ofgem E-Serve Promoting choice and value for all gas and electricity customers

Workshop on the OFTO availability incentive

4th April 2011

AGENDA

- **Introduction -** *Bob Hull*
- **Availability Incentive: Background and Q&A –** *Colin Green*
- **Analysis of availability targets –** *Chris Jones, SKM*
- *Coffee Break*
- **Generator perspective –** *Lars Thaaning Pedersen, Dong*
- **OFTO perspective** – *Cyril Baseden and Barry Howarth, TCP*
- **Generator perspective** – *Alison Russell, Centrica*
- **Panel Q&A –** *Chaired by Bob Hull*

Introduction

Bob Hull, MD Commercial – Ofgem E-Serve

Aims for event

- Provide an overview of the availability incentive
- Outline our proposed changes to the incentive for TR2
- Gather evidence and views to complement responses received through the consultation
- Provide key stakeholders with the opportunity to provide their thoughts and experiences of the incentive
- Provide you with an opportunity to influence the development of the incentive and ask any questions

Participation

- We are looking to make changes to the incentive for TR2a and future tender rounds – we will not be making changes for TR1
- This is an opportunity for you to influence the development process
- We welcome any thoughts you have and would like you to raise any issues with the incentive that you have encountered
- We want you to challenge any proposals highlighted at this workshop
- Most importantly, we want you to engage openly with this process

Availability incentive and obligations

Colin Green, Head of Offshore Transmission Policy

Context

- DECC and Ofgem have introduced a new regulatory regime for offshore transmission assets
- The regime uses a competitive tender process to licence offshore transmission owners
- This tender process was designed based on best industry practice and extensive consultation
- It is designed to put in place the most suitable operator for each transmission asset
- All bidders must meet a minimum threshold requirement to ensure that they are capable of owning and operating the transmission assets
- The evaluation is weighted 60% to financial matters and 40% non financial – including O&M strategy and capability
- The OFTO licence sets obligations and behavioural incentives on the OFTO to perform to an appropriate level

The availability incentive

Obligations

- We require OFTOs to :
  - achieve the broad obligation to operate assets in line with industry best practice to minimise the effect and duration of any transmission outage
  - report details of any service reduction over 21 days
  - provide written statement of compliance with best practice if availability below 75% in a year or 80% over two years
- This creates an obligation to repair assets
- If does not comply, enforcement action could be significant - licence revocation

Incentives

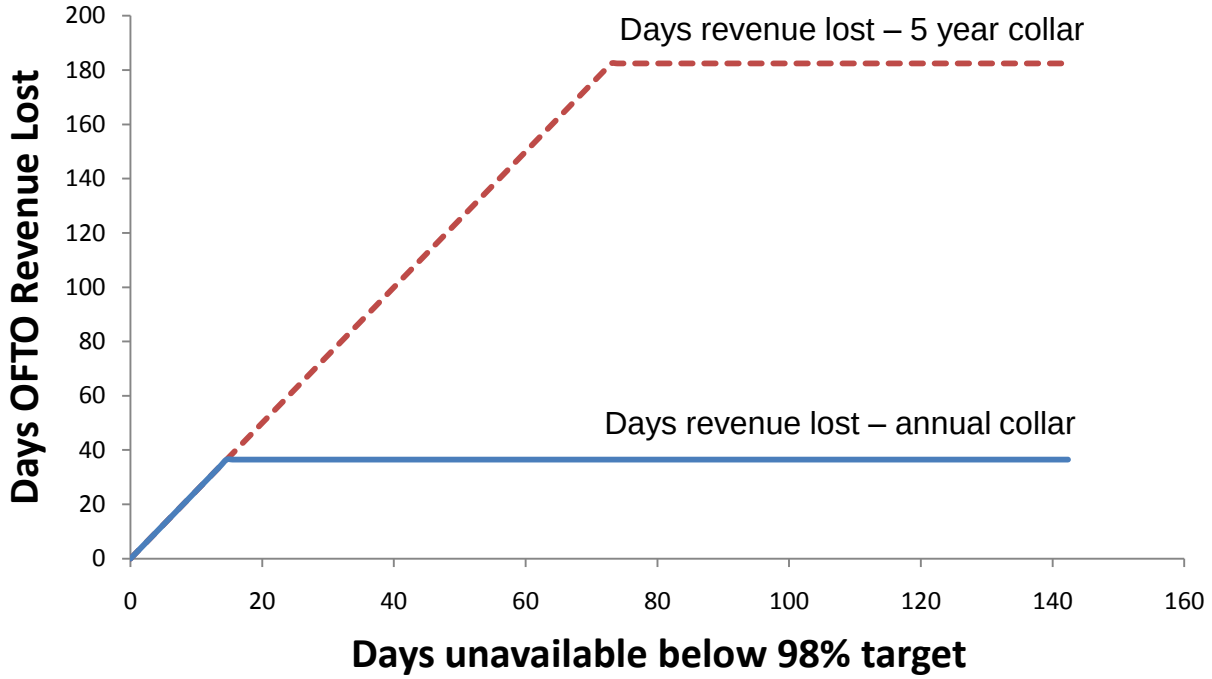
- Incentive designed to encourage behaviour to maintain availability
- Not to compensate generator for lost revenue – disproportionate
- Generator loses 1 day's revenue, OFTO loses more than 2 days' revenue
- OFTO faces reduced revenue if it fails to meet availability target
- Incentive significantly reduces equity returns in case of major outage – does not put OFTO at risk of breaking minimum cover ratios

We have sought to strike a balance between obligations and incentives

Incentive design

- Analysis undertaken by Brattle in 2008 to define the scope and structure of the incentive
- Following consultation and research the availability target has been set at 98%
- Up to 50% of OFTO revenue is at risk for performance below the target in a year
- Revenue impact is smoothed over five years to not overly expose the OFTO
- Following further consideration of the model, we included a revenue uplift for good performance to better maintain the incentive over 20 years
- The incentive is weighted so that so that OFTOs place a higher value on maintaining availability in the months that generators value it the most

Availability Incentive: Revenue Impact of OFTO Unavailability

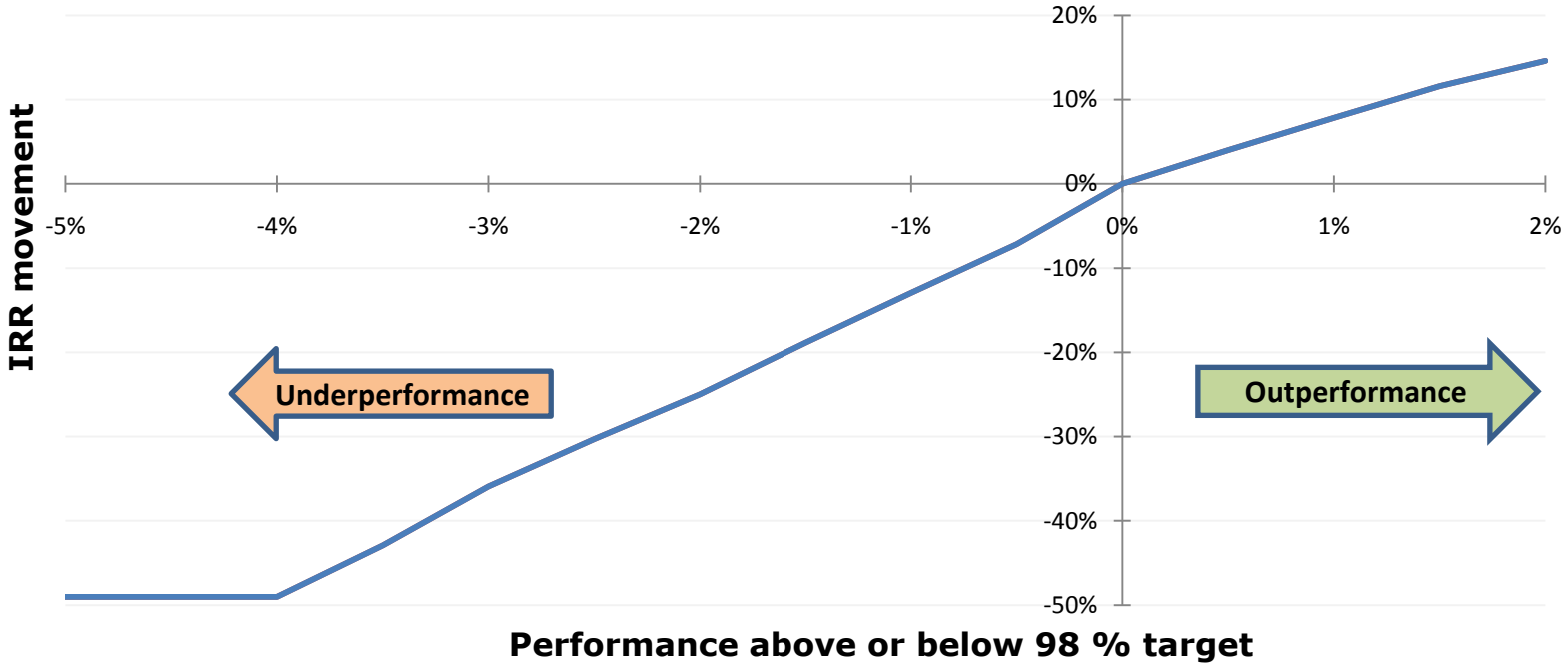


The red line shows the 5 year cap which limits the OFTO's total revenue impact to 50% of one years revenue

The blue line shows the maximum revenue impact that can be felt in any given year

OFTO meets annual cap after outage of 14 days below the target and 5 year cap after 73 days

Financial impact of OFTO unavailability



This graph shows how IRR declines with declining availability performance based on our financial modelling

Also note that equity IRR is still positive, so the OFTO still fully pays off its debt

Why are we revisiting the availability incentive?

- We have had extensive engagement with developers and bidders on the incentive during TR1
- We are keen to learn lessons from our experiences in TR1 so have been undertaking a review of the transmission system availability incentive
- We published an open letter on 28 March setting out our proposals for the availability incentive. This letter:

1. Aims to reduce the level of complexity of the incentive whilst keeping its policy intent; and
2. Proposes potential enhancements for future tenders

Any changes we make to the incentive following this consultation will not apply to licences granted under TR1

Simplification: the credit banking mechanism

- In previous versions of the incentive, credits gained in a year could be held for 5 years to offset future penalties. They did not lead to revenue increases
- When we decided to include a revenue uplift, we used this existing mechanism
- This has caused confusion due to significant algebraic complexity and the inclusion of a term to pay out years 21-25

We propose paying out credits earlier

- This would sharpen the OFTO's incentive to outperform in the months and years following a major outage
- It also allows us to significantly simplify the algebra in the licence

Simplification: the weighting mechanism

- **For the TR1 availability incentive OFTOs faced a weighted incentive through two terms:**
  1. A monthly target based on generators' estimates of planned outages
  2. A weighting based on generators' estimated revenues
- Developers have a commercial incentive to plan outages when it will impact them least financially
- These two terms could double count the weighting
- Having two weighting terms is unnecessarily complex and may give the wrong or conflicting signals.

We propose:

1. **Removing monthly targets in favour of a flat target**
2. **Including a single monthly weighting based on generators' estimated revenues**

Timing of payments

- Availability performance in a given revenue year does not impact revenue in the following revenue year because NGET need time to calculate TNuOS charges
- We are looking into ways to synchronise these payments to the end of March

What are the advantages and disadvantages of aligning availability payments to the end of March?

Information flows

- Generators want to know information about outages and what is being done to repair them
- This flow of information is currently managed through the industry codes
- The licence also puts reporting obligations on the OFTO for outages

Can we improve the flow of information about outages to developers within the existing industry framework?

Maintaining the incentive

- One large outage can lead to penalties spread out over five years
- The incentive is therefore reduced in the last few years of the revenue stream
- In TR1, we included a performance bond in the licence which can be called upon to cover later penalties

How can we best ensure that the incentive is maintained for the length of the revenue stream?

Commissioning

- Some bidders have asked whether or not the incentive should apply during commissioning of the connected generation to allow for testing of transmission assets at full capacity
- We recognise that there may be some availability risk from further testing of transmission assets

How can we account for testing of transmission assets during wind farm commissioning?

Next steps

- We intend to implement our simplification proposals for the ITT stage of TR2a
- We would welcome material views on these proposals by Friday 8 April so that we have time to finalise the licence for ITT
- We would welcome views on other issues identified by 22 April
- We have also commissioned work on the appropriate level of OFTO revenue at risk and availability targets
- Chris Jones from SKM will present their technical analysis next

But first…

Any questions on the policy or mechanics of the availability incentive?

OFTO Availability Incentive
Presentation of Study Undertaken by SKM

Chris Jones

4th April 2011

Outline of Presentation

- Brief introduction
- Outline of work
- Brief description of technical analysis
- Data gathered
- Initial Conclusions

Brief introduction – Study undertaken

- Sinclair Knight Merz (SKM) and Cambridge Economic Policy Associates (CEPA) and were commissioned by Ofgem to provide support on issues related to the Availability Incentive.
- Work completed November/December 2010
- One task considered and evaluated the issue of the level of revenue at risk that is appropriate for projects.
- Second task considered the technical evaluation of the appropriate target level of availability.....*this is what's covered today.*

Brief introduction - Background

- At the start of Transitional 2 round of bidding an opportunity to revisit the parameters and establish if changes are appropriate.
- Taking into account
  - Increasing experience on actual availability of OFTO type projects
  - Potential differences between T1 and T2 projects
  - Lessons learnt regarding financial structures that companies are willing to bid and their view of the impact of the revenue-at-risk from the availability incentive.

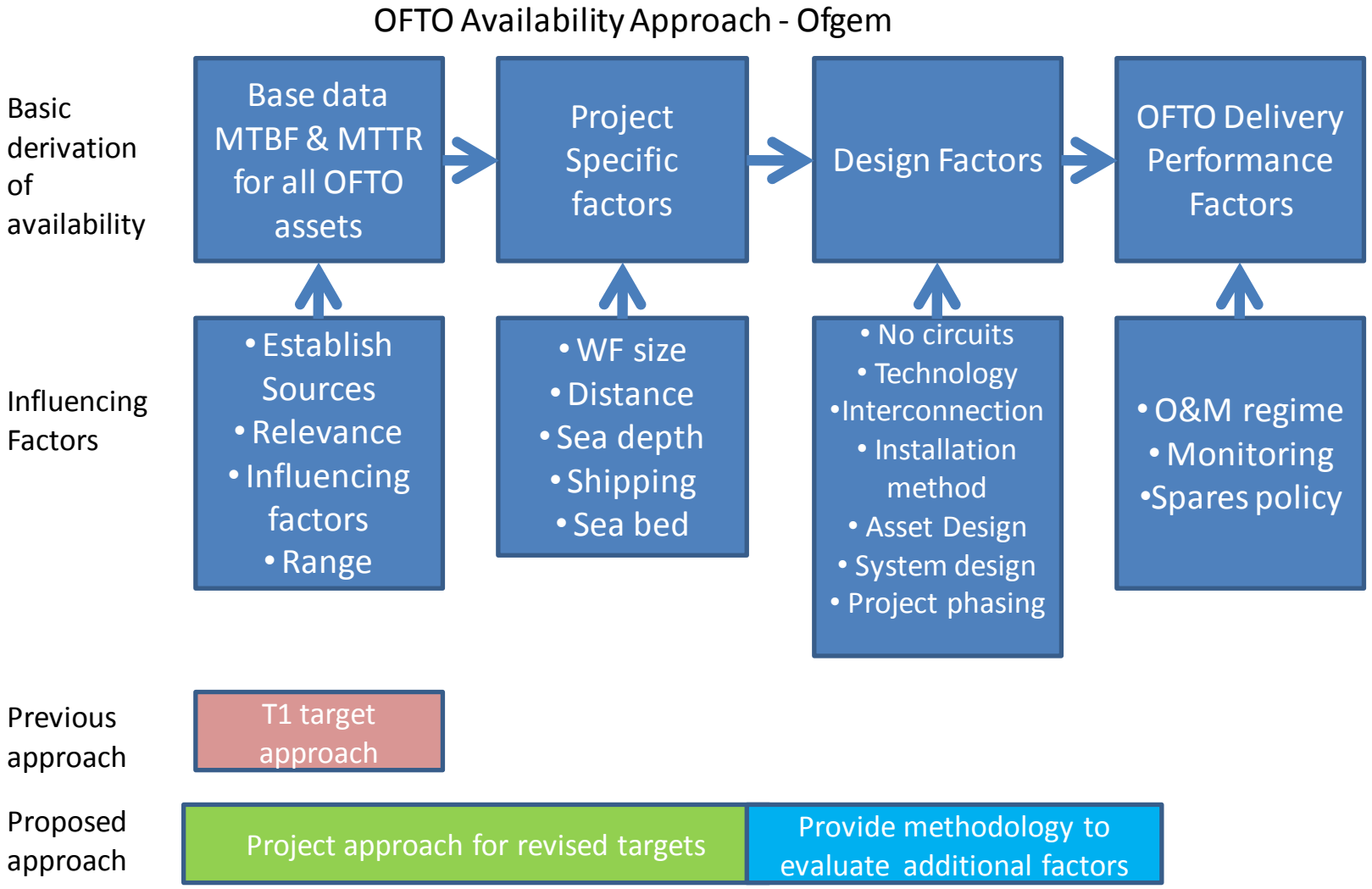
Availability incentive – Previous approach

- For T1 projects OFTO's revenue stream is based on asset availability, not utilisation.
- OFTO availability incentive is designed to minimise generator financial losses. Default availability target is, 98% (after adjustment).
- Target set in November 2008 , was based on:
  - stakeholder views
  - available data from HVDC interconnectors.
- Represented the Ofgem expectations of the offshore transmission system performance over 20 years, based on available information

Availability incentive – Revisit

- Consideration of whether more up to date experience with such assets exists;
- Consideration of whether we can now better assess project specific factors given the greater available information; and
- Assessment of which of the various transmission connection design factors which would be determined by the attributes of the project or developer preferences need to be covered.

Availability incentive – Study approach



Availability incentive – Data Gathering

- Sources of base data for asset reliability been reviewed together with the influencing factors which are relevant to OFTO availability.
- Known sources at component level include:
  - CIGRE surveys
  - OEM specific published data;
  - CEA/IEEE and other organisations
  - Published information on cable incidents
- The output is a set of MTBF / reliability figures for each asset class and the influencing factors, giving a range for use in subsequent analysis.

Example data – Offshore transformers

- Data sources
  - CIGRE, Nordel, CEA, IEEE
- Failure rates and repair times assumed for analysis of T2 projects

Table A3.10: Summary of Proposed Transformer Failure Rates and Repair Times

	Failure Rate (failures/yr)	Mean Time to Repair (Days)
Factory repair (onshore)	0.00639	90
In-situ repair (onshore)	0.02637	9
Factory repair (offshore)	0.00639	113
In-situ repair (offshore)	0.02637	13

Availability definitions

- Mean Time Between Failure - expressed in years and is 1/Failure Rate where this is expressed as the number of faults per year.
- Mean Time to Repair – the total downtime following a fault expressed in hours or days.
- Unavailability - the period during which a proportion of the transmission connection is not available based on the sum of planned and unplanned “downtime” taken as a proportion of a period of time, normally expressed on an annual or monthly basis.
- Unavailability = (Failure Rate (1/MTBF in years) x MTTR in years) x % Connection Capacity Lost
- Availability is 1 – unavailability again expressed as a percentage.
- Partial Availability - is defined as a situation where a proportion of the transmission connection assets are unavailable, the mechanism being to treat the result as for complete unavailability. So two hours where 50% of the capacity is unavailable is equivalent to one hour where 100% of capacity is unavailable.

Factors – More detail

Project Specific Factors

- ➔ Those determined by the specific characteristics of the project e.g. cable length onshore and offshore (directly relevant to availability target)

Design Factors

- ➔ Relate to the specific equipment by which the wind farm is connected. For example the base data of MTBF per km of onshore cable will be influenced by installation depth and additional protection, (not all applicable to availability incentive itself)

OFTO Delivery Performance Factors

- ➔ OFTO Delivery Performance factors are not directly relevant to the setting of an availability target; however they are an important factor to an OFTO in the achievement of a target itself.

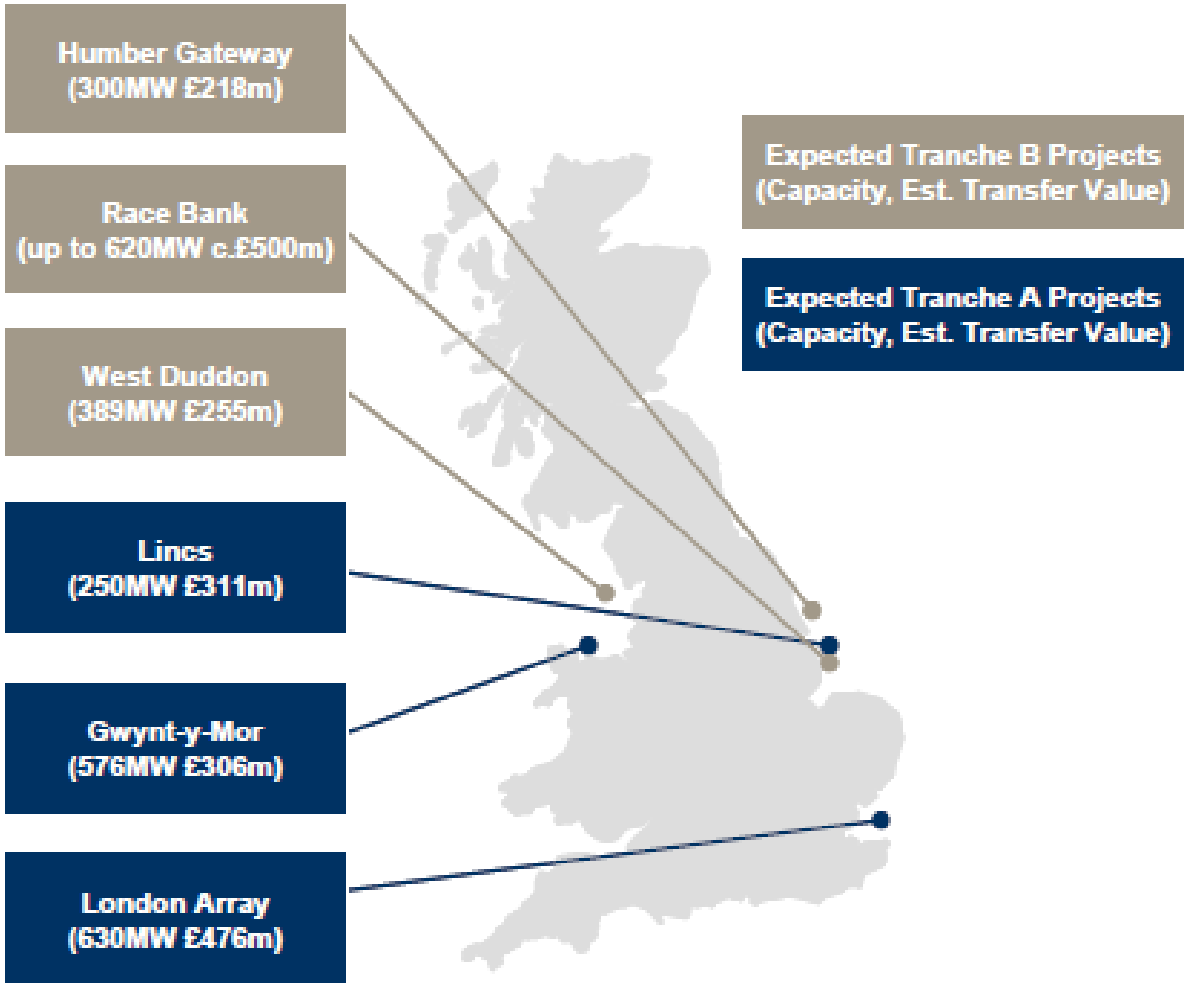
Project Specific Factors

Factor	Generic Impact			Second Transitional Projects		
	MTBF	MTTR	Planned Downtime	Influence on Availability Target	Range	% Availability Spread
Project Specific Factor						
Wind Farm Size	Reduced MTBF due to increased equipment	No change	Increase with increased equipment levels	None due to influence of partial availability	0	-
Distance Onshore	Direct multiplier per km	No change	No change	Reduces with increased distance	Tranche A 1km-12km Tranche B 1km-30km	Total Second Transitional 0.14%
Distance Offshore	Direct multiplier per km	No change	No significant change although potential impact due to transport time linked to distance	Reduces with increased distance	Tranche A 21km-54km Tranche B 9.5km-53km	Total Second Transitional 0.25%
Sea Depth	No impact over T2 projects	No impact over T2 projects	No impact over T2 projects	No impact over T2 projects	0	-
Sea Bed	Will influence difficulty of cable laying and protection but not directly on MTBF	No change other than influence dependent on measures taken to protect cables	No change	No impact over T2 projects	0	-
Shipping Frequency	Increasing frequency reduces MTBF but mitigated by burial	No change	No change	None as shipping incidents would be treated as "exceptional events"	0	-
OFTO Boundary	Increased scope would reduce MTBF	No change	Could change due to changes in equipment included	No significant difference between projects, minor differences taken into account	420kV AIS is included in some projects	0.02%

Design Factors

Factor	Generic Impact			Second Transitional Projects		
	MTBF	MTTR	Planned Downtime	Influence on Availability Target	Range	% Availability Spread
Design Factors						
No. of Circuits	Reduced MTBF as equipment levels increase	No change	Increases with increased equipment	No change due to partial availability	0	-
Equipment Technologies	Will be determined by specific technology chosen by developer/OFTO	Will be determined by specific technology chosen	Will be determined by specific technology chosen	Assessed in project detail but no basic differences between projects	0	-
Asset Design/Specification	Will be strongly determined by specific designs & suppliers chosen	Will be strongly determined by specific designs & suppliers chosen	Will be strongly determined by specific designs & suppliers chosen	Supplier specific data not utilised so no spread across projects	0	-
Interconnections	More equipment will reduce MTBF but impact depends on capacity	No change for individual elements	Could be increased due to more equipments	No change due to partial availability	0	-
System Design	Dependent on equipment included in design	Dependent on equipment included in design	Dependent on equipment included in design	Dependent on equipment, over capacity / redundancy	0	-
Project Phasing	No change	No change	Dependent on over capacity/redundancy	Dependent on over capacity / redundancy	Assessed for London Array	1.2% for 31/11/2011 to 1/4/2012
Installation & Commissioning (Tx, S/G. Reactive Comp)	Will be weakly determined by installation	No change	Dependent on equipment included in design	No influence	0	-
Cable Installation – Onshore	Installation within ducts will greatly increase MTBF	Installation within ducts will weakly increase MTTR	No change	No influence	Assume all direct buried	0
Cable Installation – Offshore	Dependent on depth of installation/ protection	Deeper installation will weakly increase MTTR	No change	No influence	Directly laid >1m burial /protection	0

T2 Projects


Humber Gateway
(300MW £218m)
Race Bank
(up to 620MW c.£500m)
West Duddon
(389MW £255m)
Lincs
(250MW £311m)
Gwynt-y-Mor
(576MW £306m)
London Array
(630MW £476m)
Expected Tranche B Projects
(Capacity, Est. Transfer Value)
Expected Tranche A Projects
(Capacity, Est. Transfer Value)

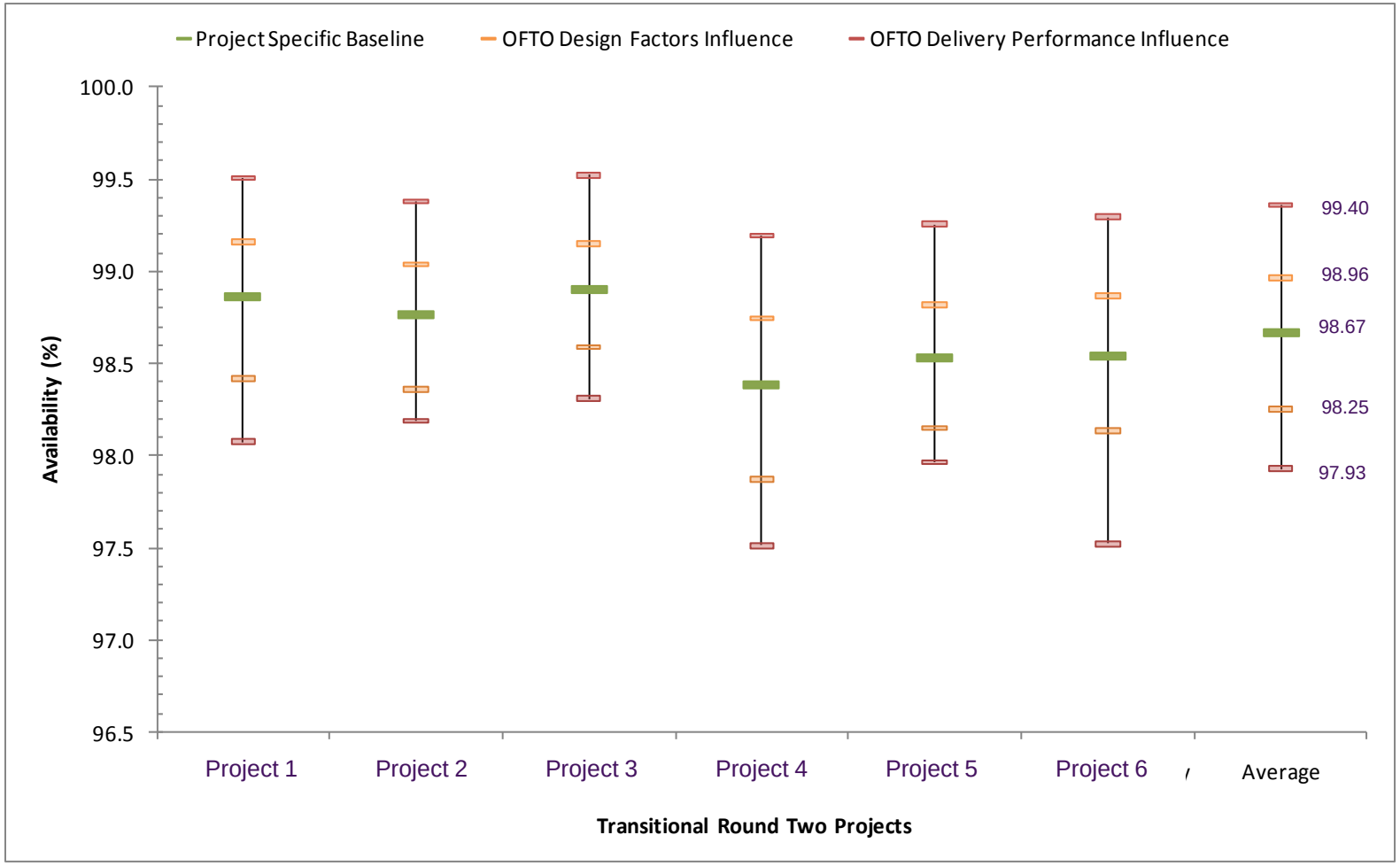
T2 Project Specific Factors

Project specific factor	Range for T2 projects	Comment	Spread of Influence Result % availability
Distance Onshore	Tranche A Tranche B		0.05% 0.14%
Distance Offshore	Tranche A Tranche B		0.19% 0.25%
Project Phasing	Applies on a single Tranche A project for a limited time period	Always duplicate connection available for this short term period giving 100% availability. Insufficient information available on Tranche B projects to suggest whether any of these projects will deliver any such benefit	1.24%

T2 Design Factors

Asset	Quality	Installation	Comment
Onshore Cable	Medium	High	Susceptibility of cable to external damage is key
Offshore Cable	Medium	High	Susceptibility of cable to external damage is key
Transformer	High	High	Influenced by long MTTR for offshore unit factory repair
Switchgear	Low	Low	-
Reactive Compensation	High/Medium	Medium	Influenced by long MTTR for offshore unit factory repair
OSP	Medium	Medium	Could strongly influence reliability if quality of installation and/or design is poor
Balance of Plant	Low	Low	-

T2 Project Specific, Design and OFTO Performance Factors



Conclusions - Overview

- Publically available information on the operational performance of offshore transmission assets is limited but reliance can be placed on the use of available onshore asset data supplemented with other data which whilst more applicable is limited.
- However for offshore cables it is concluded that the “average” MTBF figures commonly utilised when calculating prospective OFTO availability should be applied with more caution.
- Project Specific, Design and OFTO Performance factors can all be assessed, however only Project Specific factors are included as being relevant to the setting of Availability Targets.

Conclusions – Cable reliability

- **Cable Technology** - The use of XLPE specific cable reliability data is more relevant. Data suggests lower internal failure rates than previous technologies.
- **Cable Installation** – Installation techniques and cable protection measures have a very significant impact on cable MTBF as most failures are due to external factors.
- Taking the above factors into account the commonly used factor of MTBF for submarine cables of 987 years per km could be revised to up to:
  - Approximately 1250 years if only XLPE cable system reliability data were included
  - Approximately 2000 years if well protected submarine cable reliability data was used
- It is therefore concluded that for offshore transmission projects it is reasonable to assume for well protected XLPE submarine cable connections a MTBF of 2000 years per km with consequent improvement in expected OFTO availability.

Conclusions – Availability target

- For the six T2 projects the average suggested availability target based only on the range of Project Specific factors considered is 98.67%.
- Design factors can influence these availability targets but it is considered that the influence due to choice of technology and supplier will be constrained such that any adjustment to availability target can be ignored.
- OFTO Delivery Performance factors such as Operations and Maintenance, Monitoring and Inspections and Spares Policy will influence the achievement of availability however the OFTO Delivery Performance factors themselves should not influence the setting of availability targets.
- This presentation has focused on technical availability but overall study conclusion was that while it is now clear that additional information is available on which the regime can be calibrated, it is still too early and without sufficient confidence in the evidence to make significant changes without raising the concern of damaging the cost effectiveness of future bids. Consequently any changes need to be incremental and based on strong evidence.

Conclusions – Overall study

- ➔ This presentation has focused on technical availability but overall study conclusion was that while it is now clear that additional information is available on which the regime can be calibrated, it is still too early and without sufficient confidence in the evidence to make significant changes without raising the concern of damaging the cost effectiveness of future bids.
- ➔ Consequently any changes need to be incremental and based on strong evidence.

Future considerations– Availability target

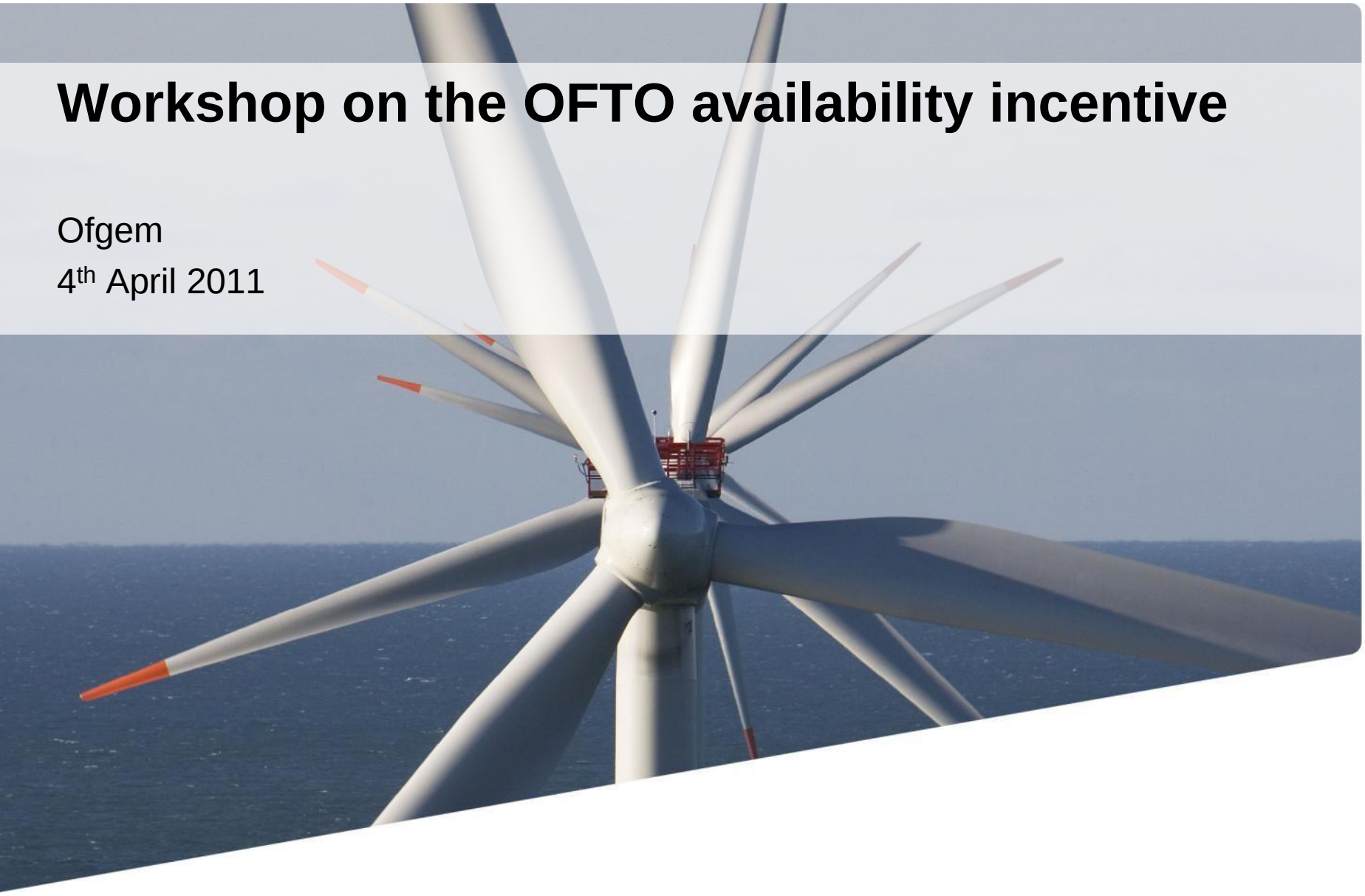
- The assessments made on Project Specific, Design and OFTO Performance factors suggest which elements are appropriate for availability target setting given the existing availability incentive.
- Some elements of the factors highlight that the current approach to availability does not provide incentives when considering design aspects such as interconnection. In order for interconnection to influence availability then a review of the basic availability incentive would be required to place more emphasis on asset utilisation and the quantity of energy that the generator is producing.
- Such a revised approach could influence not only the provision of interconnections but also:
  - rating and over capacity of connections;
  - number of individual circuits provided for a specific wind farm size; and system design choices, including technologies adopted.

Coffee break

Workshop on the OFTO availability incentive

Ofgem

4th April 2011



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OFGEM's availability incentive – 3 main aims

Aim of incentive	Mechanism	Operational views
Maximise Availability through Target of 98%	▪ CREDITS - Accrue credits if target is exceeded ▪ PENALTY - Penalised if target missed	**<u>The asymmetric incentives</u> are not providing the mechanism to ensure remediation delays are translated into financial pressures on OFTO**
Reduce revenue volatility	▪ COLLAR – limit penalty to 10% of revenue ▪ BANKED CREDITS - credits to offset penalties	
Maintain long term value of incentives	▪ LONG TERM OFFSET –revenue is penalised in subsequent years ▪ CAPPED LOSSES – A five years of revenue penalties.	**<u>The capped losses</u> limit the exposure of the OFTO but makes it worse for the wind farm generator..**
Tender regulations in general	▪ More requirement to assess capability of OFTO to respond to operational issues.	**...and <u>physical assets</u> are not taken into account during the tender – just the financial risk to the OFTO**

Set out in a OWF context

Transmission system
- 280MW capacity
- Single export cable
- Two 132/33KV transformers (3rd scenario has one)

Offshore Wind Farm
- 250MW installed
- 35% capacity factor
- Revenue ~ £75/MWh (Power + ROC + LEC)

Special licence conditions
- 98% availability target
- 10% penalty collar
- Base revenue £7M/yr

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The asymmetric incentives and OFTO's capped losses

Operational scenario	OFTO penalty	Generator penalty
1 **Gunfleet Sands OWF** Transformer outage, reduced capacity 60 days (70%)	Total loss = £630k over 6 years. Every extra day = £10k	Total loss = £1.9M in 1 year. Every extra day = £35k *
2 **Walney I OWF** Export Cable outage of 90 days, 0% capacity	Total loss = £3.7M over 10 years. Every extra day = £46k	Total loss = £10.3M in 1 year. Every extra day = £110k *
3 **Nysted OWF (DK)** Replacement of 132/33kv transformer Outage of 110 days, 0% capacity	Total loss = £4.4M over 10 years. **Penalty has reached maximum**	Total loss = £13.5M in 1 year. Every extra day = £137k *

* Generator Loss per extra day is given as the average of summer and winter

Initial conclusions

1. Generator insufficiently protected by the incentive mechanism due to
   - The asymmetrical losses
   - The Generators losses are not capped when the OFTO is capped out
2. Ensuring quick mitigation process the OFTO must be required to demonstrate sufficient capabilities
   - Potentially strengthened by a new incentive, the "Customer Satisfaction Rating"
3. The mechanism for "OFTO of last resort" should be further developed and much clearer as to timings and triggers
4. More weight to operational capability of the OFTO should be given in assessing the OFTO during the tender process.

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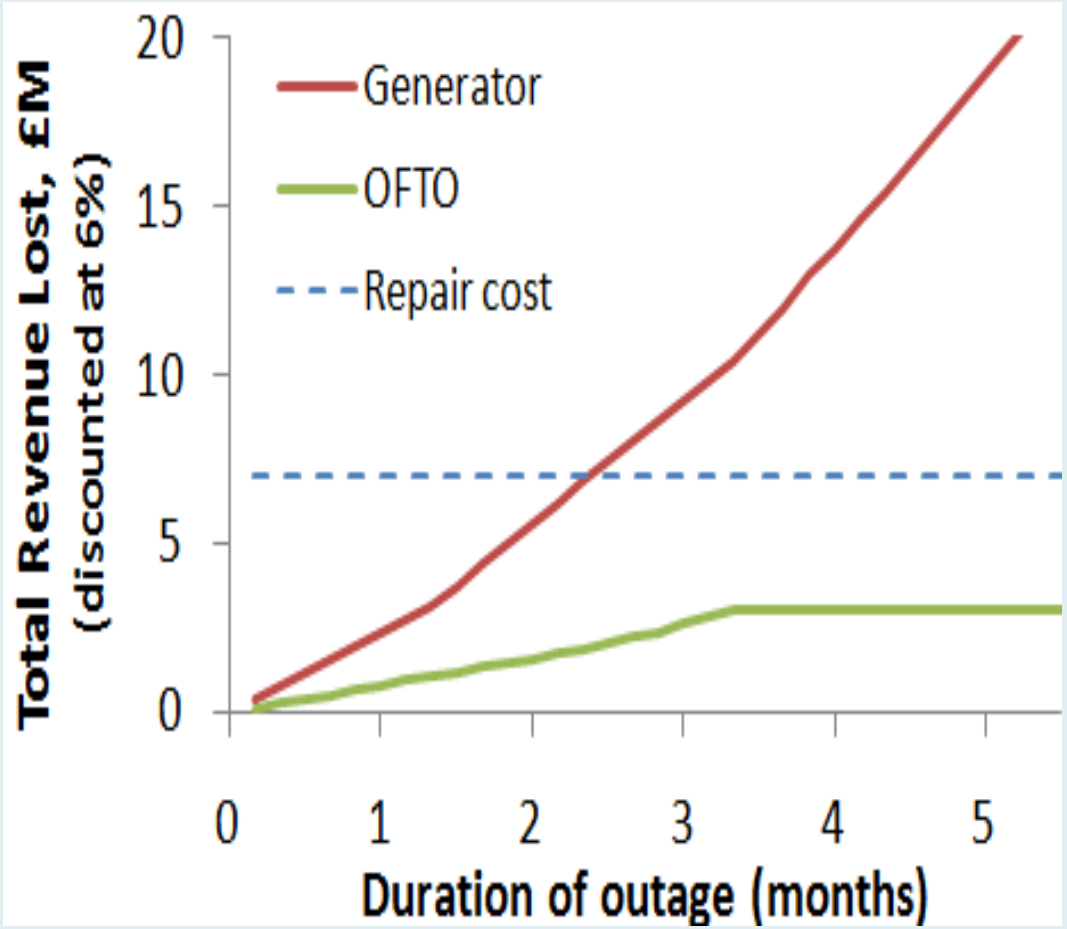
The asymmetric incentives and OFTO's capped losses

OFTO may not seek the quickest mitigation process since the capped losses provide asymmetric incentives.



Size of losses

Generator loses more and at a higher daily rate

Yearly losses

OFTO loss spread over 10 years by 10% collar
Generator loss all in 1 year

Capped OFTO losses

After 4 months there is no more loss to OFTO – total loss could be less than cost to repair

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Physical assets are not taken into account

1

Gunfleet Sands OWF

One transformer outage on OSP

Reduced capacity for 60 days, leaving capacity at 70%

2

Walney I OWF

Export Cable was torn apart during installation

First power was postponed

Outage of [90] days, 0% capacity

3

Nysted OWF (DK)

Breakdown of 132/33kv transformer on offshore sub station.

Full replacement of transformer

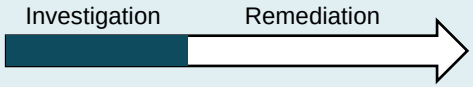
Outage of 110 days, 0% capacity

Generator and OFTO may differ in their approach to O&M which will affect the time pressures in the mitigation process:

- Availability of spare parts?
- Ability to identify fault and initiate remedial actions
- Having 24/7 operations with access to standby vessels and crew?

Set out on a timeline the asymmetric incentives between OFTO and Generator are clear:

Generator incentive



v. OFTO incentive

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TRANSMISSION CAPITAL PARTNERS OFTO AVALABILITY WORKSHOP PRESENTATION

April 2011

Agenda

1 Investor perspectives of the Incentive Scheme
   - OFTO Payment Mechanism

2 Influences on OFTO Operations & Maintenance Strategy
   - Planned maintenance & regular monitoring
   - Fault response and repair process

3 Tender Round 2a & future tender rounds options
   - Flexibility in outage planning and outage execution

Investor perspectives of the Incentive Scheme

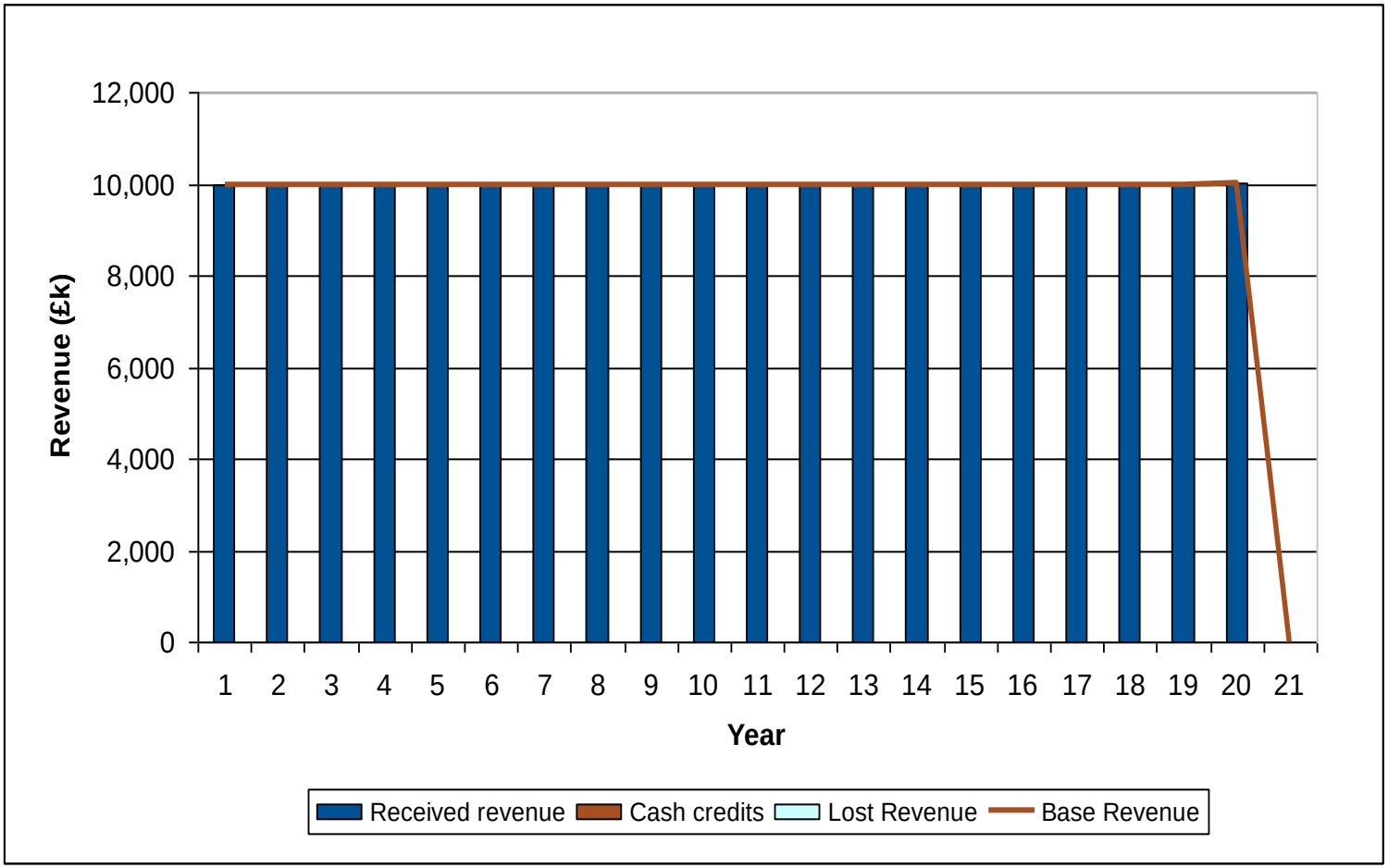
AMBER

Transmission Capital

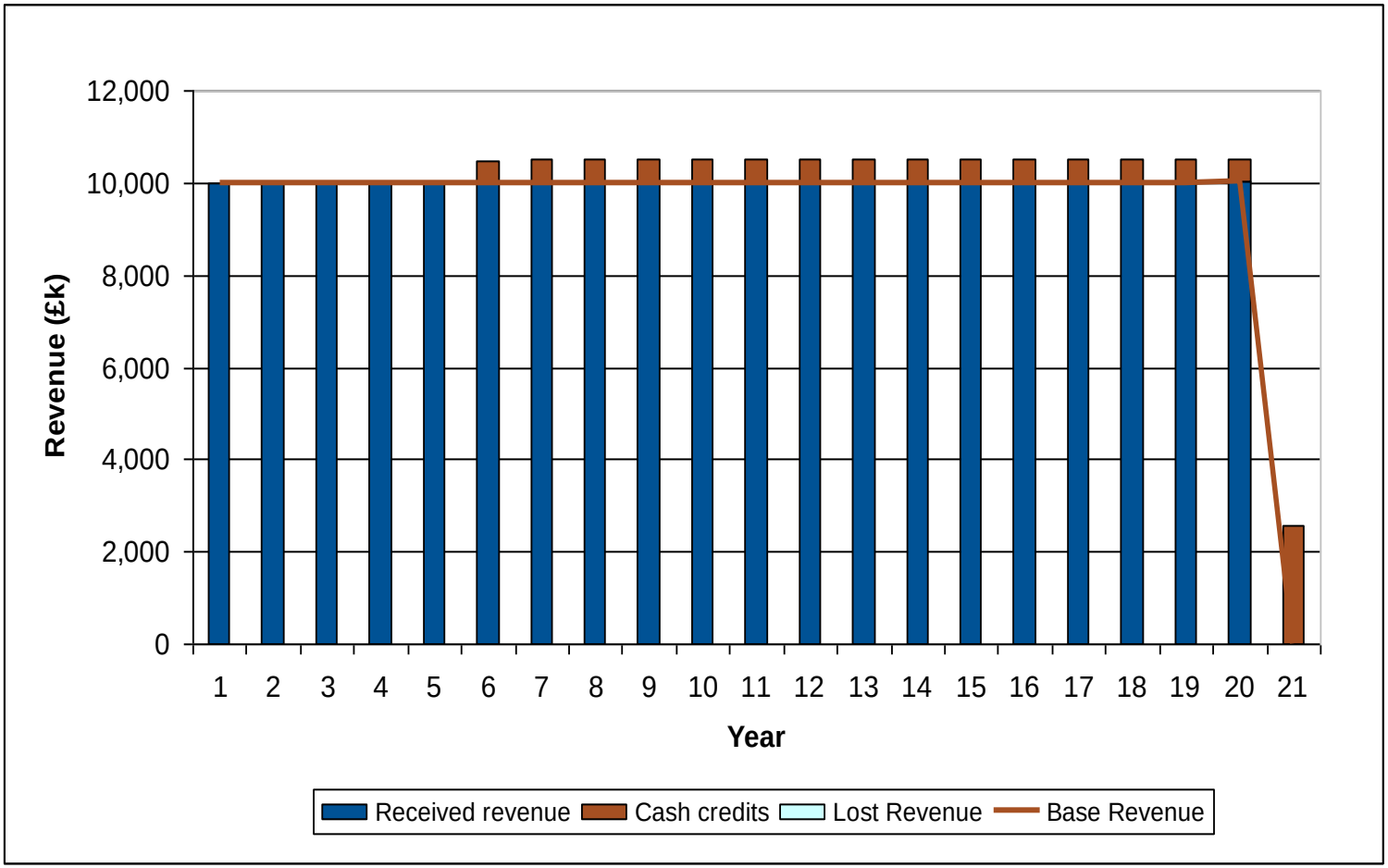
OFTO Payment Mechanism

- Consider the base revenue & incentive payments:
  - Received revenue against target availability, no inflation
  - Maximum availability – no maintenance or repair downtime
  - Impact of outages in summer and winter months
  - Impact of consecutive monthly downtime over 3 months & longer periods
  - Example of day by day revenue loss over the worst winter month

Target availability, no inflation



100% availability – no maintenance downtime



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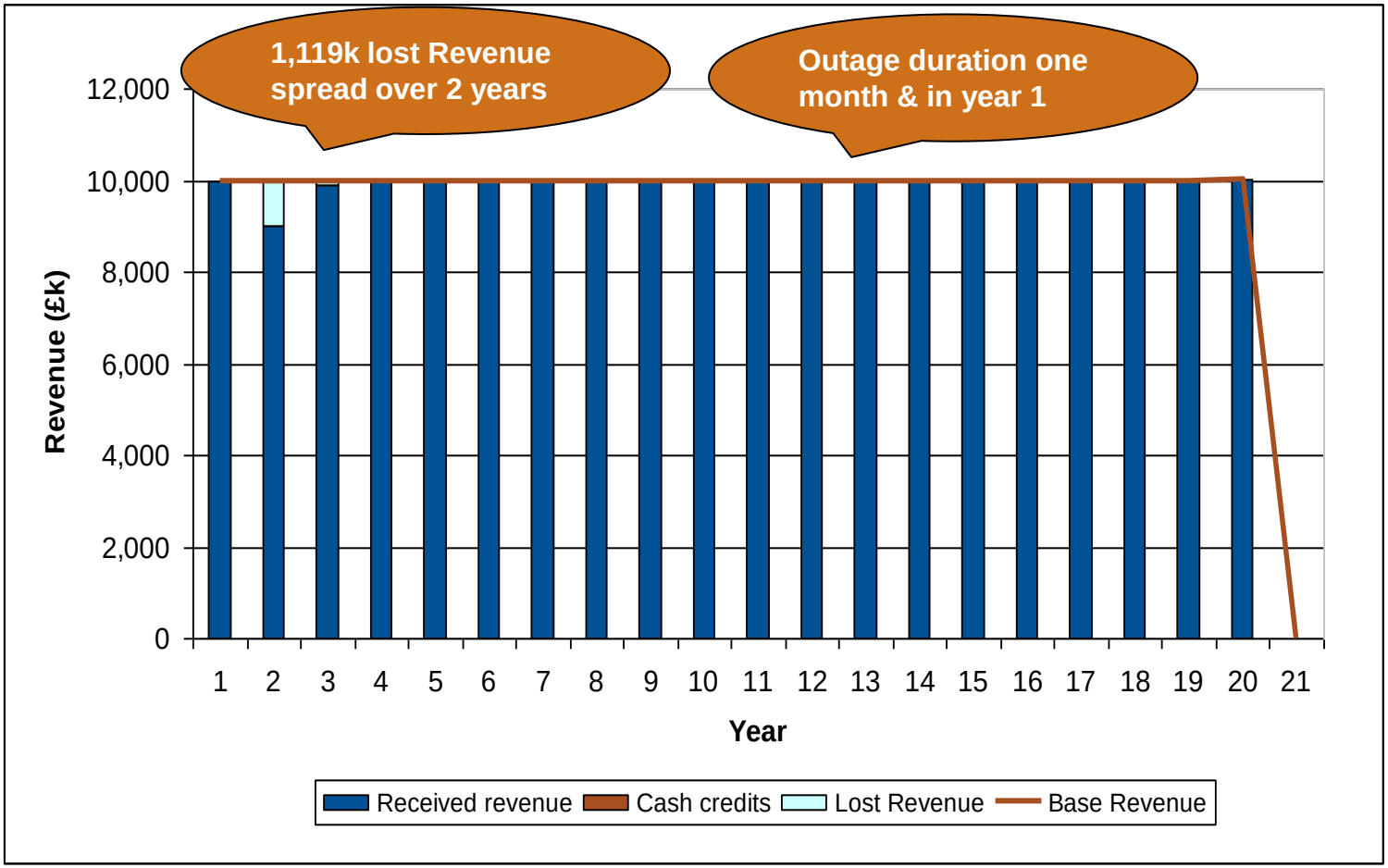
Transmission Capital

Outage across the best summer month



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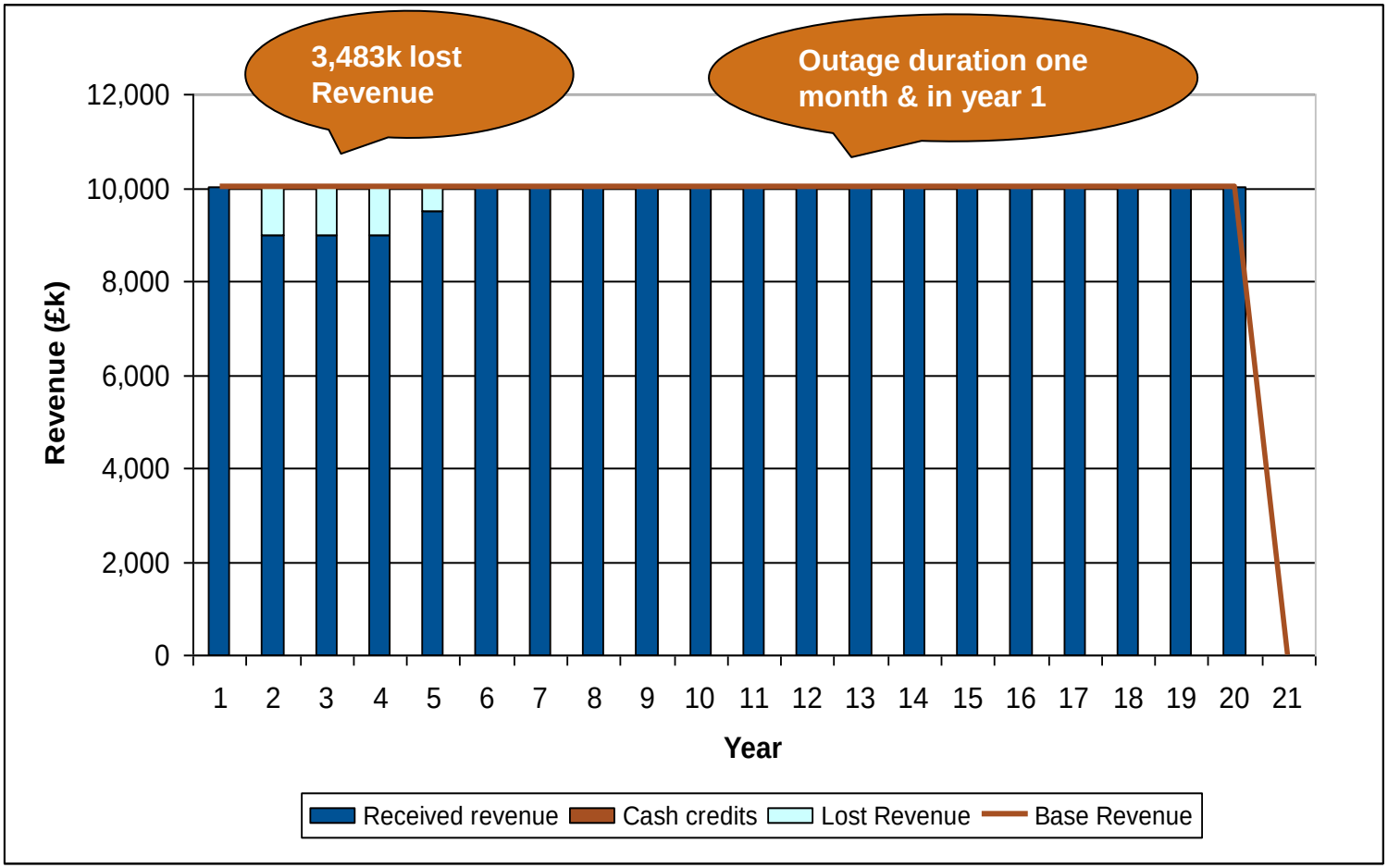
Outage across the worst winter month



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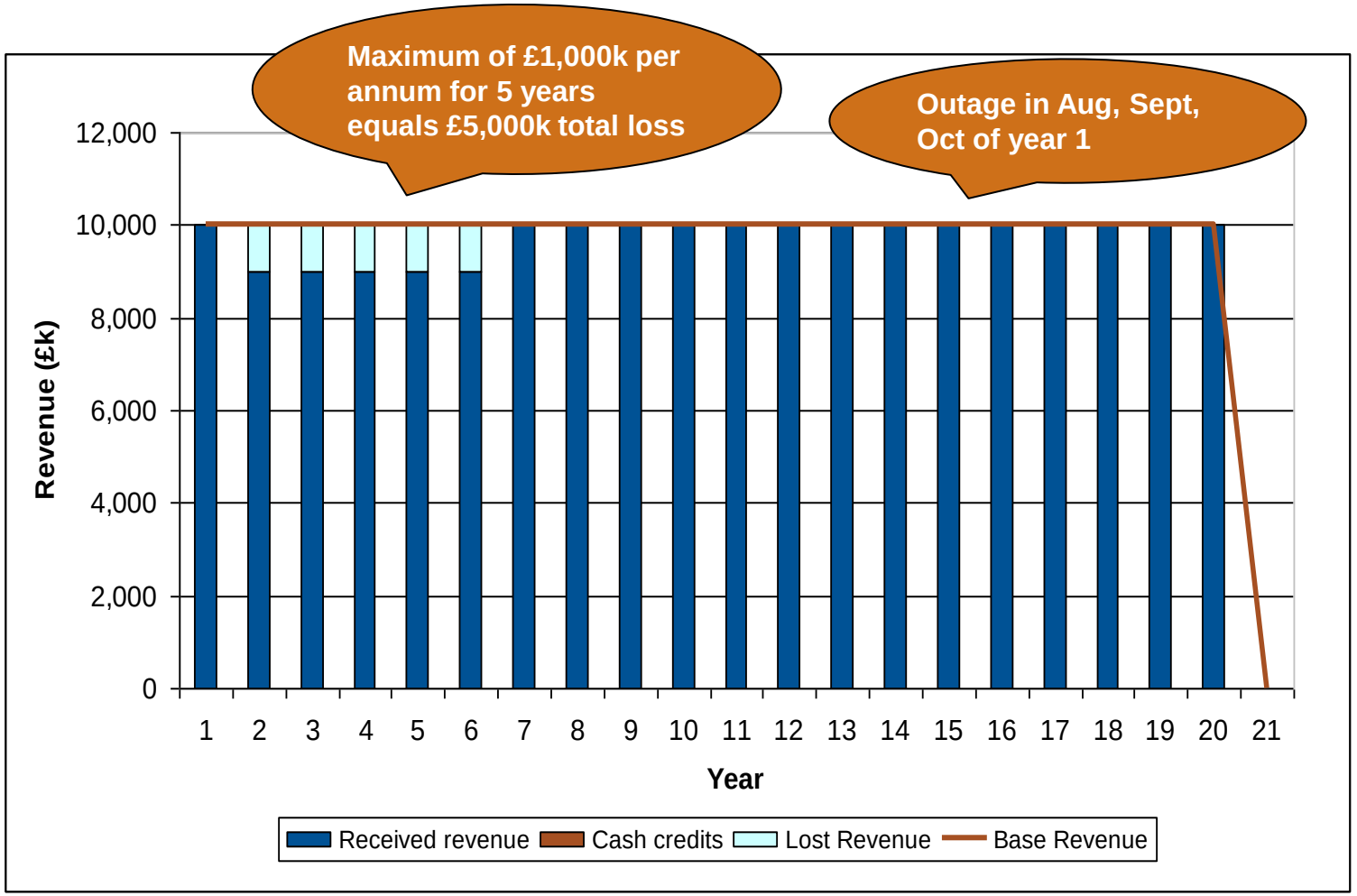
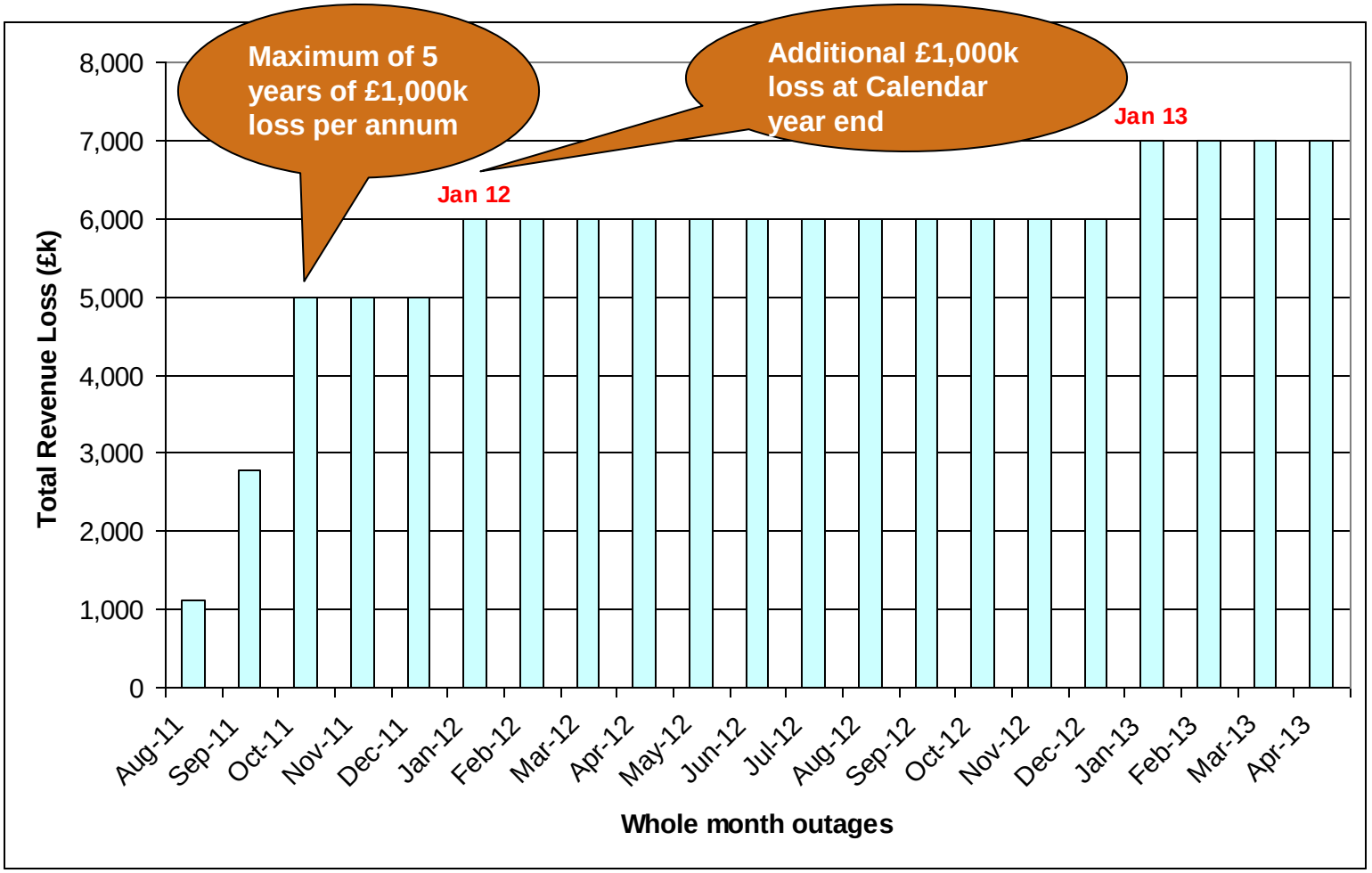
3 month consecutive outage



Cumulative Revenue loss for consecutive whole month outages



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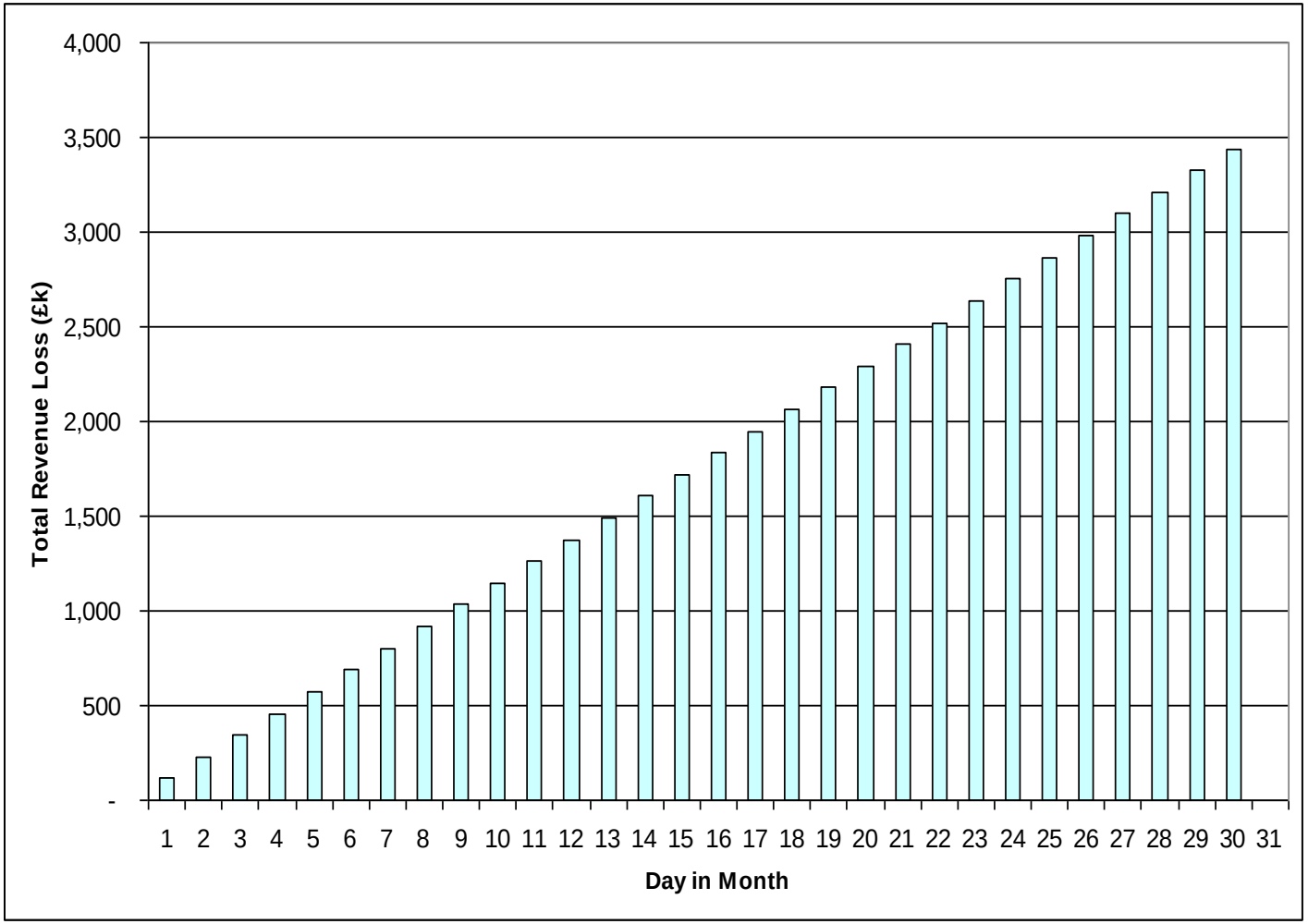
Day by day loss in worst winter month



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OFTO Operation & Maintenance Strategy

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Operation and Maintenance Strategy

- Three main areas, planned Maintenance, routine monitoring and repairs
- Planned maintenance, keep the assets operational with minimum outage downtime
- Routine monitoring, condition assessment of assets to reduce requirement for planned maintenance and prevent repairs:-
  - Carry out cable protection work to any vulnerable sections of exposed subsea cable
  - Rectification of any HV switchgear operational problems before they develop into a major failure
- Repair readiness, plan in advance for the various repair scenarios

Planned maintenance and planned outages

- Maintain as high as possible availability
- Minimise planned outages to maximise revenue
- Schedule any planned outages in summer periods which match the project specific profile, to minimise impact of revenue loss
- Maintenance strategy requires sufficient maintenance to prevent equipment failure and extended unplanned outages
- Use OEM recommendations, good industry practice and operational experience to decide maintenance frequencies & formulate the required scope of work

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Planned maintenance and planned outages

- Alignment of OFTO, wind farm operator & DNO maintenance programmes coordinated through the NETSO STC process
- Generator specified monthly profiles used to plan outages in months with least revenue impact to Generator & OFTO
- Generator revenue loss is likely to be greater than OFTO lost revenue

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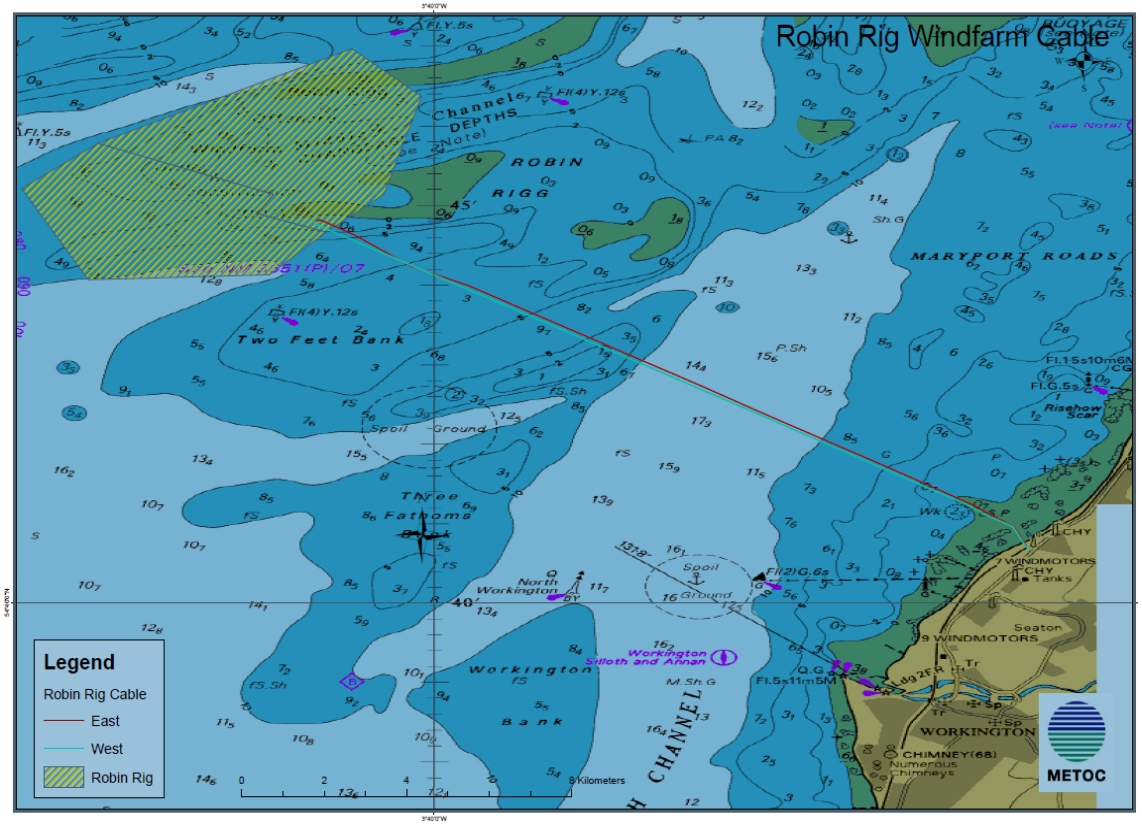
Regular Monitoring - Subsea Cable Surveys

- Subsea survey work will be undertaken and can be spilt into two types of survey:
  - Regular inspection surveys
  - ROV cable burial surveys
  - The survey work is not invasive and will not require OFTO outages



- The subsea survey work will identify any areas of cable exposure or shallow burial
- Cable protection work may be carried out to reduce the third party risk to the subsea cables

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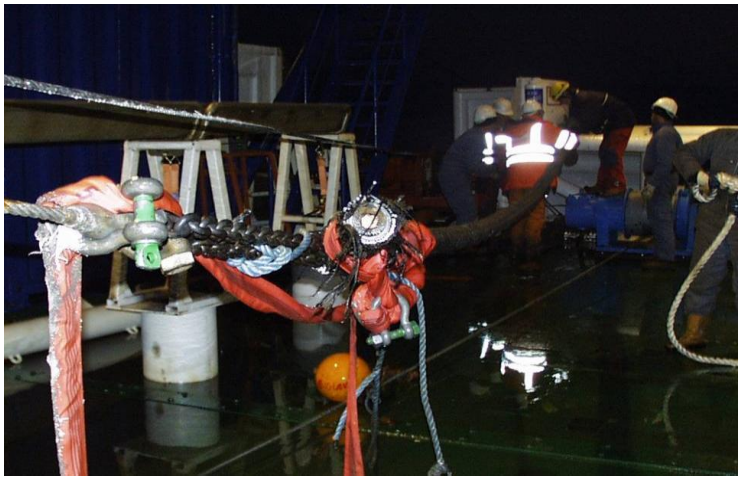
Fault Response and Repair

- Estimated repair / downtime for the different categories of faults could range from a few days to several months depending of the type of fault
- To minimise loss of base revenue and impact on incentive payments a proactive & being prepared culture as been adopted
- Planned maintenance & regular monitoring strategy is focused on preventing faults, downtime and lengthy repair activities



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Fault Response and Repair

- In spite of all preventive measures a major fault such as a subsea cable fault or offshore platform 132kV transformer fault could occur:-
- Subsea cable repairs will result in approximately 3 months of OFTO asset downtime, repair duration is weather dependant and in winter months the duration of the repair may be much longer
- Having a repair vessel on permanent stand-by would shorten repair time but stand-by costs are prohibitive. Using a vessel of opportunity is the normal method adopted by most marine repair companies
- An offshore platform 132kV transformer fault may require removal of the transformer from the offshore platform, for repair or replacement, this process may take 6 months or longer
- The financial impact on base revenue & incentive payments of the above event is significant
- The above scenarios are allowed for in the financial modelling and insurance arrangements

Tender round 2a & future tender rounds options

Tender Round 2a

- Current incentive process is complicated but works and provides a mechanism for rewarding good performance
- The incentive scheme is now understood and short term changes may not be worthwhile
- A more flexible mechanism to provide incentives and reward the OFTO for taking planned outages in periods of no or low generator output could be considered in future tender rounds

Future Tender Rounds

- Introduce a method of rewarding the OFTO if planned outages are taken when wind farm generator output is at a low level
- The summer months, in theory, are the best months to take outages
- Short duration outages could be taken outside the project specific best months and still minimise the actual loss in generator output and allow access to the offshore platforms
- Flexibility in outage planning and outage execution is required

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Availability Incentives

Ofgem Workshop, 4th April 2011

Alison Russell

Securing the UK's energy needs

centrica energy

What is the availability incentive for?

- To incentivise the OFTO to maintain availability of the transmission assets at or above target levels
- This needs to work in both short and long term
- However, does not reflect the balance of risk between OFTO and developer

A quick recap on how it works in R1…

- An incentive based on hours available during each month with overarching annual element, target assumed 98%
- Credits & debits earned/deducted each month (in MWh)
- At end of year, net debits and credits compared to target
- Net result sets out end of year/carry forward
  - Credits=debits then no penalty
  - Credits>debits, no penalty and credits carried forward or “banked”
  - Credits<debits, debits result in penalty of up to 10% base revenue + carry forward of debit balance
- Debits expire 5 years after accruing them
- Banked credits can be cashed after 5 years subject to annual maximum of 5% upside

Does it achieve the goal?

- Within the constraint, the existing design strikes a reasonable balance between short and long term incentives
- However, impact is much reduced for continuing poor performance in successive years
- 10% cap does not reflect the loss to the generator of inability to export
- Only incentivises export maintenance, not overall asset quality
- Relatively generous upside from credits, may enable OFTO to recoup where generator faces permanent loss

Possible changes within transitional rounds

Options:

- Amendment of target – for example % availability based on developer choice, with default value at 98%
  - Developers may see as attractive
  - Not clear this would pose major risk to OFTO

- Developer applications for increased OFTO exposure via licence re-opener for continuing poor performance

- Remove credit mechanism and replace with a year on year “rolling” incentive

What might a rolling incentive look like?

- This year's performance impacts next year's revenue at risk
- Within transitional round, could maintain current incentive rate i.e. for every 0.4% below target, 1% of revenue is at risk
- In year one, revenue at risk (RAR) is the default 10%, for years 2-20, RAR could be a function of the previous year's performance
- On target performance means RAR remains at 10%
- Allow an upside for performance above target

Changes for enduring regime

- Offshore is not like onshore – exposures and risks are different
- Link Revenue at Risk to estimate of generator loss
  - Estimation methodology required, to incorporate
    - Power price, ROC price & Lost generation volume estimate
- Based on year on year rolling methodology
  - Poor performance in one year affects next year only
  - Good performance will reduce next year's RAR
  - Potential % cap on annual liabilities

Panel Q&A


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