. experience with DR, interest) and „hard facts“ (switchable loads)

Industry Branch	No. of short interviews	No. of problem-centred interviews
Paper, Cardboard, Pulp	5	6
Minining, Industrial Rocks, Minerals	6	0
Iron, Steel, Non-ferrous Metals	2	3
Chemical Industry	2	3
Glass, Ceramics, Cement	0	3
Rubber and Plastics	5	1

Few Industries Showed No Interest

- One paper producing company is already actively engaged in DR (own balance group).
- Non-participation due to production processes:
 - Salt refinery
 - Rubber/plastics: low interest where production involves extrusion or injection moulding processes
 - Packaging: high cost of waste, highly integrated
- Resistance to DR (interference with internal processes)
 - Industry independent
 - Energy efficiency is already high on the agenda; DR is perceived as an „additional complication“

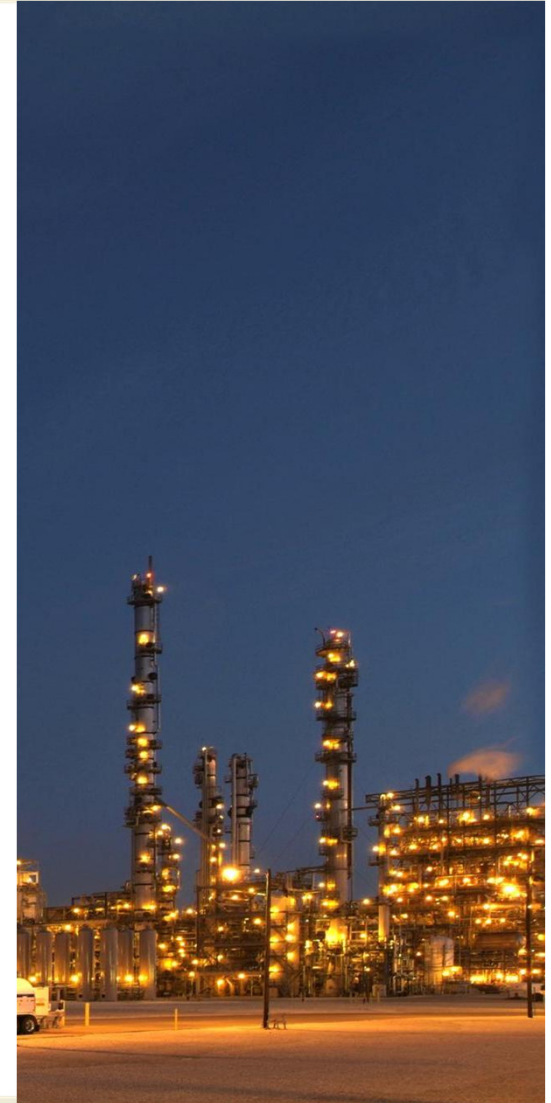
- Paper, Cardboard
 - Very interested in DR
 - Paper/cardboard machines cannot be used
 - Pulp/pressure grinders can be used
 - Steam turbines
 - Investments in storage may be necessary
- Pulp
 - Low level of interest in DR
 - Electricity is a by-product in the production
 - Mills supply electricity to the network



- *“We are very interested if it makes sense economically”*
- Electric Arc Furnace (EAV) -
„predestined“ for DR technologies
 - high connected load
 - can be turned off in less than one minute (automatically)
- Other parts of production are harder to switch
 - theoretically the mill
 - or secondary ovens

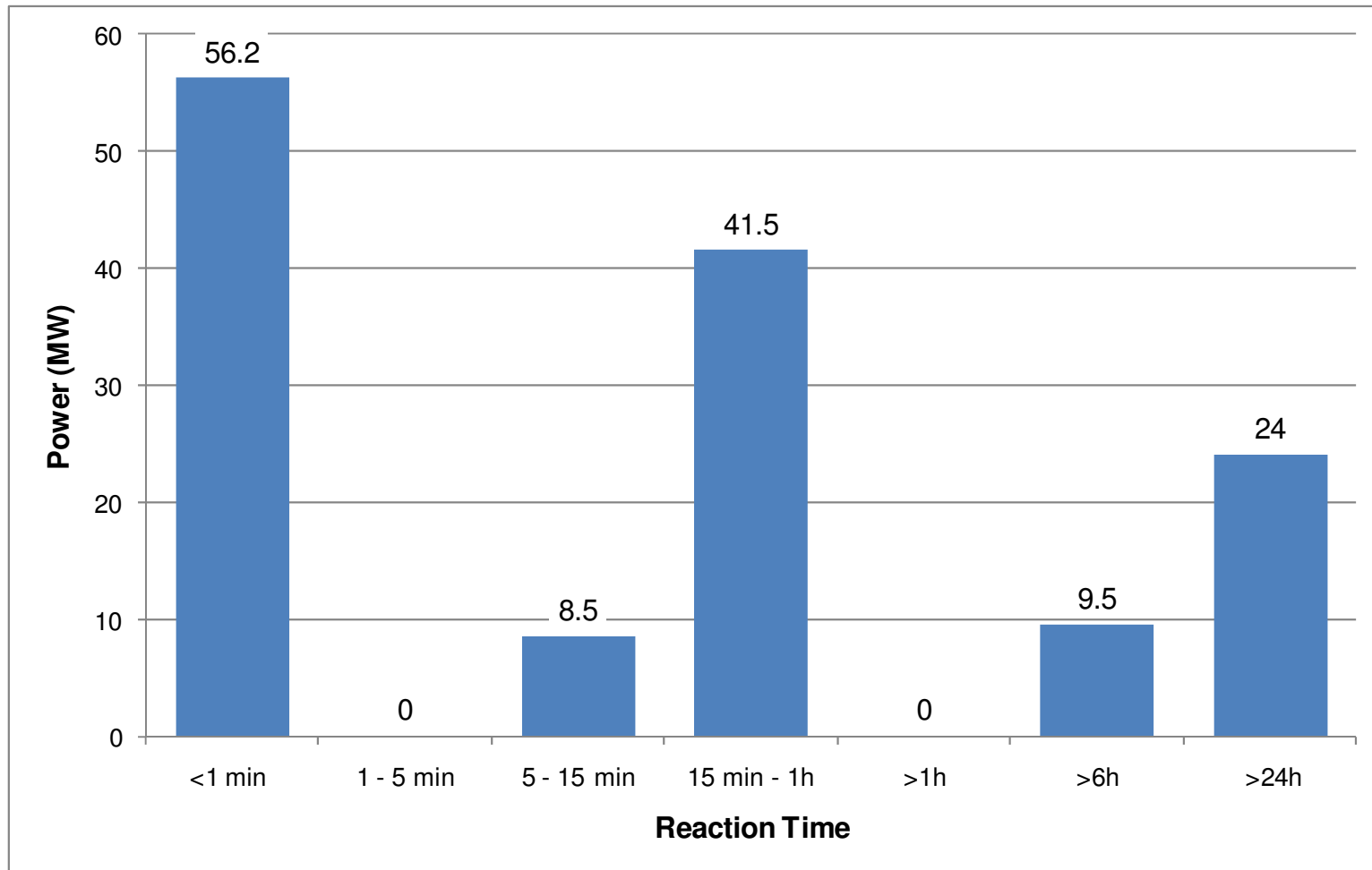


- Interested in DR
- Electrolysis
- Ammonia production: DR cannot interfere too often (danger of equipment damage)
- Longer reaction times
- Can be switched off for longer periods (a few hours to a few days) in summer in particular



- *"If there are sensible offers, then we will definitely participate in a DR system"*
- Companies have investigated potentials by themselves and are “waiting for” DR systems
- Cement mills in particular can be switched off
 - quickly and
 - for longer periods of time (hours)





n= 10

	MW by Industry / Reaction Time							Total (MW)
	<1 min	1 - 5 min	5 - 15 min	15 – 60 min	>1h	>6h	>24h	
Paper, Cardboard, Pulp (3)	4,5	-	6	36,5	-	-	-	47
Mining, Industrial Rocks and Minerals (0)	-	-	-	-	-	-	-	-
Iron and Steel, Non-ferrous Metals (3)	51	-	2,5	5	-	-	-	58,5
Chemical Industry (2)	-	-	-	-	-	-	24	24
Glass, Ceramics, Cement (2)	0,7	-	-	-	-	9,5	-	10,2
Rubber and Plastics (0)	-	-	-	-	-	-	-	-
Total (MW)	56,2	-	8,5	41,5	-	9,5	24	139,7

n= 10

- There is a significant potential for DR technologies in Austria.
- Companies are willing to participate.
- Industries of particular interest are:
 - Paper, Cardboard
 - Steel
 - Cement
 - Chemical Industry

- What needs to be done to make a demand response system interesting for industry?
- What are the barriers for industry and other stakeholders to implement a demand response system in Austria?

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