Second Balancing Services Charges Task Force

Meeting 2

12 February 2020

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Welcome and Introductions

Colm Murphy, National Grid ESO

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Apologies

Caroline Bragg, ADE

Alternate – Holly Tomlinson, Energy Local

Dial In – Lisa Waters, Waters Wye Assoc.

Agenda

	Topics to be discussed	Lead
1.	Welcome and Introductions 10:00-11:00 - Introductions – 5 mins (CM) - Action Log – 10 Mins (CM) - Engagement Plan – 15 Minutes (JW) - Playback from first meeting – 30 Minutes (EH)	Colm Murphy
2.	Deliverable 1 - Analysis 11:00-12:30 - Multiple Transaction Cost Examples (TE/PJ) - Cost of Capital and Security (KB) - Review of Risk Premia work undertaken in CMP250 (JL) - Contractual Positions Analysis (KB) - Regulatory Review(KB)	Various
3.	Lunch Break 12:30-13:15	-
4.	Deliverable 1 – Analysis (2) 13:15-14:45 - Impact of De-Carbonisation (SC) - Review of TCR work on interconnector flows (ESO) - Interconnector Investment Efficiency (ESO) - Potential for comparisons with other countries balancing services cost recovery regimes, use ACER opinion on charging to support (ESO)	Various
5.	Deliverable 1 – Conclusions 14:45-15:45 - Who should pay - How this should be reflected in the report?	All
6.	AOB and next steps 15:45-16:00	Colm Murphy

Actions Log

Colm Murphy, National Grid ESO

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Actions Log

Number	Action	Status
1	Task Force members to organise attendance at Industry events to update on the work of the Task Force	Ongoing
2	Action: All members to complete analysis ahead of next Task Force meeting by February 7	Open

Engagement Plan

Jon Wisdom, National Grid ESO

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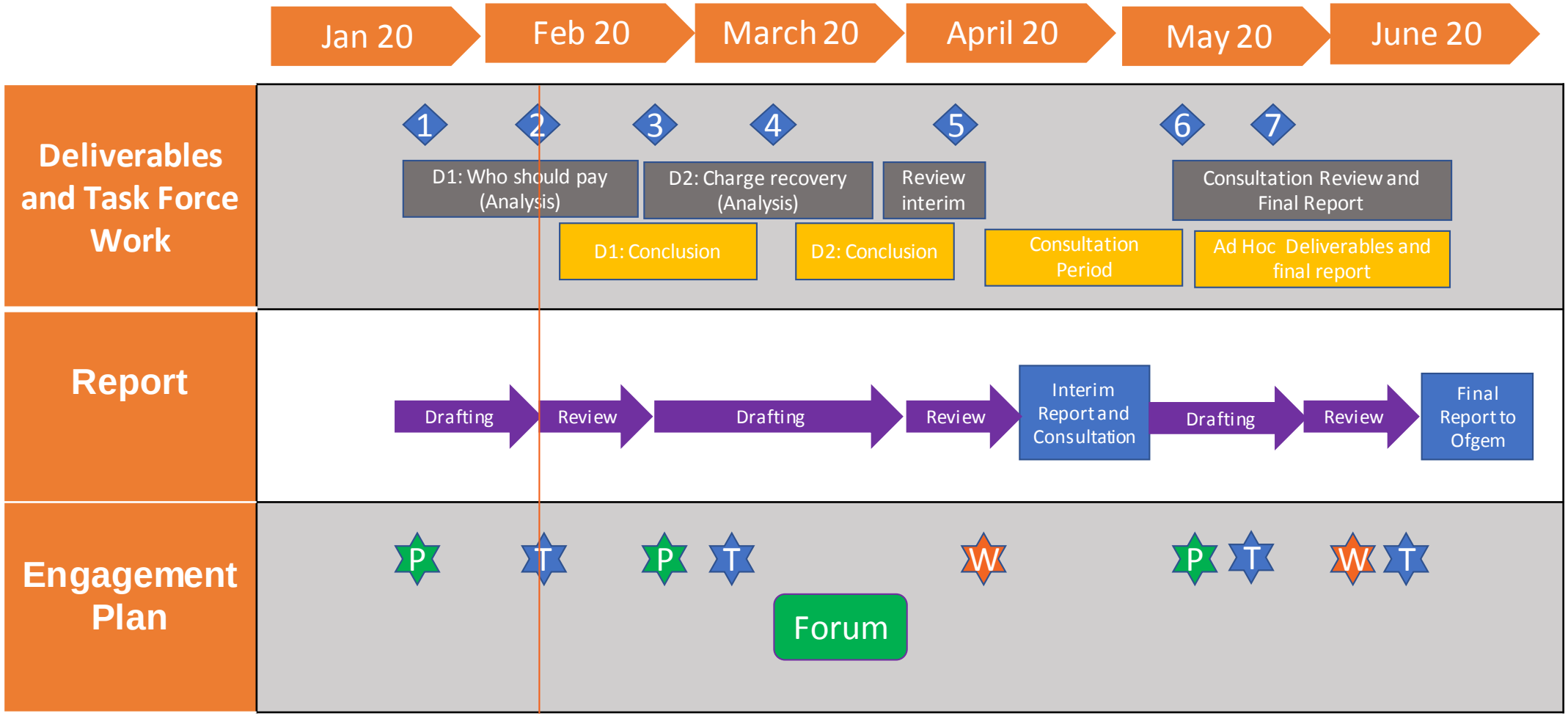
Overview of Deliverables and Engagement Plan



Key	
P	Podcast
W	Webinar
Forum	Charging Futures Forum
T	TCMF

- The ESO have agreed with Citizens Advice that they will observe TF 3
- Engagement will be shared between taskforce members

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Podcast and Webinar

- We are looking for volunteers to take part in a short Podcast after meeting 3
  - This will last for approximately 20 minutes

- TCMF – 5th March – Volunteer to present overview of work up to TF3

- Charging Futures Forum – 12th March – Volunteer needed to present

- There will be a Webinar held ahead of consultation – we would like Task Force members to consider if they would like to contribute

- If so, please speak to Joseph Henry or email chargingfutures@nationalgrideso.com

Meeting 1 – Play Back

Eleanor Horn

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Outcomes of the First Meeting of BSUoS TF2 – 30/01/2020

Each deliverable must be supported by robust analysis and data.

- **In their first meeting the TF recapped the outcome of TF1 and the conclusion that BSUoS costs should be treated on a cost recovery basis.**

- **The Ofgem representative gave some guidance on the scope of TF2 and reiterated the importance of an open-minded approach.**

- **Examined the historic and on-going code changes in this area:**

CMP201, CMP202, CMP250, CMP296, CMP281, CMP307, CMP308, CMP333

- **The TF discussed Deliverable 1, WHO should pay BSUoS and concluded that the current arrangements are not optimal.**

- **Full meeting summary at the Charging Futures website**

Wrap up of TF2-M1 to start forming the report

Deliverable 1

- In principle, levying BSUoS on both suppliers and generators creates more transactional costs than if the costs were levied on suppliers alone.
- The TF hypothesised that two risk premiums on a smaller BSUoS value would place a greater cost of risk onto end consumers than one risk premium on a larger BSUoS value.
- To remove distortions created by BSUoS the TF agreed that the charge should ideally be levied either on suppliers only or on all users of the GB electricity network (suppliers, Tx generators, Dx generators, BtM, foreign generators accessing the GB market over the interconnectors etc.)
- Getting the implementation approach right is crucial to avoid major losses or windfalls to industry parties. This will be a key part of the recommendation the TF submits to Ofgem.
- All this considered the preliminary conclusions of TF2-M1 are suggesting that there is compelling evidence for suppliers to pay all the costs of balancing services.

Deliverable 1 – Analysis

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Multiple Transaction Cost Examples (TE/PJ)

Tom Edwards, Paul Jones

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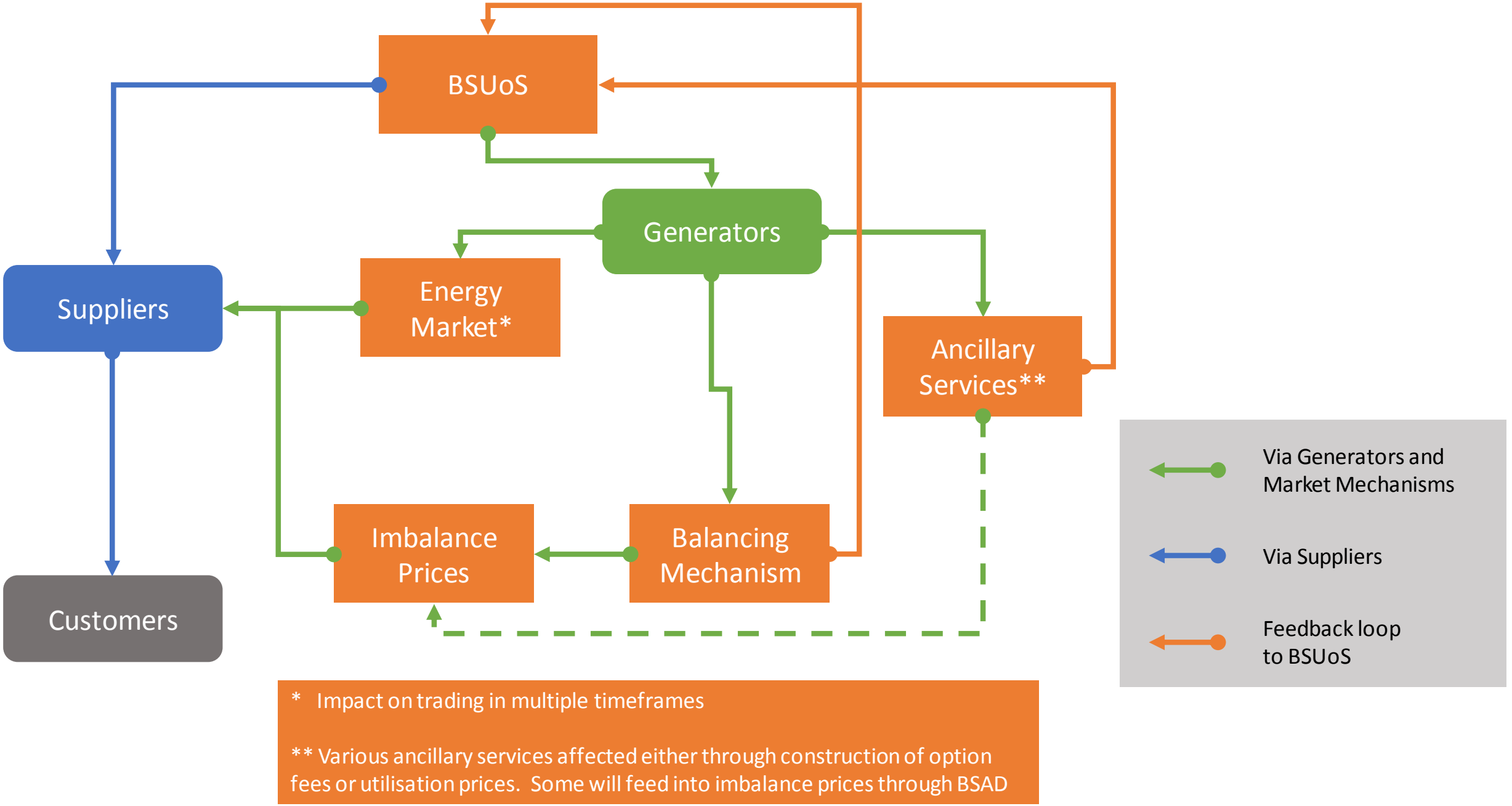

* Impact on trading in multiple timeframes

** Various ancillary services affected either through construction of option fees or utilisation prices. Some will feed into imbalance prices through BSAD

Cost of Capital and Security

Kayt Button and Keith Munday

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Regulatory Review

Kayt Button

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Positions Analysis

Kayt Button

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Review of Risk Premia

Josh Logan, Drax

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Purpose

- To show that there is a decrease in total system costs and therefore a benefit for the end consumer if you fix BSUoS for a sufficient length of time with a sufficient notice period (there were several alternatives to CMP250).

How

- To quantify the BSUoS potential risk premia applied by generators and suppliers over the past 5 years.
- The analysis provides a spectrum of results based on different modelled risk appetites.

Assumptions/ limitations

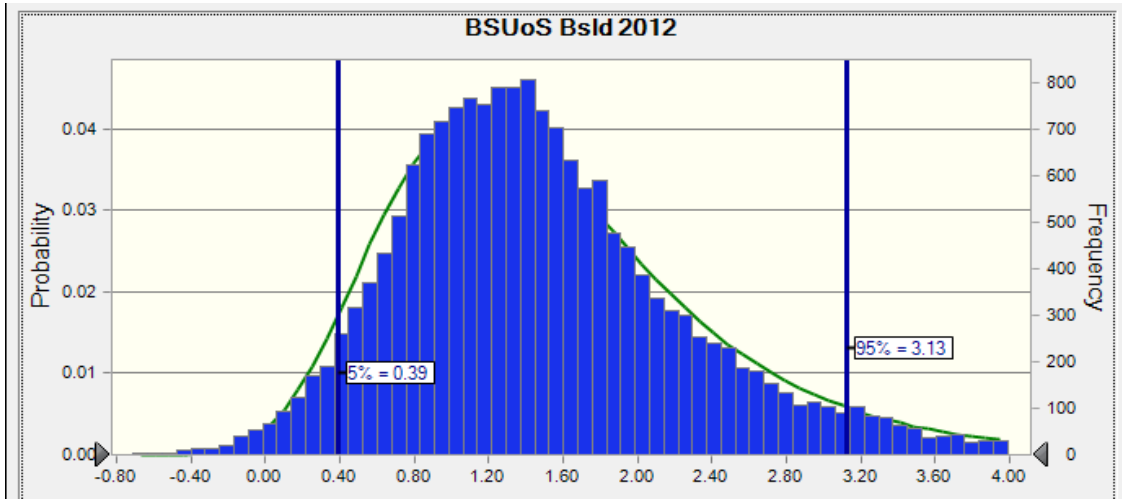
- Assumes all market participants have the same risk appetite.
- Makes an assumption on the volumes that the risk premia is applied to.
- It is backward looking, focussing on actual outturn BSUoS values.
- Without commercially sensitive information, pinpointing the most likely ranges of values is challenging.

Other Observations

- This analysis could be done assuming 100% of BSUoS is placed on demand.
  - We would need an accurate view of how much supply volume is cost pass through.
  - We expect the results would be similar to the baseline, as such, this analysis is more relevant to deliverable 2 and could be used as justification for fixing BSUoS charges.
- In the CMP250 decision, Ofgem noted the analysis was limited and they were not satisfied that a robust case was made.
- There could be value in exploring opportunities for external analysis.

Methodology – Simplified to Baseload only

1. Obtain the outturn BSUoS charge for all settlement periods over the past 5 year.
2. Generate BSUoS probability distributions for each of the past 5 years.



Percentile	Forecast values
0%	-0.71
10%	0.60
20%	0.85
30%	1.04
40%	1.22
50%	1.39
60%	1.57
70%	1.78
80%	2.08
90%	2.60
100%	10.65

3. Calculate the percentile points of the data (e.g. P70 is the value at which 70% of data observations are less than).

P Values (£/MWh)	P10	P20	P30	P40	P50	P60	P70	P80	P90	P95
2012	0.60	0.85	1.04	1.22	1.39	1.57	1.78	2.08	2.60	3.13
2013	0.62	0.86	1.05	1.21	1.39	1.58	1.80	2.06	2.50	2.96
2014	0.78	1.07	1.29	1.49	1.69	1.91	2.17	2.51	3.08	3.72
2015	0.87	1.10	1.27	1.44	1.62	1.83	2.11	2.52	3.46	4.62
2016	0.77	1.10	1.36	1.58	1.83	2.12	2.50	3.04	4.01	5.38

Methodology

4. Calculate the average BSUoS outturn for in each of the years.

Year	2012	2013	2014	2015	2016
Average BSUoS Outturns (£/MWh)	1.52	1.50	1.85	1.98	2.19

5. Subtract the percentiles calculated in step 3 from the average BSUoS outturns.

P Values (£/MWh)	P10	P20	P30	P40	P50	P60	P70	P80	P90	P95
2012	- 0.92	- 0.67	- 0.48	- 0.30	- 0.13	0.05	0.26	0.56	1.08	1.61
2013	- 0.88	- 0.64	- 0.45	- 0.29	- 0.11	0.08	0.30	0.56	1.00	1.46
2014	- 1.07	- 0.78	- 0.56	- 0.36	- 0.16	0.06	0.32	0.66	1.23	1.87
2015	- 1.11	- 0.88	- 0.71	- 0.54	- 0.36	- 0.15	0.13	0.54	1.48	2.64
2016	- 1.42	- 1.09	- 0.83	- 0.61	- 0.36	- 0.07	0.31	0.85	1.82	3.19

6. The percentiles can be interpreted as risk appetites adopted by market participants (e.g. If a market participant did not want to under forecast BSUoS in at least 70% of settlement periods in 2016 they would add a £0.31/MWh risk premia).

Methodology

7. An estimate of the total applicable generation and supply volume is calculated for each year (this has several steps which I have omitted).
8. The applicable volume is then multiplied by the risk premia to give the total system costs based on different risk appetites.

P Values (£'m)	P10	P20	P30	P40	P50	P60	P70	P80	P90	P95
2012	(603)	(440)	(315)	(197)	(86)	32	169	366	706	1,053
2013	(583)	(425)	(299)	(193)	(74)	52	197	369	660	965
2014	(685)	(500)	(360)	(233)	(105)	35	201	418	781	1,189
2015	(692)	(548)	(443)	(337)	(224)	(94)	81	336	922	1,644
2016	(854)	(656)	(500)	(368)	(218)	(44)	184	508	1,090	1,912

Lunch

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Deliverable 1 – Analysis

- Decarbonisation Impact (Simon Cowdroy)

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Impact of who pays BSUoS on decarbonisation

Presentation to Second BSUoS taskforce




BSUoS levied on all parties (including embedded generators and interconnectors)

- **Negative impact on decarbonisation of embedded benefit reform**
  - Ofgem commissioned analysis from Frontier/LCP predicts a negative benefit from TGR and partial BSUoS reform on both steady progression scenario(net zero target missed) and Community Renewables (net zero target met)

Table 5 Overview of projected monetised carbon impacts of Embedded Benefits reforms £bn

Future Energy Scenario	System benefits (central carbon appraisal value)	*Carbon reduction benefits as an element of system benefits (central appraisal value)*	System benefits (high carbon appraisal value)	*Carbon reduction benefits as an element of system benefits (high appraisal value)*
Steady Progression partial balancing services charges reform (TGR and EB1)	0	*-0.1*	0	*-0.1*
Community Renewables partial reform (TGR and EB1)	-0.3	*-0.2*	-0.4	*-0.3*

Source: Annex 1: Targeted Charging Review Significant Code Review: Final Impact Assessment OFGEM Dec 2019

BSUoS levied on all parties (including embedded generators and interconnectors)

- **Additional negative impact on decarbonisation of BSUoS imposition on Interconnector parties**

  - Ofgem acknowledge expected net reduction in carbon emissions due to overall TCR reforms predicated on generation shift to more efficient CCGT and increased interconnection imports
  - Ofgem also acknowledges that some of the increase in carbon emissions under embedded benefits reform is due to a rise in domestic generation and reduction of interconnector imports. (Interconnectors lose some competitive advantage due to reduced BSUoS charges on Transmission connected generation)

  Source: Annex 1: Targeted Charging Review Significant Code Review: Final Impact Assessment p5 OFGEM Dec 2019

  - Therefore removing market distortion through application of BSUoS to interconnector imports would further erode interconnector parties competitive advantage leading to reduced interconnector imports and increased carbon emissions (from GB perspective)

BSUoS levied on all parties (including embedded generators and interconnectors)

- **Additional negative impact on decarbonisation of BSUoS imposition on small embedded generation**
  - Ofgem commissioned analysis from Frontier/LCP predicts an increased system cost to achieve carbon emission targets due to imposition of BSUoS on embedded generation
  - I.e. either system incurs additional cost in meeting carbon emission target or carbon reduction targets are not met.

System Costs (Carbon) - using high BEIS carbon appraisal value				
	Steady Progression		Community Renewables (Alternative FES)	
	Total to 2040	NPV to 2040 (£2016)	Total to 2040	NPV to 2040 (£2016)
Difference between Baseline and TGR & Partial BSUoS reform	£182m	£119m	£494m	£326m
Difference between Baseline and TGR & Full BSUoS reform	£455m	£294m	£1,025m	£659m
Net Impact on System Costs of Imposition of BSUoS on Small Embedded Generation	+£273m	+£175m	+£531m	+£333m

Source: Frontier Economics/LCP: TCP quantitative modelling - High Carbon Price-Embedded Benefits Reforms - OFGEM Dec 2019

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  - Therefore removing market distortion through application of BSUoS to interconnector imports would further erode interconnector parties competitive advantage leading to reduced interconnector imports and increased carbon emissions (from GB perspective)

BSUoS levied on Suppliers only

- **Decarbonisation impact broadly neutral**
  - Assumes increase in BSUoS costs offset through reduced wholesale prices
  - Reduced transactional costs / better managed risk premia may reduce pass through into consumer costs
  - Reduced consumer costs = disincentive to energy efficiency = delayed reduction in carbon emissions, however effect likely to be very marginal

Interconnector Review - TCR

Eleanor Horn,
National Grid ESO

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How should this piece of work inform the TF discussions?

- Ofgem commissioned some work about Interconnector flows for their analysis and modelling for the Targeted Charging Review.

- This piece of work aims to answer the questions:

-> What work can we draw on from the TCR to inform the TF discussions relating specifically to interconnectors?

-> Have Ofgem given a steer in their TCR that we need to be mindful of throughout TF discussions?

Ofgem's TCR final decision -> 21/11/2019

- Ofgem state in their TCR final decision that the fact that some generators are not liable for BSUoS charges (both embedded and interconnected generation) creates a distortion particularly in dispatch. This potentially also changes the balance between imports and exports on interconnectors. P100

- Some TCR consultation respondents questioned the ability of GB generation to compete fairly with electricity imports as these MW are not liable for GB balancing services charges should BSUoS charges be expanded to distributed generators. Ofgem responded to this point that this could be considered a distortion but that any move to correct for this should hinge on whether the distortion was "harmful". P107

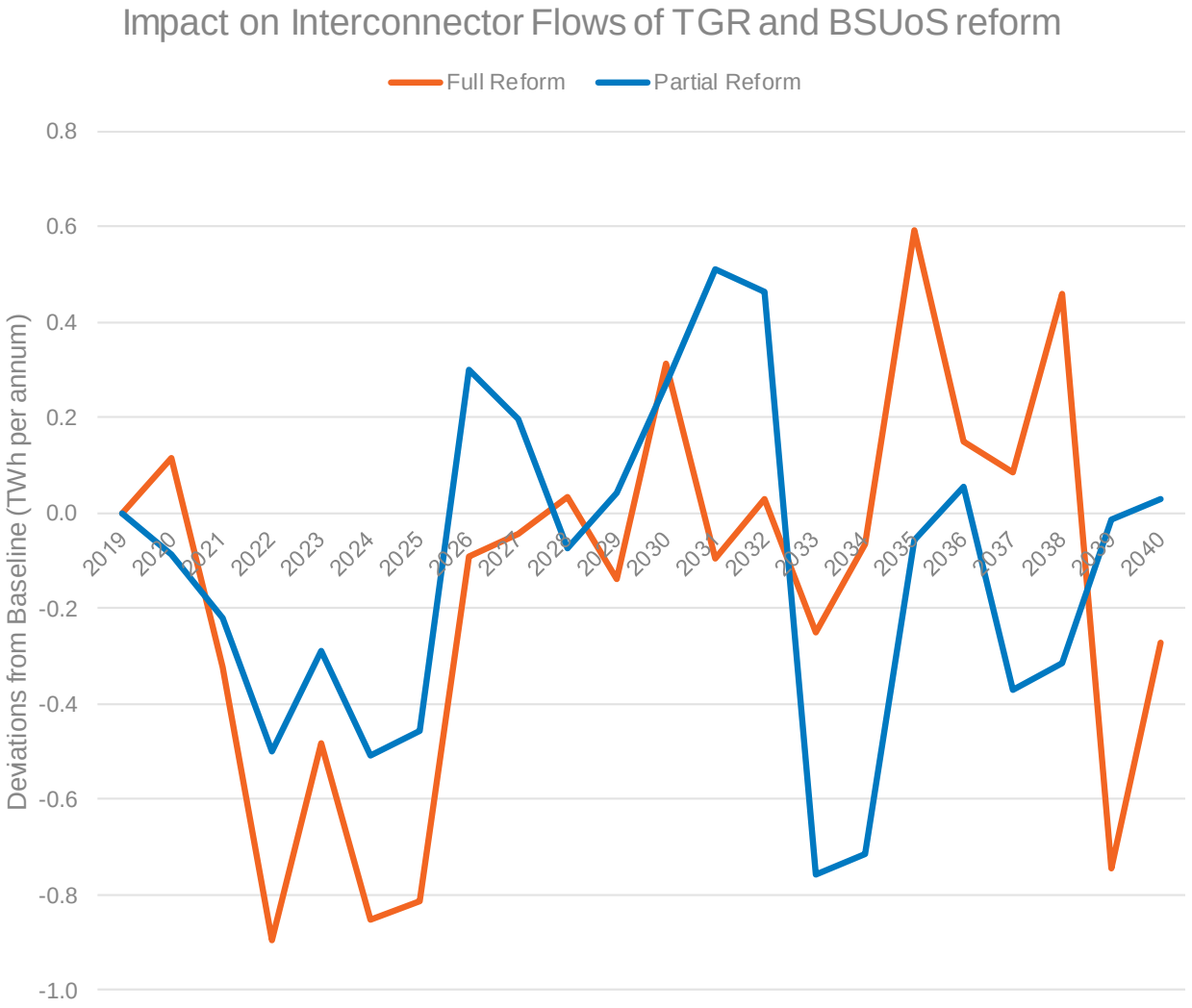
- Ofgem have confirmed that the see reducing harmful distortions as a route to consumer benefit.

- Ofgem will consider the implications of forward looking charges for GB network users on competition between GB generators and interconnected generators through the A&FLC SCR.

This does not mean that BSUoS is in the scope of that review as it is not a forward looking charge.

Therefore the impact of BSUoS charges on competition between GB and interconnected generation should be in scope of the TF2 work.

Frontier Economics Analysis on Interconnector Flows



- No trend, broadly no impact
- Includes impact of TGR and full/partial BSUoS reform (charging on gross +/- expanding the BSUoS charge base to distributed generation).
- Not representative of what would happen if BSUoS costs were removed from generation

Q to the Taskforce: Is there anything we should use this analysis for when determining the TF recommendations on D1 and D2?

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Interconnector Flows

Phil Clough,
National Grid ESO

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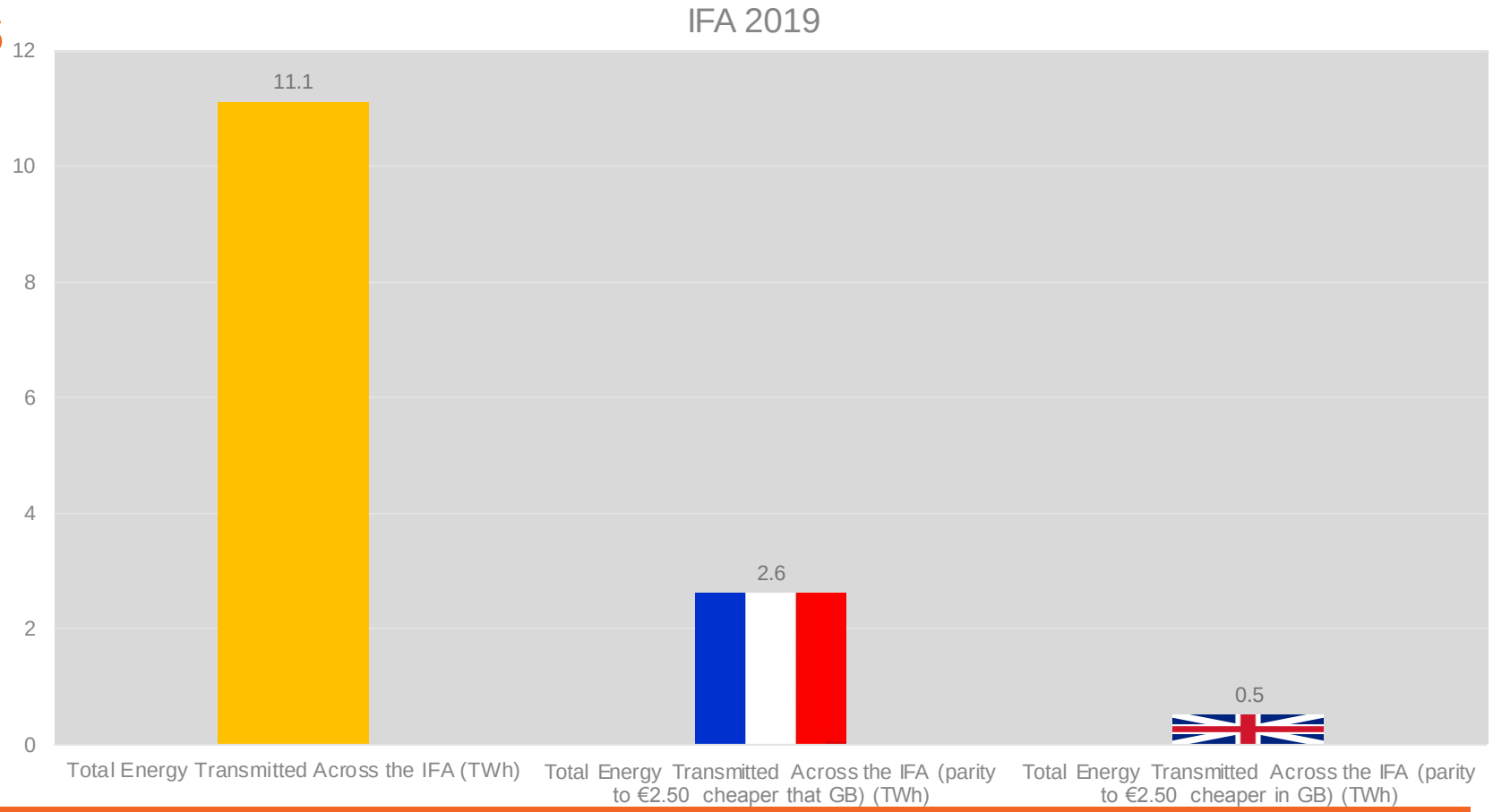
How should this work inform Task Force discussions?

This work gives a view on how interconnector flows may signal who should be responsible for paying Balancing Services Charges

IFA – 2019 Analysis

In 2019, There was 2.6TWh transmitted across IFA where the price differential between GB and France was between price parity and 2.5 EU/MWh cheaper in France. This is 24% of the 11.1 TWh total that was transmitted across the interconnector. For comparison, in the price parity to 2.5EU/MWh cheaper in GB region, only 0.5 TWh was transmitted.



With an assumed reduction in the GB day-ahead market price of 2.5EU/MWh (if BSuoS charge for generation was eliminated), this puts a large proportion of the interconnector flows into the marginal and GB cheaper price band

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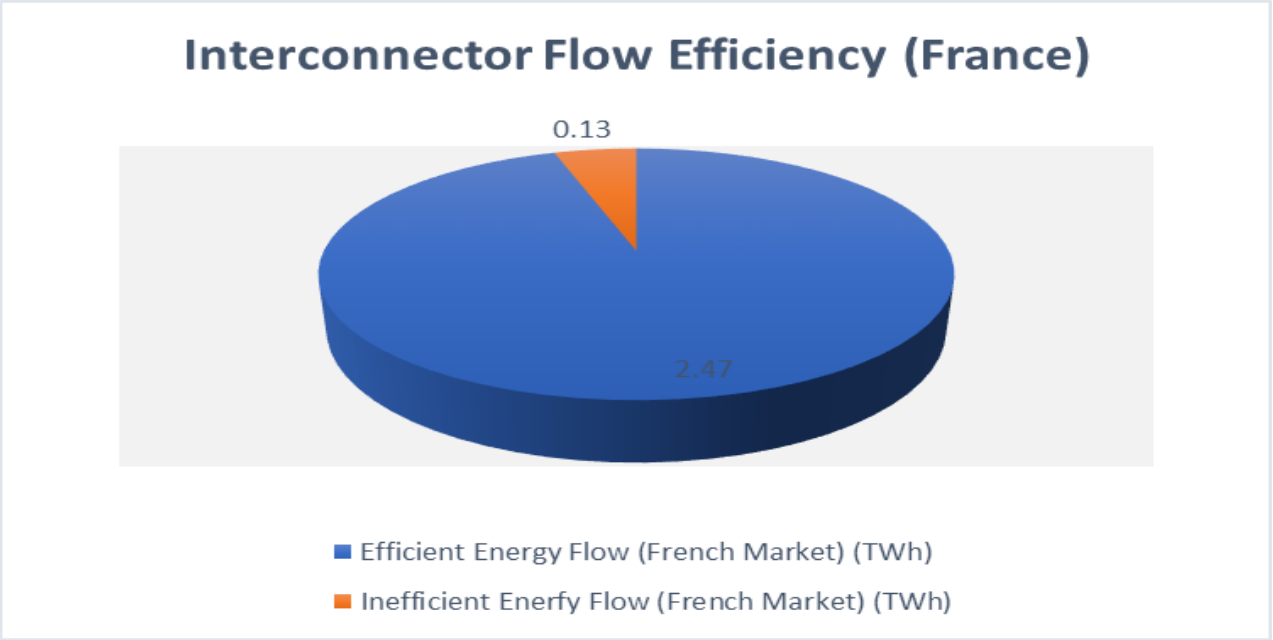
Interconnector Efficiency – French Market

As the French market is generally cheaper than the GB market, there is normally a strong price signal and suppliers react accordingly.

Of the 2.6 TWh in the cheaper French price band, 95% of that flows in an efficient manner (cheaper market to more expensive market, in this case from France to GB) with only 5% flowing in the wrong direction.

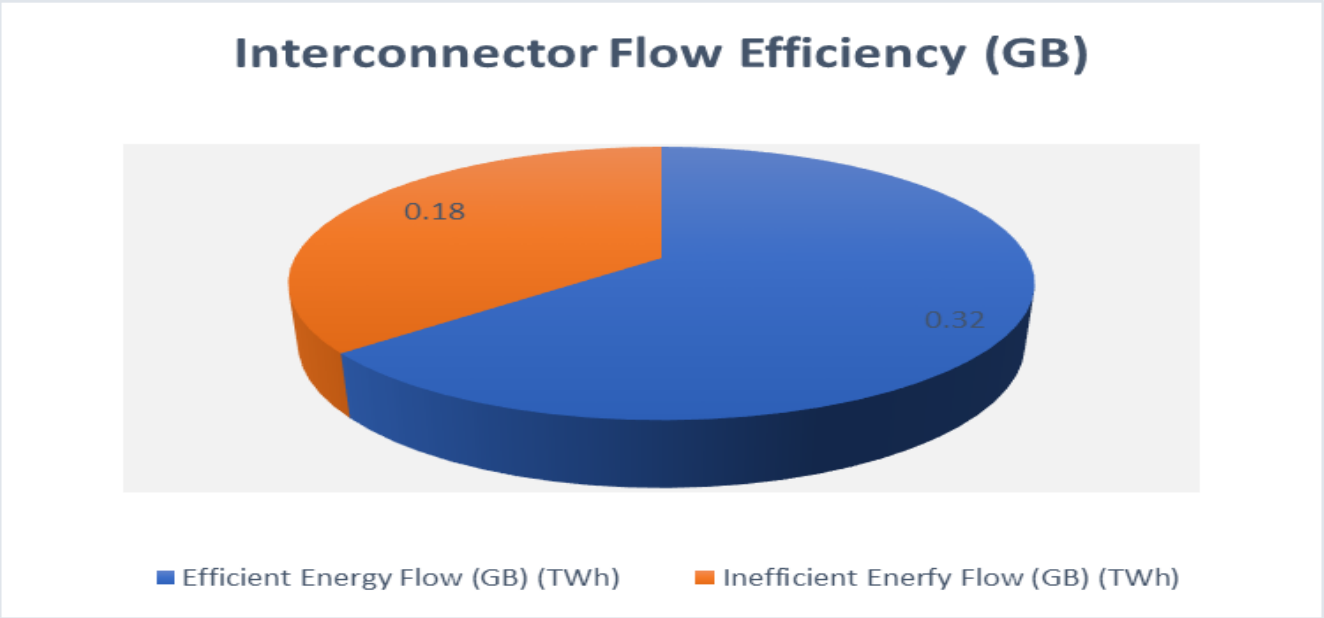


Flow Efficiency	Volume
Efficient Energy Flow (French Market) (TWh)	2.47
Inefficient Energy Flow (French Market) (TWh)	0.13

Interconnector Efficiency – GB Market

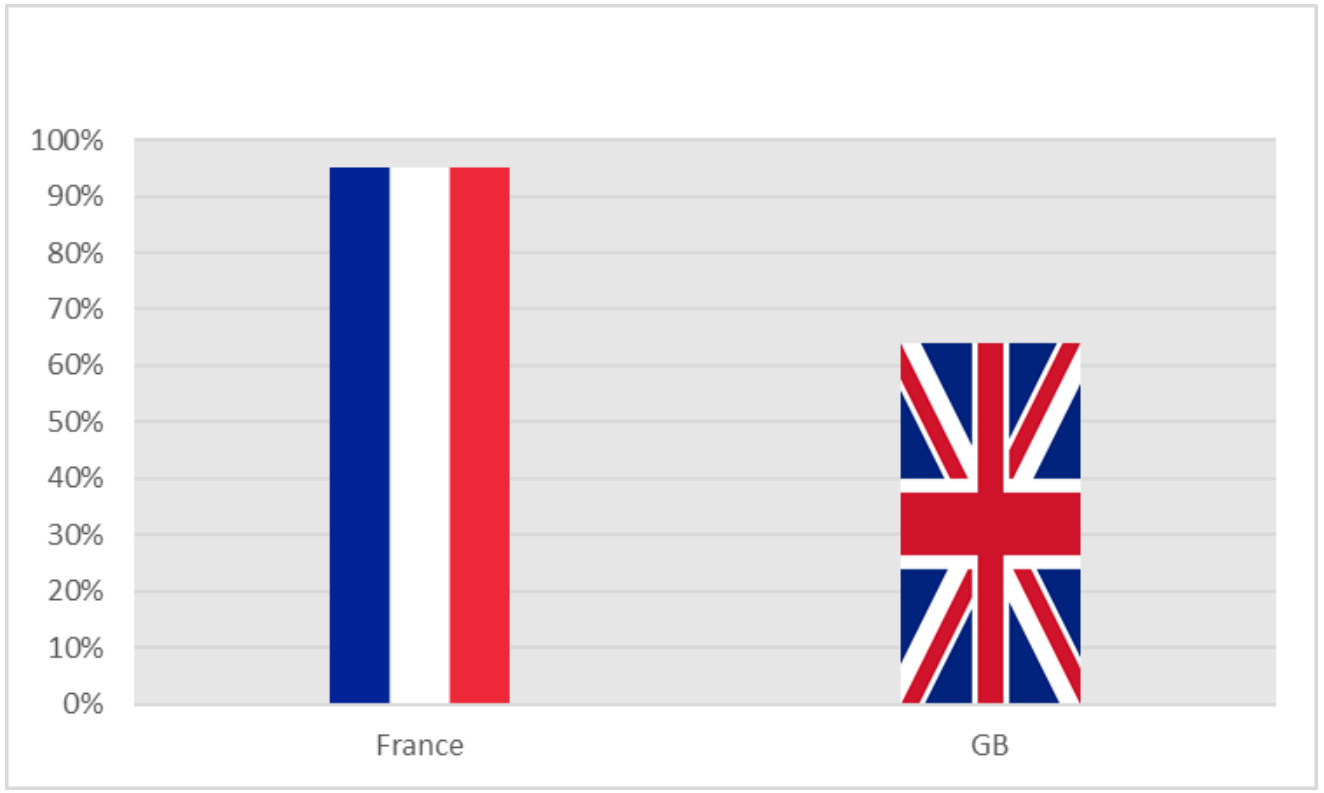
The GB cheaper price band on the other hand, operates efficiently 64% of the time (flowing from cheaper GB to more expensive France.

Traders would generally hedge towards French wholesale energy prices being cheaper due to this historic data, and due to other French variables i.e Nuclear.



Flow Efficiency	Volume
Efficient Energy Flow (GB Market) (TWh)	0.32
Inefficient Enerfy Flow (GB Market) (TWh)	0.18

Interconnect Flow Efficiency - Comparison



Price band	Flow Efficiency %
France cheaper (up to 2.5EU/MWh)	95
GB cheaper (up to 2.5EU/MWh)	64

Analysis – What if GB day ahead price dropped by €2.50/MWh?

After the 2.5EU/MWh reduction in GB market prices, 2.6TWh would fall under the cheaper GB price band.

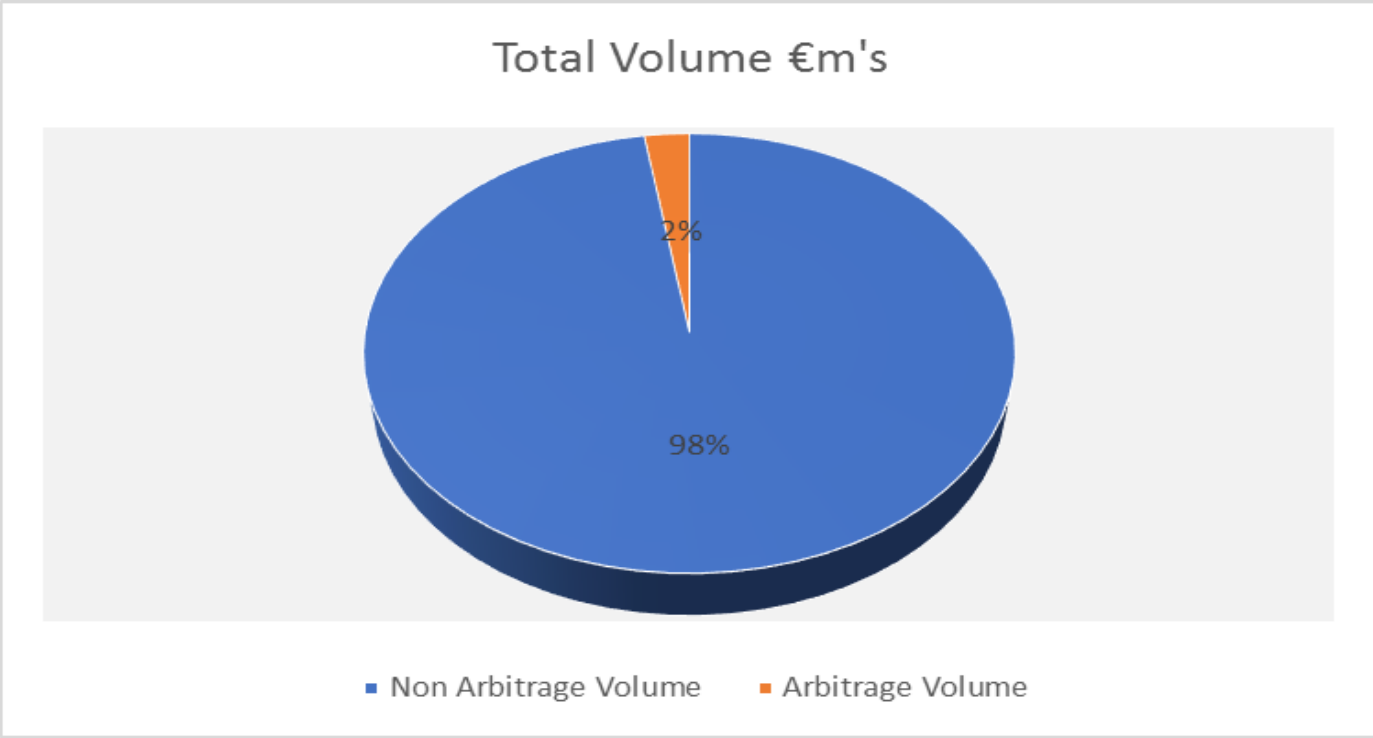
There is a risk on the GB and French markets if this volume is not transmitted as efficiently as it has in the past for a larger volume of electricity.

If markets were bought closer together, historic efficiencies may not be as prevalent, as there would me more volume around the marginal price mark.

Arbitrage Values

However, because these are marginal prices, the overall arbitrage value of the interconnectors for this volume is relatively low, being worth 3.3 million Euros in 2019 of a total market value of 135 million Euros.

Price arbitrage is not a major percentage of income, and if there are differentials, this should encourage efficiency.



Volume transmitted at marginal pricing	Volume €Millions
Yes	3.3
No	131.7

Impact on GB Markets

As long as there is a price differential between the two markets and ability for energy to flow from one to another, interconnectors should be content.

Given the volume of flows that will be more marginal, there may be a reduction in arbitrage trading.

There could potentially be an increase in GB generation, and less clear cut arbitrage trading. Competition with other markets would be more attainable.

This could potentially be a negligible financial benefit to end consumers, given small percentage of volume transmitted at marginal prices.

Comparisons with other countries' balancing services cost recovery regimes

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How should this piece of work inform the TF discussions?

- CMP308 strongly argues that GB generators are disadvantaged compared to their European counterparts in having to pay BSUoS.

- This piece of work aims to answer the questions:

-> Is GB unusual in charging generators for BSUoS?
-> How does the level of the charge compare to directly interconnected counterparts?
-> Are GB generators facing a competitive disadvantage compared to their European counterparts?
-> Will removing BSUoS charges from generators have a positive impact on European/GB competition?

Analysis completed through CMP308

Recovery from Generation?	System Services						
	Primary reserve	Secondary reserve	Tertiary reserve	Congestion	Black start	Voltage control	System Balancing
Albania	No	No	No	No	No	No	No
Austria	No	Yes	No	No	No	No	No
Belgium*	Yes	Yes	Yes	Yes	Yes	Yes	No
Bosnia and Herzegovina	No	No	No	No	No	No	No
Bulgaria	No	No	No	No	No	No	No
Croatia	No	No	No	No	No	No	No
Cyprus	No	No	No	No	No	No	No
Czech Republic	No	No	No	No	No	No	No
Denmark	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estonia	No	No	No	No	No	No	No
Finland	No	No	Yes	Yes	Yes	Yes	Yes
France*	No	No	No	No	No	No	No
Germany	No	No	No	No	No	No	No
Great Britain	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Greece	No	No	No	No	No	No	No
Hungary	No	No	No	No	No	No	No
Iceland	No	No	No	No	No	No	No
Ireland*	Yes	Yes	Yes	Yes	Yes	Yes	No
Italy	No	No	No	No	No	No	No
Latvia	No	No	No	No	No	No	No
Lithuania	No	No	No	No	No	No	No
Luxembourg	No	No	No	No	No	No	No
Macedonia (FYROM)	No	No	No	No	No	No	No

Recovery from Generation?	Primary reserve	Secondary reserve	Tertiary reserve	Congestion	Black start	Voltage control	System Balancing
Montenegro	No	Yes	Yes	No	No	No	Yes
Netherlands*	No	No	No	No	No	No	No
Northern Ireland	No	No	No	No	No	No	No
Norway	Yes	Yes	Yes	Yes	Yes	Yes	No
Poland	No	No	No	No	No	No	No
Portugal	No	No	No	No	No	No	No
Romania	No	Yes	Yes	No	Yes	Yes	No
Serbia	No	No	No	No	No	No	No
Slovakia	Yes	Yes	Yes	No	Yes	Yes	No
Slovenia	No	No	No	No	No	No	No
Spain	No	No	No	No	No	No	No
Sweden	Yes	No	No	No	Yes	Yes	No
Switzerland	No	No	No	No	No	No	No

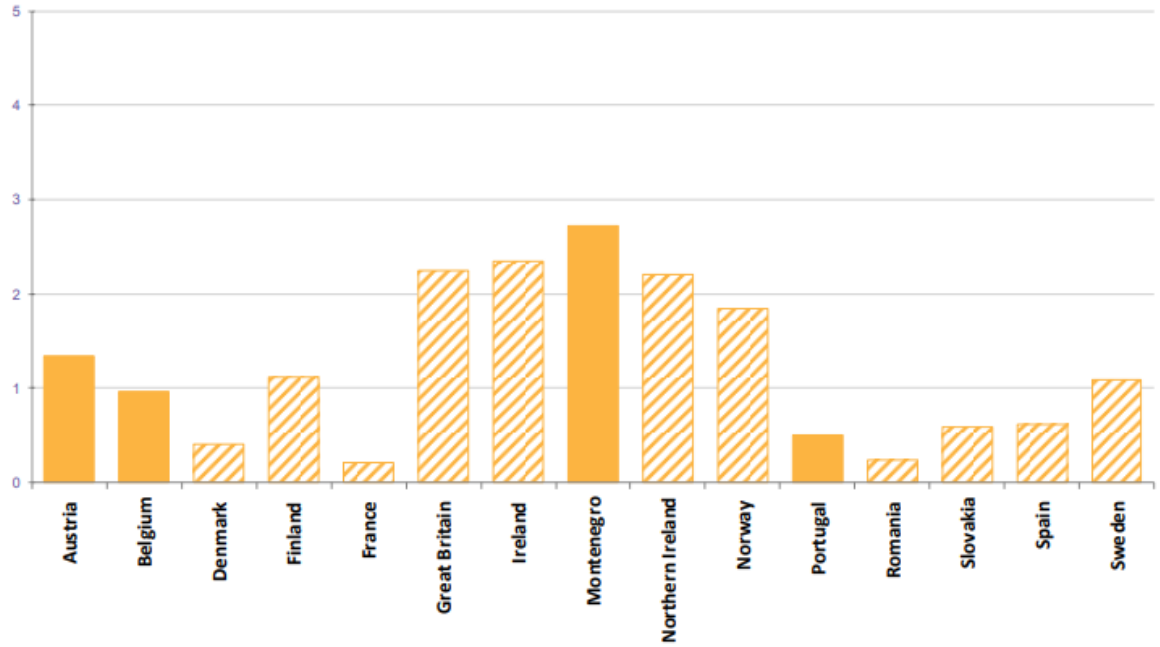
*have direct interconnection with GB

Page 10/63 of the report

https://docstore.entsoe.eu/Documents/MC%20documents/TTO_Synthesis_2018.pdf

Do GB Tx Generators pay more than foreign ones?

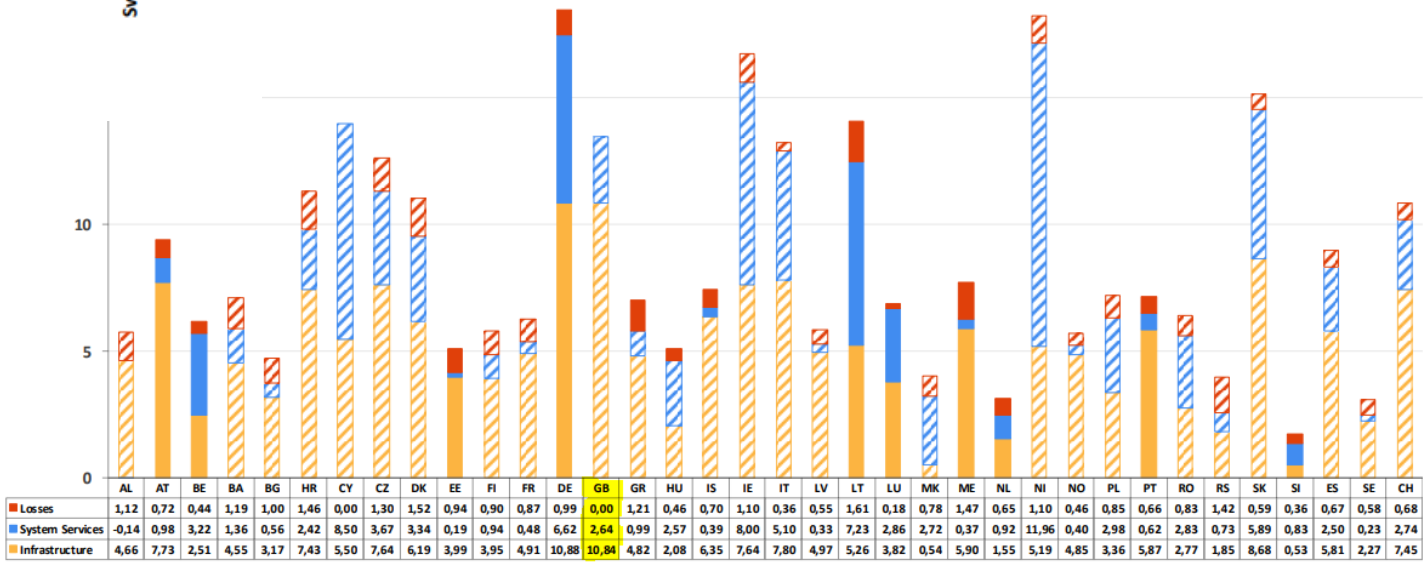
Chart 7.2. G components of the TSO components of the Unit Transmission Tariffs in 2018 (€/MWh)



- Includes Tx network and balancing costs.
- Broadly GB generators pay more "transmission costs" than their counterparts in continental Europe.
- This chart cannot be used to determine compliance with 838/2010 [€0-2.50/MWh] as contains non applicable costs (like BSUoS)

- Includes generation and demand
- BSUoS costs are roughly €2.64/MWh for both load and generation.
- The split between load and gen is about 51:49
- Therefore we can conclude that Tx generators in GB pay substantial balancing costs compared to their European counterparts

.6. Components of TSO costs of the Unit Transmission Tariffs (€/MWh)



	AL	AT	BE	BA	BG	HR	CY	CZ	DK	EE	FI	FR	DE	GB	GR	HU	IS	IE	IT	LV	LT	LU	MK	ME	NL	NI	NO	PL	PT	RO	RS	SK	SI	ES	SE	CH
Losses	1,12	0,72	0,44	1,19	1,00	1,46	0,00	1,30	1,52	0,94	0,90	0,87	0,99	0,00	1,21	0,46	0,70	1,10	0,36	0,55	1,61	0,18	0,78	1,47	0,65	1,10	0,46	0,85	0,66	0,83	1,42	0,59	0,36	0,67	0,58	0,68
System Services	-0,14	0,98	3,22	1,36	0,56	2,42	8,50	3,67	3,34	0,19	0,94	0,48	6,62	2,64	0,99	2,57	0,39	8,00	5,10	0,33	7,23	2,86	2,72	0,37	0,92	11,96	0,40	2,98	0,62	2,83	0,73	5,89	0,83	2,50	0,23	2,74
Infrastructure	4,66	7,73	2,51	4,55	3,17	7,43	5,50	7,64	6,19	3,99	3,95	4,91	10,88	10,84	4,82	2,08	6,35	7,64	7,80	4,97	5,26	3,82	0,54	5,90	1,55	5,19	4,85	3,36	5,87	2,77	1,85	8,68	0,53	5,81	2,27	7,45

Comparing GB to directly interconnected countries

Country	I/C capacity with GB (GW)	TSO costs on Generators (€/MWh)	Gen balancing charges?	TSO costs as a percentage of GB	Weight*
GB	n/a	~2.2	Yes	1.00	
Irish SEM	500MW (2001) 500MW (2012) 500MW (2023)	~2.3	Yes	1.05	10%
France	2000MW (1986) 1000MW (2020) 1000MW (2020) 1400MW (2025)	~0.2	No	0.09	41%
Belgium	1000MW (2019) 1400MW (2028)	~0.95	Yes	0.43	10%
Netherlands	1000MW (2011)	No data	No	No data	10%
Denmark	1400MW (2023)	~0.4	Yes	0.18	14%
Norway	1400MW (2021)	~1.9	Yes	0.86	14%

*includes interconnectors under construction but not pipeline

Conclusions

- Most of the countries that GB will be interconnected to (by 2023) charge some balancing services to generators.
- GB Tx generators face much higher overall TSO costs than their foreign counterparts in France, Belgium, the Netherlands* and Denmark.
- GB Tx generators face comparable overall TSO costs compared to foreign counterparts in Norway and Ireland.
- 41% of GB interconnector capacity (by 2023) will be with France** (50% today). The difference between TSO costs on French generators and TSO costs for GB generators is the biggest.

Therefore, assuming the charging bases stay the same in the other countries considered, removing the BSUoS liability from GB generators would make their costs more comparable with generators based in the interconnected European countries.

*assumed based on the fact that balancing services charges are not levied on dutch generators and TO infrastructure costs must comply with 838/2010

**just because power comes over the interconnector does not mean that a French generator has arranged that but things get too complex if you try to consider the trading/commercial arrangements and compare the IEM as a whole

Deliverable 1 – Conclusions

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AOB and Next Steps

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