



CLASS

Webinar, 25 February 2016

Tony McEntee

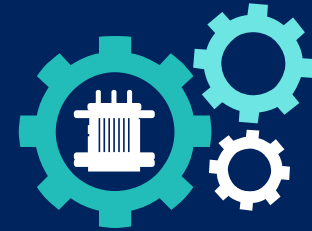
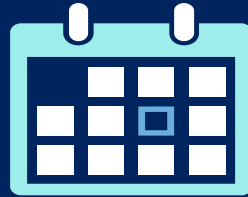
CLASS Implementation Manager



Agenda



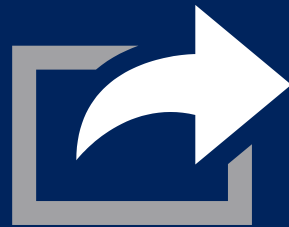
CLASS
Customer Load Active System Services



Background to
CLASS project

Project extension

Preliminary Findings



Next steps

Q&A

Webinar format



30 minutes presentation



20 minutes
questions & answers



Submit written questions online
during the webinar



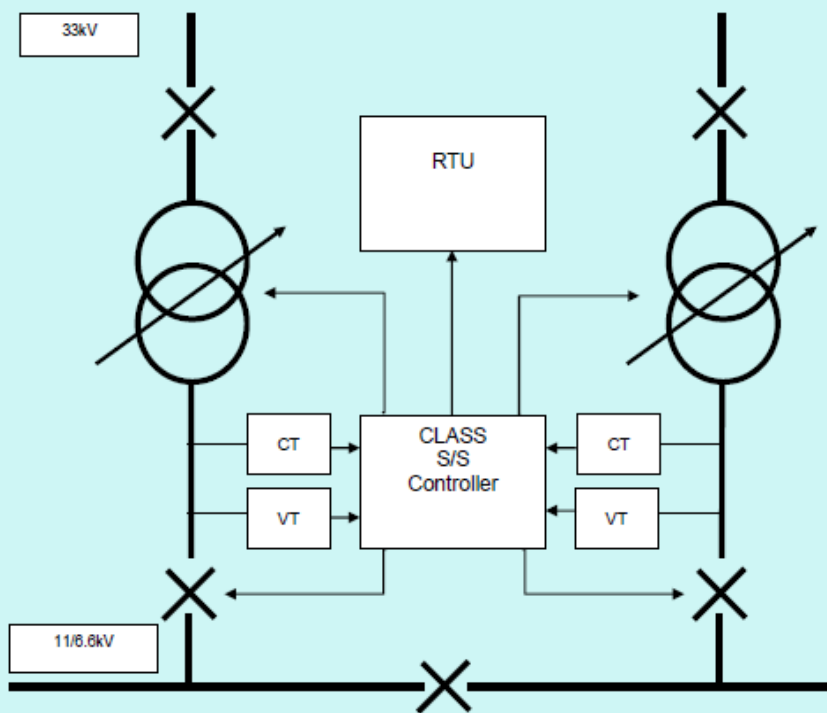
Press 01 on your telephone key
pad to take part in the live Q&A at
the end of the presentation

or

How CLASS works



Standard arrangements at primary substations



Primary Frequency Response

LV circuit breaker opens when frequency falls below a set threshold
 S/S controller performs system checks before opening circuit breaker
 Circuit breaker will normally be re-closed after 30s
 CLASS S/S controller will measure performance

Secondary Frequency Response

LV target voltage reduced when frequency falls below a set threshold
 Tap changers operate to reduce voltage
 Target voltage will reset to normal after 30 minutes.
 CLASS S/S controller will measure performance

Demand Response/ Fast Reserve

LV target voltage reduced when local demand reaches local capacity or to provide service to SO
 Tap changers operate to reduce voltage
 Target voltage will reset to normal when local demand reduces or SO service finished
 CLASS S/S controller will measure performance

Reactive Power Services

Tap stagger between the transformer pair to absorb reactive power
 Effect to be measured at the GSP

CLASS extension objectives



To assess the market for each CLASS service

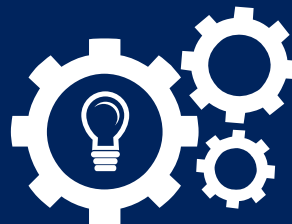


Market structure, entry qualifications and service price

Size of market in 2015 and potential size annually to 2031

Current and potential future competitors – no, type and size of players

To assess the impact for each CLASS service



Market structure and service price

Competitors – number, type and size of players

To determine the benefits for GB customers



Costs and benefits for GB customers

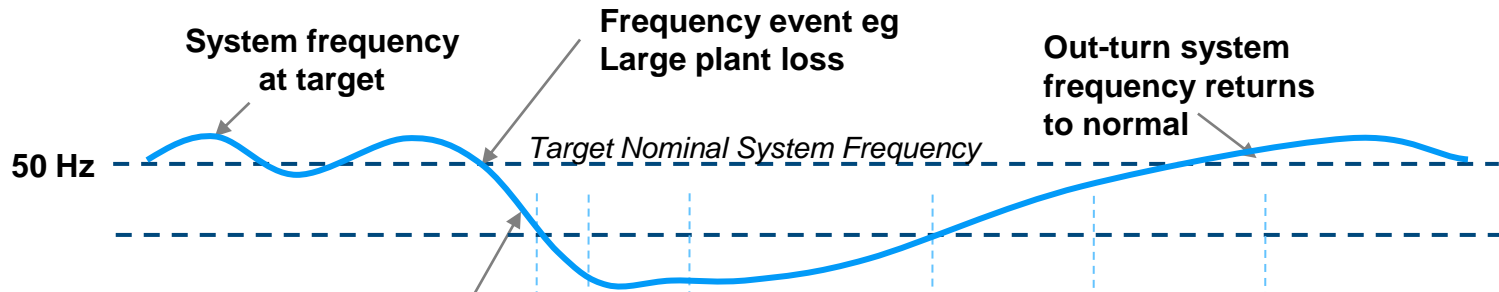
Potential winners and losers in each market

Whole market impact

NGET system management

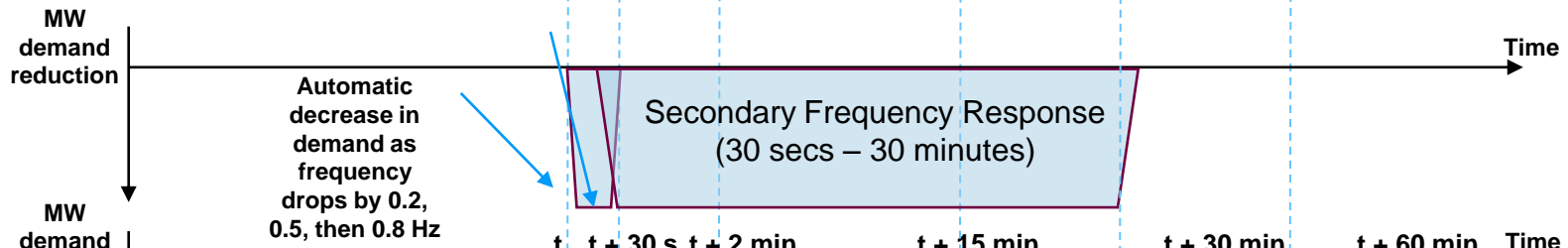


System frequency:



System services:

Response products



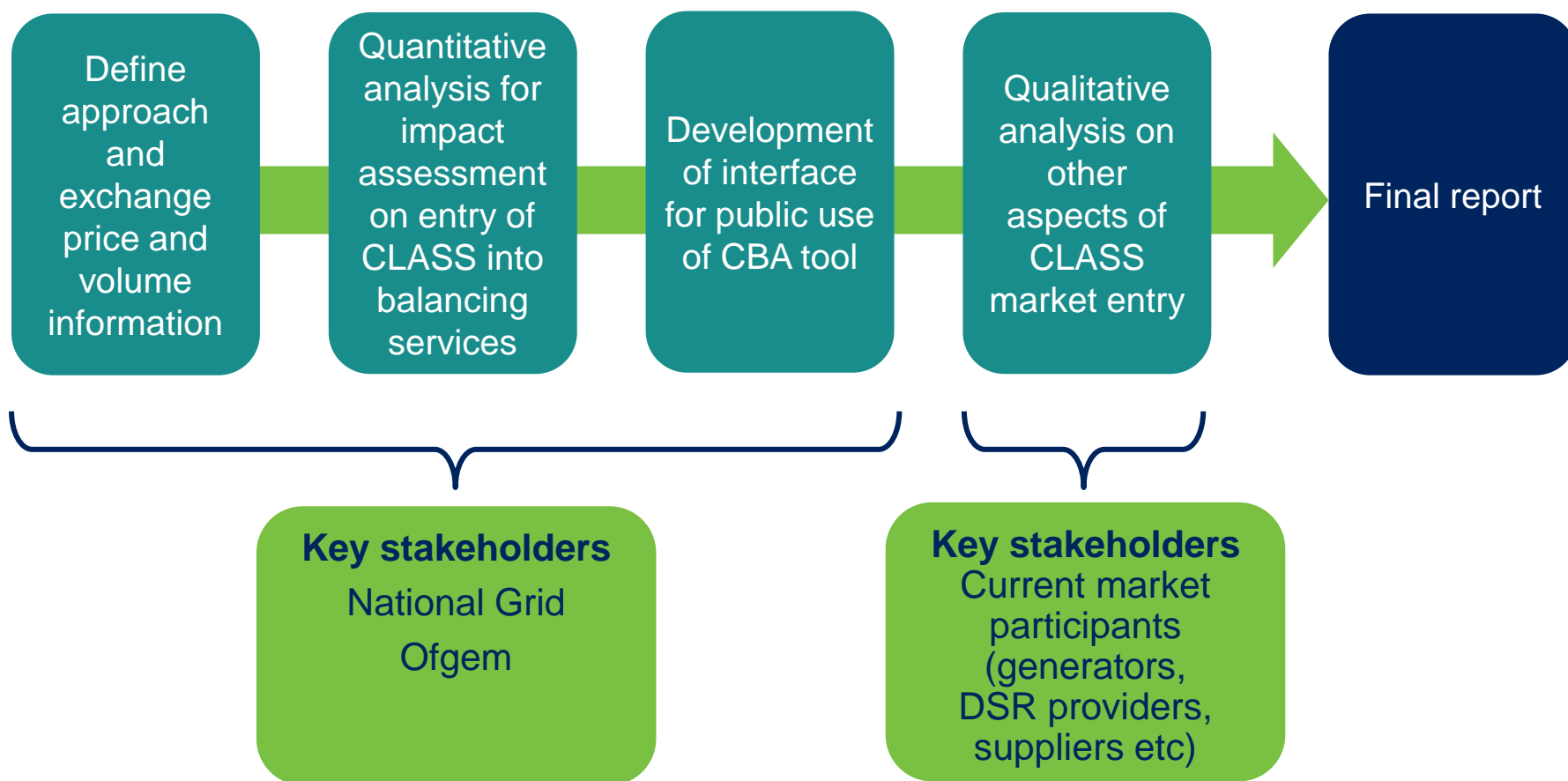
Reserve products

Market background

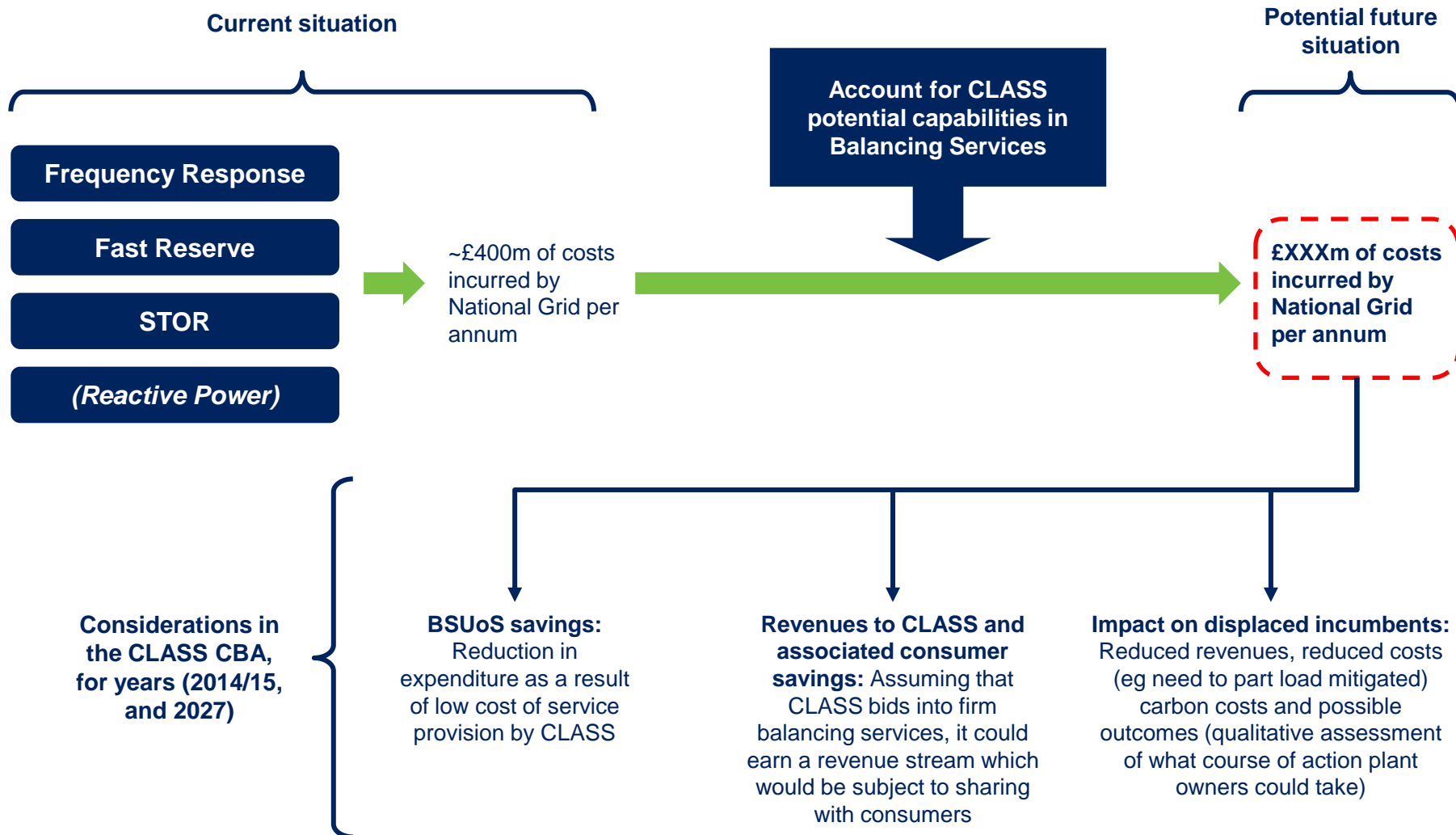


Product	Sub-product	Ramp time	Duration	Incumbent providers	Cost to NGET (2014/15)	Eligibility assessment
Frequency Response	Primary (increase in active power)	10 seconds	30 seconds	Mandatory provision through the balancing mechanism (large thermal generators; pumped storage units)	£174m (not including balancing mechanism costs associated with positioning plant and creating necessary headroom)	Yes – and different means can be used to offer a combination (eg primary and secondary)
	Secondary (increase in active power)	30 seconds	30 minutes	Commercial provision through “Firm” tenders: Pumped storage, large thermal units, diesel gensets, DSR providers		
	High (decrease in active power)	10 seconds	Indefinite			
Fast Reserve	Fast Reserve	2 minutes	15 minutes	Pumped storage and thermal units, either through “Optional” or “Firm” contracts. Recent provision from gas engine aggregator	£130m	Yes
STOR	(Committed, flexible, premium flexible products)	Up to 4 hours, though sub-20 mins preferred	2 hours	Gas and diesel engines, gas turbines, biomass providers, DSR providers and aggregators, larger thermal units	£62m	Yes
Reactive Power	Enhanced Reactive Power Service	2 minutes from instruction	Indefinite	Large thermals; some static compensation equipment (locational service)	£72m	Yes but locational requirement

Impact assessment structure



Impact assessment methodology



Initial results for the current market



**CLASS tested against
2014/15 frequency
response stack**



Approach is being repeated
for fast reserve and STOR
markets

**Charts on next slide
show effect of 200MW
of CLASS**



Firm and mandatory
combined into a single stack
CLASS could displace either
depending on their cost to
NG

Most expensive plant
assumed to be displaced

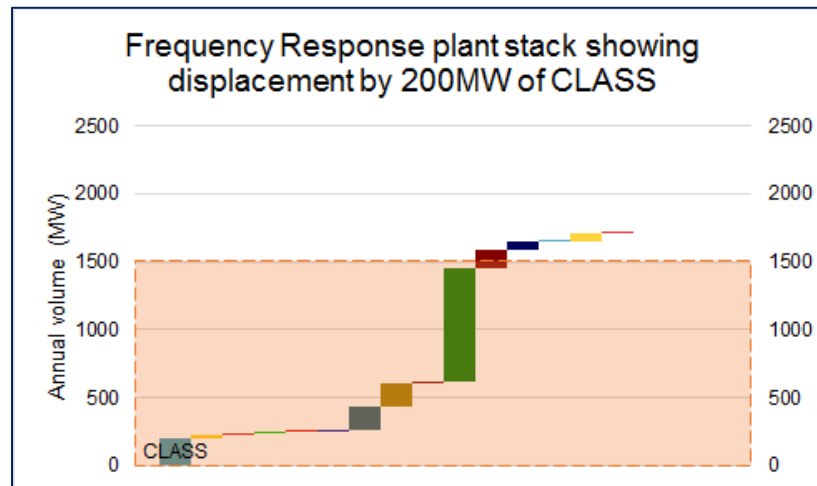
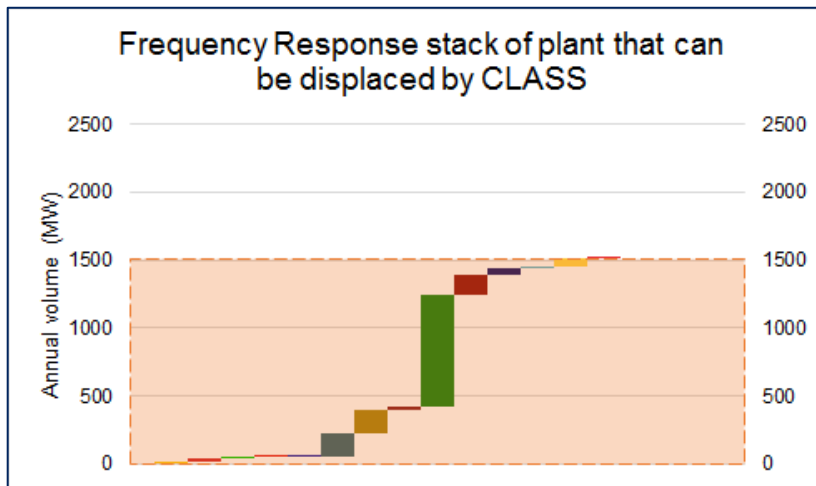
Initial estimates up to
£60m/annum savings to NG

**Tool will be publicly
available**

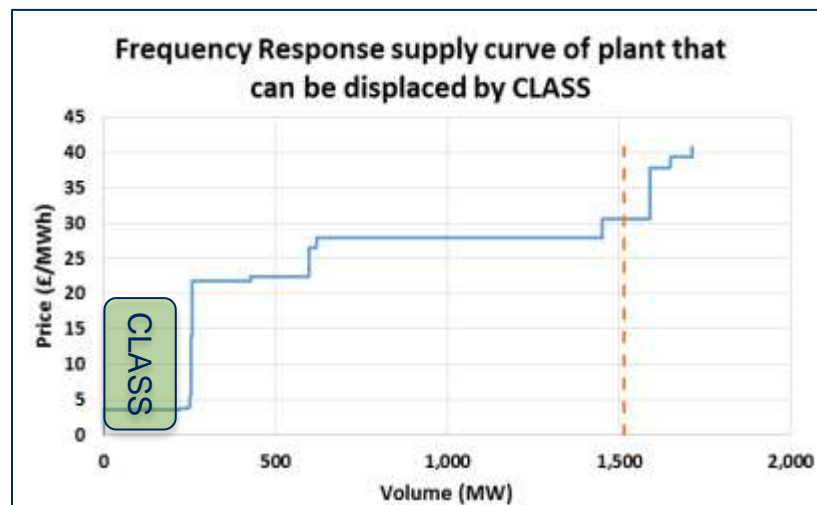
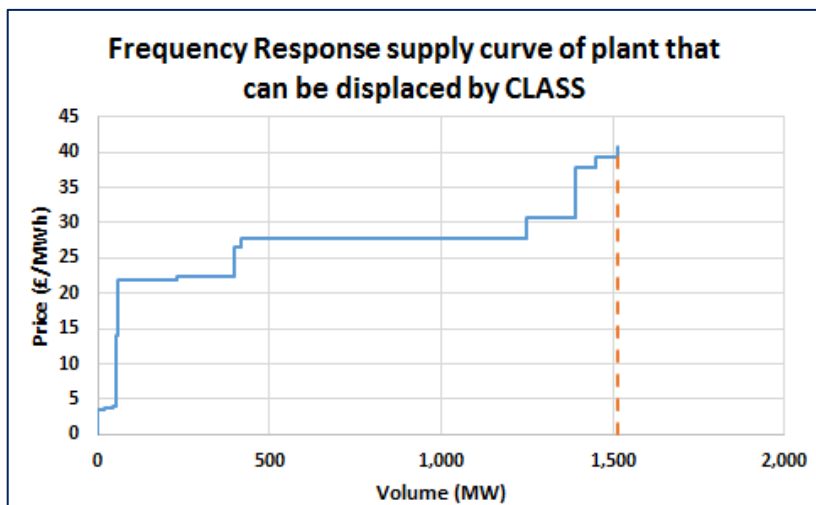


Specific market participants
will be identifiable
CLASS volume and bid price
will be a variable to test
market impact under range
of assumptions

Initial results for the current market (2)



200MW
CLASS



Qualitative impact assessment



Quantitative CBA focuses on displacement in AS market		Qualitative CBA to cover	
Consumer benefit	Impact on incumbents and competing technologies	Quality of service impacts (from voltage control actions)	Cash-out impact on suppliers
Carbon impacts	Network security impacts (temporary loss of n-1)	Impact on transmission network reinforcement costs	Impact on security of supply and capacity market Interaction with AS provision Relation to OC6 provision

Market participant responses



“Will CLASS create settlement issues for existing DSR providers?”

“Do consumers really not suffer a detectable change in quality of supply?”

“You should look into whether other voltage-management schemes could be undermined by CLASS”

“If CLASS is a low cost way to provide system balancing in a secure way then it’s in the interest of consumers to pursue it”

“Ancillary services often contribute to the missing money required to keep large plant open – there will be a knock on impact in the capacity mechanism”

“The interaction with batteries could be significant – and there is a large volume expected to connect to the system in the next 5-10 years”

“Are there conflicts for DNOs, both in terms of connecting competing capacity, but also on using consumer-funded regulated assets for commercial gain?”

Next steps



Conclude market analysis

Baringa to finalise the market assessment and CBA for GB customers

Learning event

ENWL to hold a further Learning event (27 April, London) on findings from project

Report & CBA tool

Report detailing methodology, results of benefits modelling and modelling tool by 31 May 2016

Closedown report

Publish addendum to CLASS closedown report to cover project extension by 31 May 2016

Questions and answers



Submit written questions



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or

Questions & answers



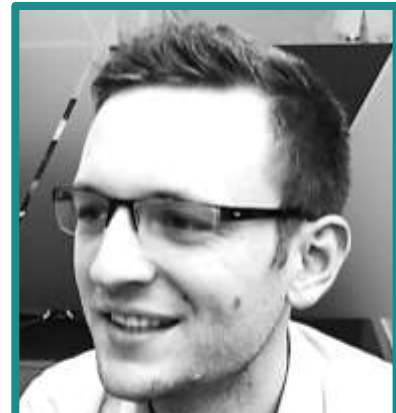
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Chris Collins,
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Partners



Tom Harper,
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Partners



Webinar

Please complete our online poll



Want to know more?



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