



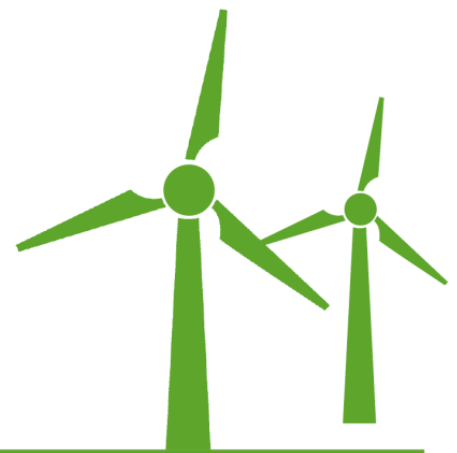
“Innovative Business Models for Market Uptake of **Renewable Electricity**
unlocking the potential for flexibility in the Industrial Electricity Use”

Minutes of the 2nd Stakeholders’ Workshop

*“Innovative Business Models making use of
Flexibility in Industrial Electricity Demand”*



12th September 2016
Brussels



IndustRE

Acknowledgements

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This work has been carried out by the project teams in ECI and WIP



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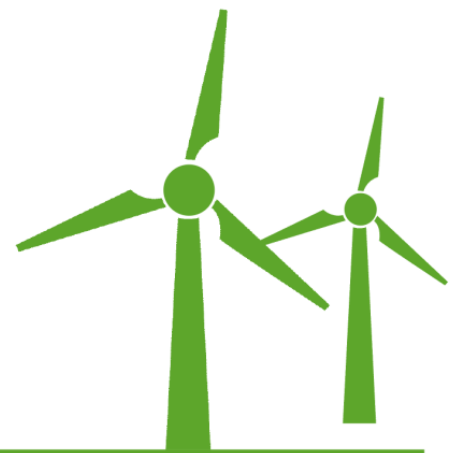


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1. Introduction

The 2nd IndustRE stakeholders workshop was organized by the European Copper Institute (ECI) on 12th September 2016 in Brussels in the CEN/CENELEC Meeting Center - Avenue Marnix 17 (4th floor), 1000 Brussels.

The project has produced key reports on business models and policy recommendations to stimulate industrial demand response. These are very timely in the context of the ongoing EU Market Design reform. In this workshop model contracts and a methodology for optimal valorization of flexible electricity demand in industry were presented and debated.

Annex I presents the list of participants and Annex II the agenda of the workshop.

All presentations and discussions have been recorded and can be accessed under this page: <http://www.industre.eu/news/events/details/2nd-industre-stakeholders-workshop-2>

A 5 mins slot was allocated to 3E to present the BestRES project’s view on innovative business models for renewable energy aggregators. Further information can be found under www.bestres.eu

2. Business Models and Market Barriers

Pablo Frías, IIT Comillas

The aim of this industrial project is to develop a strategy based on business models, by bringing the demand flexibility that industrial consumers can provide, so that firstly it benefits the company itself, and secondly that it improves the integration of existing rules in the system. Five possible business models were presented, and the feasibility – or not – of each was explained, along with the regulatory and market barriers. The five business models discussed were Electricity Bill Reduction (I), System Service Provider (II), Electricity Supply Contract with off-site VRE (III), Balancing Service Contract with off-site VRE (IV) and Electricity Bill Reduction with on-site VRE (V).

3. Policy Recommendations

Tomás Gómez, IIT Comillas

The study was based on research conducted in Italy, UK, France, Belgium, Spain and Germany. It enabled the researchers to ascertain certain common policy recommendations for each of the five business models. It is clear that the barriers are different in the various countries. However, from a European perspective it is apparent that transformation of the design of the market is definitely needed, although this transformation needs to be based on common, good practices. The policy recommendations for each of the five business models presented earlier, were described in detail. Finally, the need for harmonization of flexibility mechanisms across the EU was stressed.

4. Discussion on policy / market design options

Michael Papapetrou (WIP) said that part of the aim of this project is to change the market design and see improvements in policy design. He believes that there is room within both current and future market designs for the implementation of greater flexibility, and that it is necessary to encourage and give the practical support tools to enable industrial users to become more flexible.

Frauke Thies (SEDC) commented that a heavily capacity-based tariffs could basically function as a cap, and wondered whether other possibilities could be considered such as a capacity-based tariff with a certain limitation. Regarding interruptibility contracts, she asked whether these have a major role to play in the long-term, and suggested that it is important for demand response to be more integrated in the general market rather than having a very limited separate category for itself.

Tomás Gómez (Comillas) remarked that consumers are more elastic than ever because they can implement their own generation. This is the concept of incremental network charges, which could apply in both directions: peak consumption hours as well as peak generation hours in the future. He believes that the critical factor is how to find those periods in the year that the network should be charged, and how much of the total cost should be charged.

Nicola Rega (CEPI) believes that a key element is system efficiency, and commented that there is a lot of regulation to promote stability from industrial consumers. He is aware of a potential contradiction in legislation between on one hand promoting flexibility, and on the other hand promoting stability. He believes that a more holistic approach to promote flexibility is needed.

Mukund Bhagwat (Aurubis) commented that when a company drives in one direction – maximizing flexibility – then the company should be allowed to escape obligations from other directives, such as the energy efficiency directive. This would avoid a double policy burden.

Fernando Nuño (ECI) asked whether self-consumption is currently present at some point at an industrial level. Frauke Thies (SEDC) believes that it is already happening, although key questions remain, such as regulatory certainty, the tax regime, and the long-term net charges regime.

5. Model Contracts

Dörte Fouquet, BBH

To facilitate cooperation between variable renewable energy and flexible industrial demand, it is important to show what is possible – or not – with the proposed business models. In the absence of a uniform energy law or support mechanism across the EU, a “one fits all” model contract is not feasible, which makes a checklist of considerations per Member State necessary. “Contract guidance” is therefore preferred; an approach that takes into consideration Member State specifics. Contract outlines under German law were compared to the specificities of Member State laws. Checklists covered which contracts are needed, and what should be dealt with in those contracts. Regarding the way forward, the contract guidance for each Member State will be completed and translated, and then discussed with relevant stakeholders, before final revision of the report.

6. Methodology for optimal valorization of industrial flexible electricity consumption

Jef Verbeeck, VITO

Estimating demand side flexibility has always been considered an extremely difficult task. The purpose of this presentation was to describe an approach that attempts to provide an easier methodology. It covered why a simplified methodology for demand side flexibility estimation is necessary, how to calculate a demand response business case, the simplified methodology step-by-step, and an on-site business case. Regarding the way forward, the methodology is to be tested “live” and refined during a number of case studies that will run until mid-2017 in different target industries in six countries. The goal is to bring the methodology to market as part of the IndustRE project. A hands-on workshop for interested parties is planned for mid-2017.

7. Discussion on methodology and contracts

Michaël Van Bossuyt (IFIEC Europe) pointed out that with historical data it's easy to see when the price was high or low. He asked how the benefit can be calculated for future times when the prices are not known in advance?

Jef Verbeeck, VITO explained that it is possible to calculate the maximum value you could have achieved, and then based on experience you can put a percentage on it, although he agrees that it gets tricky if you go for the imbalance market. Based on wind predictions, which are getting increasingly better, he suggests the order of magnitude is around 80-85%.

8. Panel Discussion

(moderated by Michael Papapetrou, WIP)

Moderator: Do you see flexibility as an opportunity for the industry? Does it make financial sense? If not, how can conditions be changed to make them more interesting?

Peter Claes, IFIEC: There are flexible processes in the industry that can respond to market signals. But it's important that it stays on a voluntary basis, because the goal of industry is not to be flexible, but to produce industrial goods. This is what shareholders and society expect from us; to do that in an efficient and competitive way, in the global context. Second, what most companies see in terms of flexibility is the tip of the iceberg; it may only be balancing. Balancing is very interesting for a TSO, and some industrials do participate in balancing, but generally it means being able to respond within a maximum of 15 minutes. This is not possible for all industrial consumers or SMEs. I don't think anyone has made a study as to the real potential for flexibility in the system and how far industrial and residential consumers can go. Third, the flexibility is there and can help balance the system and bring it to adequacy, but it is not the only solution. In the end, you will have to have reliable

generation plants, so their flexibility and demand response as counterpart of intermittent renewables, can only be used to a certain extent.

Moderator: What’s your view specifically on large, industrial, heavy energy intensive user? In our project we generally don’t address aggregators. Where do you see the potential and the problems?

Frauke Thies, SEDC: To clarify, SEDC is not just an aggregator association; we also represent the smart energy demand side in general. I think that the needs of residential, commercial and smaller industrials who need aggregators, as well as the large industrials who go directly to the market, are very similar. We do see significant potential. We are looking forward to seeing the European Commission’s impact assessment of demand response, but figures released from the Florence Forum suggest highly significant potential regarding the flexibility that the demand side can contribute. I wouldn’t say that it is the only solution that will contribute all the flexibility needed for a renewable system, but it will have to play an important role. To allow the market to develop this flexibility, it is essential to remove over-capacity, and to allow the right signals to emerge. Currently many market price signals are depressed, and discussions surrounding capacity mechanisms are mainly tailored towards maintaining or building new generation capacity, which in some cases is not needed. The first priority is to let the market develop these signals. If this happens, we are confident that demand response will kick in. Very often the capacities provided by demand response are much cheaper than those by generation. Barriers also have to be removed, to allow demand side flexibility. This means allowing flexibility from the prosumer side into the market. The barriers are both in terms of products – allowing demand response into the market – and in terms of allowing the actors into the market without prior agreement of the supplier. Companies wanting to go into the market and those wanting to work with an aggregator, require the supplier to say it’s OK to do this. Very often the supplier doesn’t have an interest in allowing this. A legal framework needs to be defined to make sure that consumers, directly or via an aggregator, are allowed to participate in demand response, without negotiating with someone who has competing interests.

Moderator: What is your view of industrial demand response in general, and more specifically on the use of wind in bilateral contracts?

Victor Charbonier, WindEurope: I don’t think demand response is going to be the miracle solution, but it’s here to stay and should definitely be part of the equation alongside generation, storage etc. There is complementarity that should be used. This is why we have co-signed a declaration with the Friends of Flexibility coalition. There is also a cost efficiency argument which could reduce the need for the capacity remuneration mechanism (CRM), which is not always well-dimensioned. When I look at the projects, at WindEurope we tick most of the boxes and agree with many things such as the opening of the balancing markets. Separation of balancing capacity and energy is quite important. We see some Member States going with some very good practices like the Netherlands where you don’t need a contract for balancing capacity with a TSO to participate. Also the upwards and downwards separation is a key argument for procurement of balancing energy from wind farms. There was a comment made on the need to phase out of subsidy for renewables. Trend is rather to move towards intelligent design. In Denmark, wind power generators get allocated a premium for maximum number of load hours this way they can decide not to get a premium during the hours when they can provide flexibility. We see very promising solutions like this. Aggregation will make more sense for the medium sized uptakers, especially in the very fragmented generation markets. A potential hot potato is the curtailment risk; in many countries the curtailment rates are increasing, especially at DSO level, which is a concern. Another one is the sharing of bilateral charges, where further research could be done.

Moderator: Would you like to comment on self-consumption, which is an interesting case and which has different frameworks in different Member States?

Dörte Fouquet, EREF (European Renewable Energies Federation), the voice of independent power producers, is very interested in seeing more self-consumption being allowed in the total energy system, and in which renewables can play an important role. They have also looked into direct marketing concepts under specific support mechanisms such as the German feed-in system, as well as looking into greater cooperation between members. For example, some members of EREF do have direct contacts with industry, including an industry grid where one of the options is the use of more renewables. EREF is also very interested in the value of demand flexibility, so that it becomes more of a business model. However, a hindrance to the implementation of flexibility mechanisms is that the current capacity mechanisms are really focused more on the traditional way of providing reserve capacity. Moreover, over-capacity is not giving the right signals to the market. At the end of the year when the Commission comes up with the new market system approach, we hope that flexibility will be seen as an energy service provision in which renewables will play an important part.

Moderator: From a DG Energy point of view, what is your view of harmonization, and can the new market design move towards this direction?

Matti Supponen, DG Energy: Firstly, flexibility is a very sensible way forward. It comes not just from the demand side but also from production, and in the future also probably from storage. When it comes from production, it's clear it has to come from renewable sources, which should not only be allowed but should make money out of flexibility. It remains to be seen what levels of household flexibility we will need. Another point regarding flexibility is not only market signals but also regulator signals. Regarding harmonization, I see a lot of opportunities. I definitely see scope for harmonization in the balancing area such as a European balancing market. I also see some scope for harmonized principles for demand side aggregators as well as the right to self-consume. Harmonized tariff structures are I believe a long way off in the future.

9. Q&A and final comments

Fernando Nuño, ECI: Will the weight of energy prices be enhanced in the future market design?

Matti Supponen, DG Energy: We see the market working without capacity mechanisms.

Moderator: With feed-in tariffs being phased out, it would be nice to see from the renewable energy side, a proactive approach to bilateral contracts with a share of risks and responsibilities.

Dörte Fouquet, BBH: It's important to get balance in bilateral contracts with a share of risks and responsibilities. When the industry heads towards flexibility, and trades surplus energy with a renewable energy provider and puts it into the grid, it may also open a discussion on the regulatory background. At the moment that industry earns money by shipping renewable energy into the grid, it then also becomes a question of grid fees etc. This is a difficult issue but it's solvable; it's almost a holistic exercise.

Victor Charbonier, WindEurope: Sustained growth in the renewables sector will require long-term investments signals that will mostly be provided by more intelligent design of support schemes.

Peter Claes, IFIEC: Firstly, anyone who doesn't have a smart meter, does not have access to the market. So this is a good starting point, and let's see if the consumer is willing to respond to market signals, TSO signals or other price signals. Second, how the consumer responds will depend on the price, and the costs to be covered. Third, regarding flexibility and efficiency, European industry is about the most efficient industry in the world. The problem is that flexibility will reduce efficiency. A lot of processes are efficient if left alone at a high level of capacity utilization. The moment they become flexible, their efficiency will reduce. The same goes for a cogeneration plant.

Annex I – List of Participants

Workshop participants	
Ruben Verhaegen	3E
David Norta	Athion GmbH Collogne
Mukund Bhagwat	Aurubis
Nicola Rega	CEPI
Marijn Maenhoudt	CREG
Manon Dufour	E3G
Joachim Matthys	Eandis
Christine Weiker	ECSLA
Bram De Wispelaere	EDF Luminus
Florian Gonzalez	EDSO for Smart Grids
Matteo Cantu'	Enel
Pavla Mandatova	EURELECTRIC
Cillian O'Donoghue	Eurometaux
Matti Supponen	European Commission
Pierre-Henri Gresse	Flexide Energy
Peter Claes	IFIEC Europe
Michaël Van Bossuyt	IFIEC Europe
Denzil Walton	Leonardo Energy
Pauline Lucas	Logos Public Affairs
Christiaan Geers	Sappi Lanaken
Frauke Thies	SEDC
Victor Charbonnier	WindEurope
Marie Latour	Zabala Innovation Consulting

Following by webstream	
Peter Nemcek	cyberGRID
Thomas Kudela	Dong Energy
Stefan Vögel	E-Control (Austrian NRA)
Gisela Mendes	EDP NEW R&D (Portugal)

Laurent de MUNCK	InDUFed-Cobelpa
Thomas Messervey	R2M Solution
Alexandre Roesch	SolarPower Europe

Apologies	
Lieven Stalmans	Borealis
Greg Arrowsmith	EUREC
Eva Hoos	European Commission
Paul Lowbridge	Power Responsive Manager

Members of IndustRE consortium	
Dörte Fouquet	BBH
Pablo Frías	Comillas
Tomás Gómez	Comillas
Lorenzo Simons	Comillas
Fernando Nuño	ECI
Hans De Keulenaer	ECI
Tomas Jezdinsky	ECI
Roberto Moreira	Imperial College London
Dimitrios Papadaskalopoulos	Imperial College London
Dr Salvador Acha	Imperial College London
Fei Teng	Imperial College London
Giuseppe Lucisano	SCM Group
Valerio Cascio	SER
Daan Six	VITO / EnergyVille
Jef Verbeeck	VITO / EnergyVille
Thomas Maidonis	WIP
Michael Papapetrou	WIP

Annex II – Agenda of the workshop

Date & time

September 12, 2016; 13h30 - 17h00 (networking lunch at 12h30)

Venue

Room Newton A - CEN/CENELEC Meeting Center - Avenue Marnix 17 (4th floor), 1000 Brussels

Purpose

The IndustRE project (www.industre.eu) was started in January 2015 and meanwhile produced key deliverables on business models and policy recommendations to stimulate industrial demand response. These are very timely in the context of the ongoing EU Market Design reform. Additionally, model contracts and a methodology for optimal valorization of flexible electricity demand in industry will be presented and debated.

Participants

Regulators, energy intensive industry, renewable energy sector, demand response, aggregators, utilities...

Documents

1st Workshop (2015): <http://www.industre.eu/news/events/details/workshop-on-innovative-business-models>

Latest project results: <http://www.industre.eu/downloads/category/project-results>

Agenda

12:30 Networking lunch

13:30 Welcome and introduction to the workshop (European Copper Institute)

13:45 Business Models and Market Barriers (IIT Comillas)

14:00 Policy Recommendations (IIT Comillas)

14:15 Discussion on policy / market design options

14:35 Coffee break

14:50 Best RES project short presentation (3E)

15:05 Model Contracts (BBH)

15:30 Methodology for optimal valorization of industrial flexible electricity consumption (VITO)

16:00 Discussion on methodology and contracts

16:30 Panel Discussion

17:00 Adjourn