Show and Tell:

Sharing Market Based Solutions for the Constraints Collaboration Project

20 March 2024

ESO

Introduction

Introduction: Agenda

Contents	Duration
Introduction	5 mins
DFS Inverse by EDF	5 mins
Discussion	10 mins
Flexibility for Active Network Management (ANM) zones and Generation Export Management (GEMS) by Zenobe Energy	5 mins
Discussion	10 mins
Update on other solutions	15 mins
AOB	5 mins

Introduction: Objective

Objective of today's show and listen

1. To give an overview of market based solutions proposed by the industry

2. To provide industry the opportunities to have their say and ask questions

Market-based Solutions for Thermal Constraints

Summary of market based solutions for thermal constraints

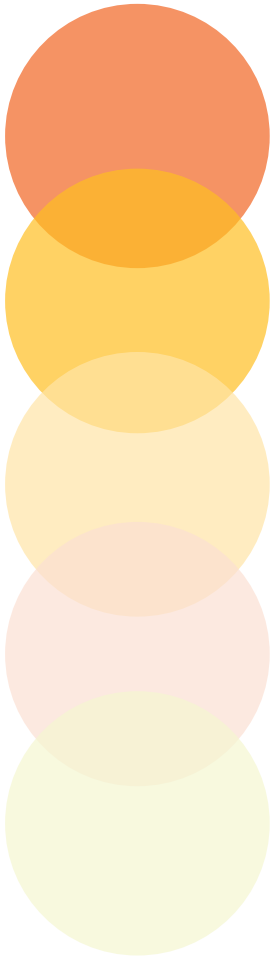
Project Name	Organisation	Overview of Solution	Solution is intended to	Page
DFS Inverse	EDF	EDF proposed a solution which aims to incentivise demand turn-up at a lower cost to consumers via a daily/ d-1 and week ahead auction of excess wind that would otherwise be curtailed.	• Reduce overall costs to consumers • Increase effective network capacity	**7**
Flexibility for Active Network Management (ANM) zones and Generation Export Management (GEMS)	Zenobe Energy	Zenobe Energy proposed an idea that flexible assets, such as storage or demand should be able to import power from renewable generators in ANM zones that would otherwise have to flow over the boundary and potentially exceed the constraint.	• Increase effective network capacity • Reduce overall volume of ESO actions	**9**

1. DFS Inverse

Date: 29/02/2024
Organisation: EDF

Areas of Discussion	Feedback
Overview	• *EDF proposed a solution which aims to incentivise demand turn-up at a lower cost to consumers via a daily/ d-1 and week ahead auction of excess wind that would otherwise be curtailed.* • *This proposed solution aims to: reduce overall costs to consumers, allow more renewable energy to run and increase/optimise effective network capacity.*
Value to ESO Market Design Framework	• ***Value to the consumer (Value for Money):*** *EDF suggested that resolving forecast constraints early would reduce the cost of panic buying off wind and/or offering on flexible CCGTs in front of the constraints on the day close to gate closure. Therefore, BSUOS costs will come down as a result not only from the reduction in wind bids (-£60/MWh) and some CCGTs offers (c.£100-200/MWh) the ESO would receive payment for the extra energy (anything up to the retail prices c26p/KWh (or £260/MWh), leading to an overall reduction of costs to consumers* • ***Value to the control room (Efficient Dispatch):*** *Less ESO actions, more time for control room operatives to make better decisions and concentrate on securing system security.* • ***Value to the provider (Efficient Investment):*** *Incentivises existing and new demand and flexible assets like batteries.* • ***Carbon saving value*** **(helps 2035 target)*:*** *Potential carbon saving value arising from the fact that less CCGTS would be instructed in front of the constraint.*
Impact and Implementation	• ***Additional value to the system:*** *This proposal could support improved management of frequency from constant re-jigging of energy instability* ***Potential challenges with implementation*** *EDF believe this solution should be relatively simple to implement given it's a tried and tested process but clearly lots still to explore as slightly different commercials to today's DFS.* • ***Contracting period:*** *Likely to be day ahead but possibly also week ahead. Initial longer term Y-4 contracts may be required until there is sufficient liquidity.* • ***Contract length:*** *Half hourly to hourly periods of forecasted constrained period.* • ***Prices:*** *Suppliers and assets submit their price for certain amount of volume and ESO takes the cheapest batch that meet their target requirement (similar to DFS) and share the savings with consumers.* • ***Lead time:*** *Day ahead (and daily?) like DFS and week ahead.* • ***Other comments :*** *Historical and long-term forecasts (weekly/ monthly) of curtailed wind and it's specific time of the day along with ESO costs will be important for this proposed market design to enable effective and efficient participation.*

Discussion



How can we make sure that this is value for money for the consumer?

How can we make sure that this is technology neutral, promoting competition and accessible to as many customers as possible?

How will this make it easier for the ESO to efficiently plan and operate the system?

What changes are required to deliver this solution?

Pros/Cons

2. Flexibility for Active Network Management (ANM) zones and Generation Export Management (GEMS)

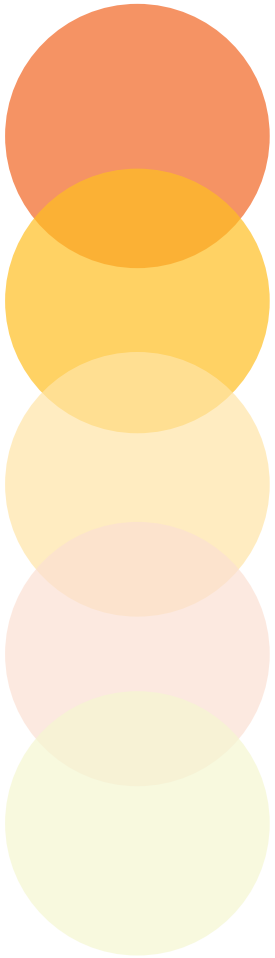
Date: 28/02/2024
Organisation: Zenobē Energy

Areas of Discussion	Feedback
Overview	• *Zenobe Energy proposed an idea using flexible assets or demand to import power from renewable generators in ANM zones that would otherwise have to flow over the boundary and potentially exceed the constraint.* • *This proposed solution aims to: Increase effective network capacity and reduce overall volume of ESO actions.*

Value to ESO Market Design Framework	• ***Value to the consumer (Value for Money):***
	  • *Extra flows over the boundary;*
	  • *More competition;*
	  • *Utilising existing ANMs/GEMs that already manage constraints.*
	• ***Value to the control room (Efficient Dispatch):*** *Avoided actions if bilateral, potentially lower cost and more options.*
	• ***Value to the provider (Efficient Investment):*** *More options in constrained areas.*
	• ***Carbon saving value*** **(helps 2035 target)*:*** *To be confirmed.*

Impact and Implementation	• ***Additional value to the system:*** *Inertia response from storage.*
	• ***Potential challenges with implementation***
	  • *Interaction between ANMS and GEMS, with wider constraints;*
	  • *Interaction with ESO and DSO system tool;*
	  • *External party tools such as Piclo could be used to create market.*
	• ***Contracting period:*** *day ahead and within day.*
	• ***Contract length:*** *half hourly to day.*
	• ***Prices:*** *bilaterally or submission to DSO/ESO.*
	• ***Lead time:*** *expected short timescale.*

Discussion



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Pros/Cons

Overview of market-based solutions based on identified themes

Constraints Management Markets (CMM)

Demand for Constraints

- amp CLEAN ENERGY — Increasing demand for power in constrained areas for electrification of heat
- eneus energy — Flex PtX to produce green H_2 and related derivatives
- Statkraft — Demand signal product
- ScottishPower — Incentivising new discretionary demand (H_2 production and electricity storage)
- Flexitricity — ‘Cooler Heating’ – commercial heat loads as responsive assets
- sse Business Energy — Long-term constraint management contracts (incentivising new demand)

CMM – Long Term (Multi years to decade ahead)

- TEL the energy landscape — Constraints management markets (CMMs)
- SCOTTISH FUTURES TRUST — Long term contract to manage a portion of the forecast constraint volumes
- sse Business Energy — Competitively allocated season ahead constraint management availability contracts
- EDF — Long-term auction of excess wind

CMM – Short Term (Day to week ahead)

- ZENOBĒ — Pre gate closure constraint management product using scheme 7 trade
- sse Business Energy — Competitively allocated short-term constraint management contracts (D-7)
- EDF — DFS Inverse
- EDF — Weekly generation turn down market

Increasing how much can flow over boundaries

Expanded intertrip scheme

- FIELD — Expanded intertrip scheme
- ZENOBĒ — Intertrip scheme utilisation
- sse Business Energy — Enhance utilisation of the transmission network
- Eku — Battery for constraints: reducing the line rating from 10 to 3 mins

Flexible assets to support capacity increase

- FIELD — Grid booster
- ZENOBĒ — Transfer booster
- Kona Energy — Paired storage systems across key boundaries
- ZENOBĒ — Flexibility for Active Network Management (ANM) zones and Generation Export Management (GEMS)

Using flexible assets to reduce the flow over boundaries

- Flexitricity — The ‘Big Friendly Battery’ for ~8 hours duration

Key

- Demand for Constraints
- CMM – Long term
- CMM – Short term
- Increasing how much can flow over boundaries
- Using flexible assets to reduce the flow over boundaries

Out of scope proposals

Update on other solutions (1/2)

Project	Proposed by	Feedback
Use schedule 7/7a GTMA trades	Flexitricity	• Use of schedule 7 as a means to set up a day ahead constraints market will be looked at with the other constraints markets proposals. • Our trading team is also investigating the feasibility of trading with other parties for reasons such as constraints. • To find out more on the work we are doing on this topic, please get in contact with our trading team : trading@nationalgrideso.com.
Correcting imbalance volumes (C16), correcting supplier/aggregator compensation (BSC)	Flexitricity	• We published our decision on Local Constraint Market (LCM) and compensation for aggregators within C16 consultation. • We believe market changes are required and we will work with industry stakeholders and policy makers to develop an enduring solution. • If you would like more information contact us at balancingservices@nationalgrideso.com.
TNUoS reform: allow TNUoS demand to go negative	EDF	• Both of these proposals are being actively looked at as part of the TNUoS Task Force. • This taskforce is looking at all aspects of TNUoS reform and meets on a monthly basis. • It is expected to conclude in the coming months. • All material from previous Task Force meeting can be found on the Charging Futures page on the ESO website.
TNUoS reform: more cost reflective for BESS	EDF	

Update on other solutions (2/2)

Project	Proposed by	Feedback
Improving transparency and arrangements for interconnector dispatch and redispatch	sse | Business Energy	• We aim to be as transparent as possible and consequently share all our trading actions. We are already publishing information on our schedule 8 trades on our data portal. • Interconnectors have been scoped out of this project. However, we have passed this to our Cross Border strategy team as well as keeping in mind for any future constraints management markets.
Improved constraints forecasting	sse | Business Energy	• We currently publish long, medium and short term constraint forecasts. These consist of the Electricity Ten Year Statement (ETYS), 24 Months Ahead Constraint forecast and the Day Ahead Constraint Flows and Limits. • Our Centralised Strategic Network Plan (CSNP) will replace ETYS next and will contain regular forecast thermal constraints by region for the next 10 years.
Changes of dynamic parameters: Two sets of dynamic parameters: one for technical limits, one for economically efficient operation	sse | Business Energy	• This proposal has a strong relevance to our ongoing assessment of Scheduling & Dispatch, which is supporting REMA. • We have passed it on to the Market Strategy team as it relates to broader functioning of the BM rather than just constraints. • For further inquiries contact the Market Strategy at box.Market.Strategy@nationalgrideso.com

AOB

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