

Low Carbon Contracts Company Contracts for Difference (CFD) Investor Event

5 October 2015



Welcome and Introduction Matthew Taylor Head of Strategy and Engagement

5 October 2015

Agenda

09:00	Arrival and registration
09:30 - 09:45	Introduction
09:45 – 10:15	What is a CFD and LCCC's approach to contract management
10:15 – 11:00	CFD Process 1: From contract signature to construction: key contractual obligations that investors should be aware of
11:00 - 11:15	Coffee
11:15 – 12:00	CFD Process 2: From construction to operations: key contractual obligations that investors should be aware of
12:00 – 12:45	How does the Generator get paid?: Payment flows and Settlement
12:45 - 13:00	Lunch
13:30 – 14:30	Panel Discussion: Financeability of the CFD and maintaining investor confidence
14:30	Closing comments and depart

Disclaimer & Information

- The attached slides and material presented are provided as a series of signposts to assist in finding items in the "CFD" or "Contract" (= CFD Agreement + FIT CFD Standard Terms and Conditions).
- This presentation does not and is not intended to supersede or replace the provisions of the CfD. The presentation reflects the current approach of LCCC.
- Please note that LCCC fully reserves the right to review or change its approach at any time.
- You should not rely on this presentation, but should refer to the terms of the CFD. This
 presentation does not constitute legal, investment or professional advice and should not
 be relied up on as such. You should consult your professional advisors where you
 require advice whether legal or otherwise on the interpretation and application of the
 CFD. LCCC and ESC do not accept any liability for its contents and make no
 representations, warranties or guarantees in relation to it.



Roles and responsibilities of the LCCC

5 October 2015

About LCCC

Low Carbon Contracts Company is a governmentowned company established to be the independent counterparty to private law contracts known as "EMR CFDs".

LCCC is also committed to working in partnership with EMR delivery partners and industry to oversee the delivery of the end-to-end CFD scheme, facilitating:

- Delivery Partner Cooperation and
- Industry Readiness

LCCC also runs **Capacity Market settlement operations** on behalf of the Electricity Settlements Company.



Objectives of LCCC and ESC

Delivery First

- Proactively manage CFDs with low carbon generators in a way that builds investor confidence
- Provide accountability, governance and delivery of settlement operations

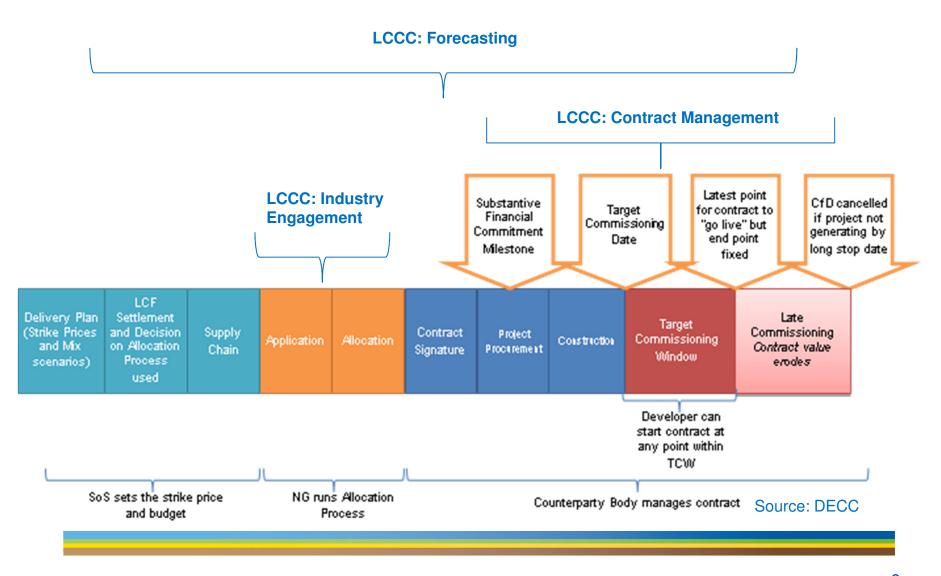
Fostering Partnerships

 Support stakeholders in Government and industry to continue to implement EMR and seek continuous improvements in its delivery

Striving for excellence

- Strive for operational excellence, through robust, reliable and transparent operations delivered efficiently and sustainably to minimise costs to consumers
- Create a great place to work built on our core values

Stages of CFD process and LCCC role





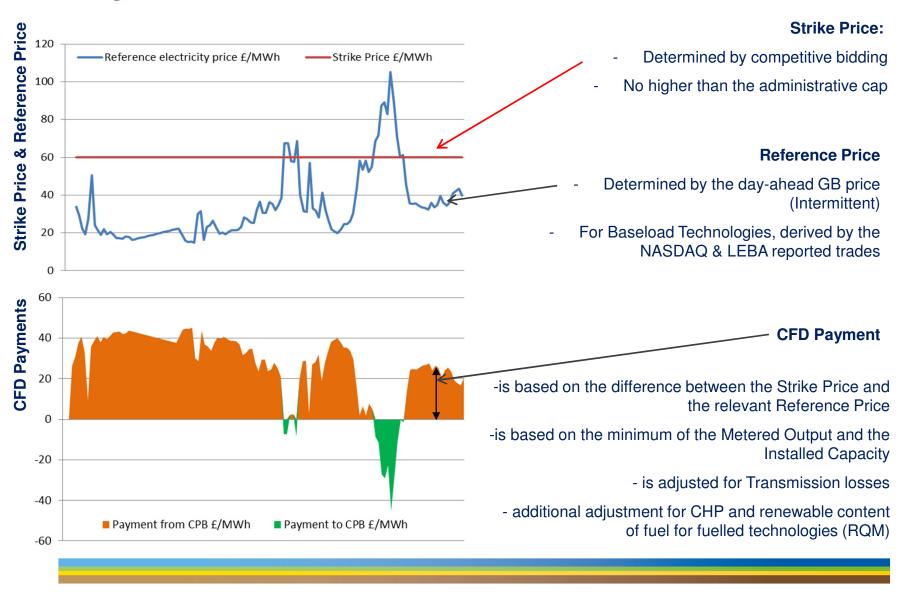
The CFD and LCCC's approach to contract management **James Rushton**

Contract Management

The structure of a CFD

- The CFD consists of the 'CFD Agreement' and 'the Standard Terms and Conditions'
- Different CFD Agreements available for phased offshore wind and private wire network generators
- For the 2014 Allocation Round the relevant documents were published by DECC, dated 29th August 2014
- DECC has consulted on proposed changes to the CFD and will publish in due course

Payment calculation under the CFD



More than just the difference payment



Benefits to developers and investors of the CFD

- Mitigation of wholesale electricity price exposure by providing a fixed strike price to developers, largely stabilising project revenue
- Private law contractual arrangement providing developers with a clear set of rights and obligations, and recourse to arbitration processes to resolve disputes
- Single counterparty owned by government and set up as a limited liability company
- Early certainty and security of support levels in the project development process
- Provisions that protect the value of the CFD to developers (e.g. change in law protection)
- 6 Limited Termination Rights



LCCC and its role in managing CFDs

Contracts under management (1)

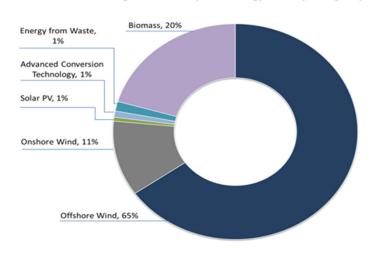


^{*} FiDER: Final Investment Decision enabling for Renewables: an earlier form of CFD contract

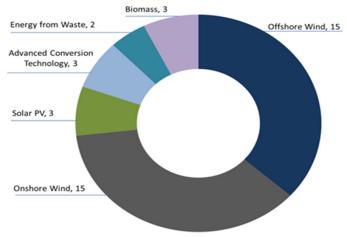
Contracts under management (2)

Percentage of total MWs per technology currently managed by LCCC

- 41 contracts under management, totalling over
 6.6 GWs
- Offshore Wind, Onshore Wind, Energy from Waste, Advanced Conversion Technology (ACT) Biomass and Solar PV represented in the mix
- A range of technologies demonstrating industry confidence in CFDs









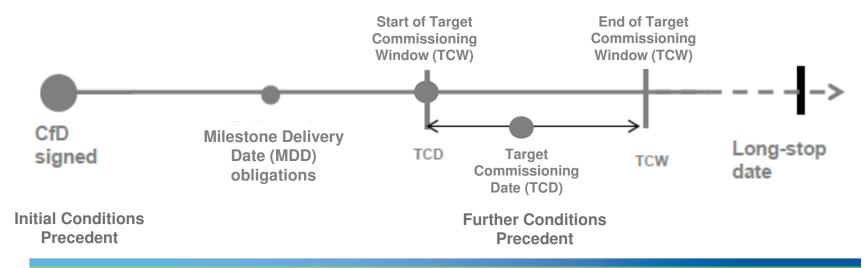
Contractual obligations

Delivery obligations that Investors need to be aware of

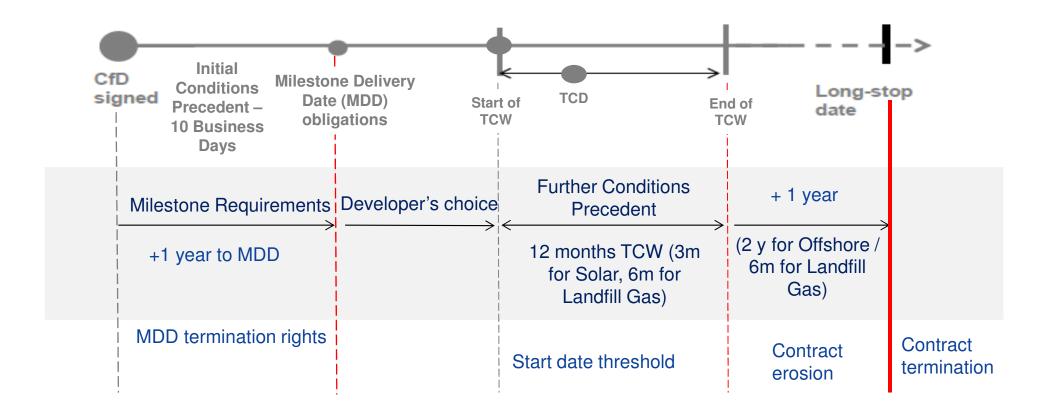
Defined by the CFD

Key milestones:

- Initial Conditions Precedent mainly administrative
- Milestone Delivery Date obligations evidence of significant financial commitment; 10% actually spent or entry into contracts with suppliers and finance providers
- Further Conditions Precedent commissioning and operational requirements



Delivery obligations





LCCC approach to Contract Management

Contracts under management

- •All Generators fulfilled their Initial Conditions Precedent
- •3 of the FiDER contracts (earlier form of CFD) successfully met their Milestone Requirements by their MDD earlier this year
- •The other FiDER* and generic CFDs have Milestone Delivery Dates by Q1 2016
- * with the exception of 2 FiDER projects pending state aid approval

Approach to contract management

- Proactive contract management approach focussed on generation outcomes
- Use of web site to post
 - standardised documentation (Contract Notices)
 - guidance (KYC, Milestone Requirements)
- Feedback always welcome
 - Topics covered in future events
 - Material available on web site

Contract Management Team

- Each generator has a dedicated Contract Manager
- Each Contract Manager covers all the projects that are operated by a Company or Group.
 - Website www.lowcarboncontracts.uk
 - Email: contractmanagement@lowcarboncontracts.uk



James Rushton



Nic Rigby



Puk Lykke-Moller



Leo Papanikolaou



Arezou Farhadi



Stephanie Houston



Maris Koivastik



CFD Process 1 - From contract signature to construction Key contractual obligations that Investors should be aware of

Puk Lykke-Moller Lead Contract Manager

Outline

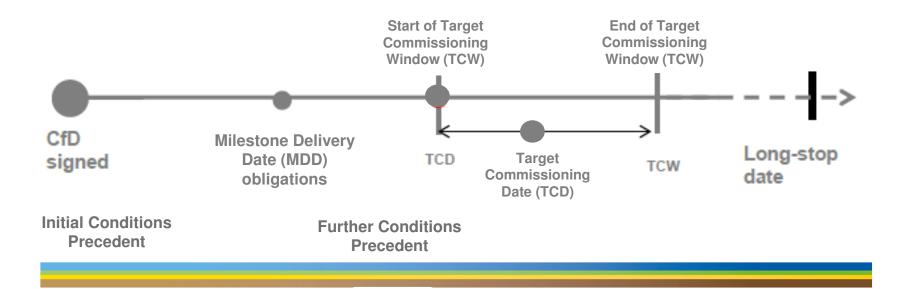
- The CFD Contract and delivery obligations
- Initial Conditions Precedent
- Milestone Requirements
- Failure to meet contractual obligations

The CFD Contract and delivery obligations

Defined by the CFD

Key milestones:

- Initial Conditions Precedent mainly administrative
- Milestone Delivery Date obligations evidence of commitment; 10% spent or project commitments
- Further Conditions Precedent commissioning and operational requirements



Initial Conditions Precedent

- Generators must fulfil the Initial Conditions Precedent (Schedule1) within 10 Business Days of the Agreement date (date Generator signs the Contract)
- Legal opinion from independent external Legal advisor that the Generator is duly formed and has the power to enter into the contract (there is a template opinion available on our website)
- Identification "Know Your Customer" checks
- Description of facility and provide a map of the facility

Milestone Requirements

- Within 12 months of contract signature generator must satisfy one of two tests:
 - ✓ By incurring actual spend (not "committed spend") equal to 10% of the expected development and construction costs (Total Project Pre-Commissioning Costs, a value determined in the Contract) of the technology;

OR

- ✓ By evidencing a board decision to undertake the 'Project', that contracts are in place for the material equipment, that there is sufficient finance available and a number of other requirements. Note there are additional technology specific requirements.
- Evidence of meeting test to be accompanied by a Director's Certificate confirming that the Director(s) have made careful enquiries in relation to the information provided alongside the certificate.

Commercial driver behind Milestone Requirement Critical path driven by generator Critical path driven by contract Year: A-3 A-2 A-1 A A+1 A+2 A+3 A+4 A+5 A+6

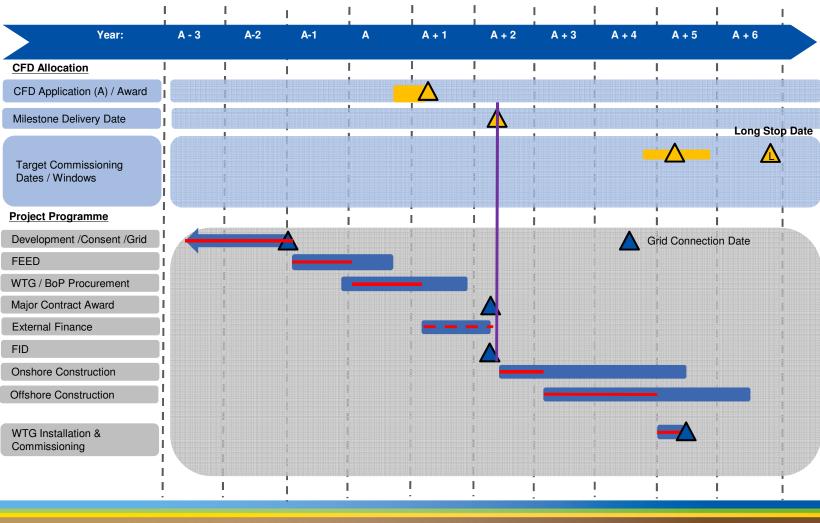
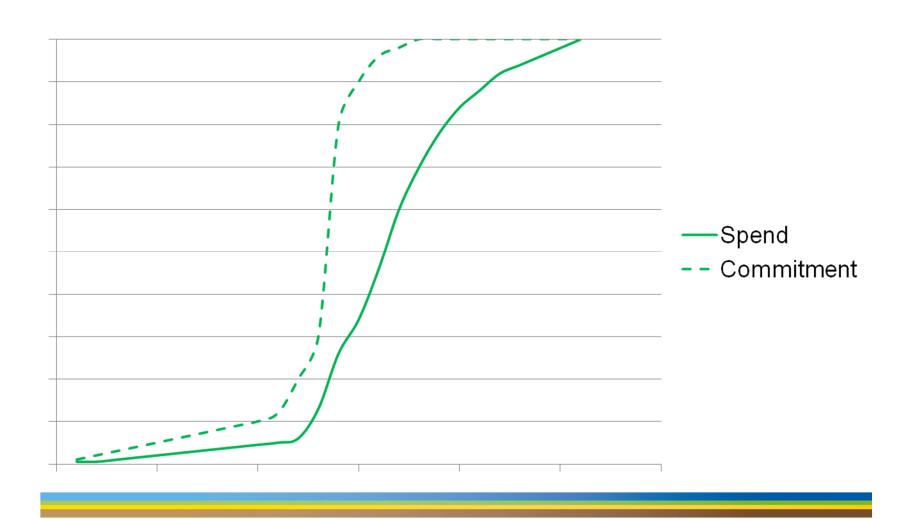
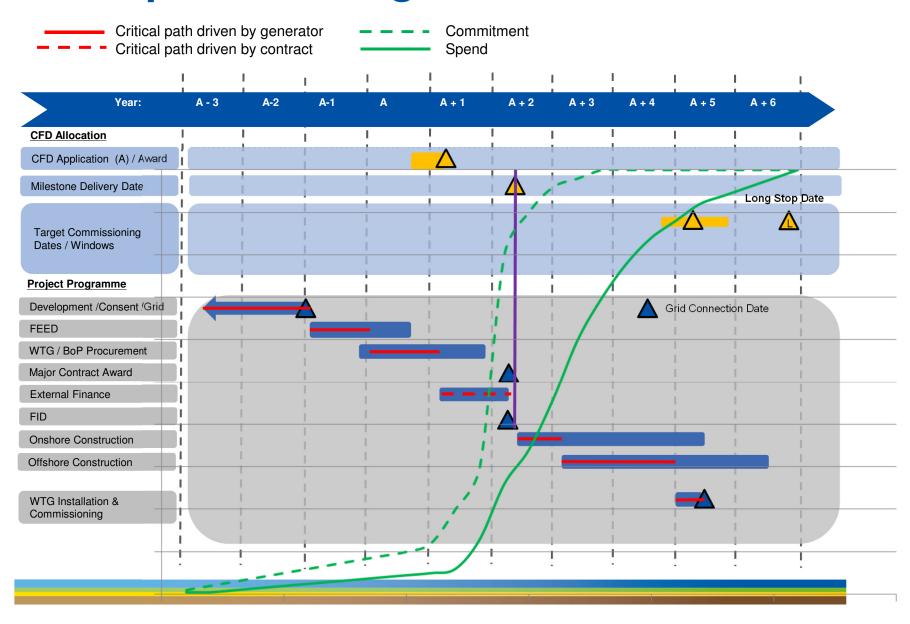


Illustration of Financial Exposure



Example CFD Programme: Offshore



Failure to meet contract obligations (1)

- Pre Start Date; LCCC has termination rights if:
 - Milestone Requirement not fulfilled by MDD
 - Director's Certificate materially inaccurate or misleading
 - Termination Event
 - Any of the Initial Conditions Precedent not fulfilled within 10 Business Days of the Agreement Date
 - Any of the Operational Conditions Precedent not fulfilled by Longstop Date
 - State Aid Condition Precedent

Failure to meet contractual obligations (2)

Default Termination:

- Generator Insolvency
- Non-payment
- Transfer of Rights or Obligations or non Ownership of the Facility
- Fraud in relation to CFD
- Shortfall in Final Installed Capacity or failure to give Final Installed Capacity Notice
- Metering (Technical Compliance or Metering Access)



The CFD Process (2) From construction to operations Key contractual obligations that Investors should be aware of

Nic Rigby Head of Contract Management

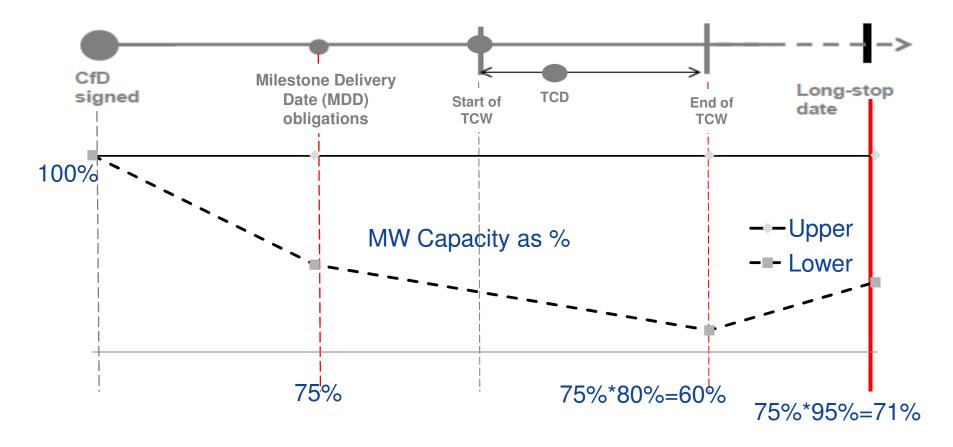
Outline

- Capacity
- Further Conditions Precedent and Start Date
- Contract Tenure (Years of revenue)
- Credit support and Step-In
- Post Start Date Termination Events

Capacity

- At no point in the contract lifecycle can capacity be increased
 - MWs won in the auction should therefore be based on maximum expected
- No later than Milestone Delivery Date MWs can be reduced by 25%, 1 occasion only and irrevocable – sets a new Installed Capacity Estimate (ICE)
- Prior to Long Stop Date minus 3 months Generator can make a case for a
 Relevant Construction Event, 1 occasion only and irrevocable sets a new ICE
- By the Start Date the 80% of the ICE must have been Commissioned
- By the Long Stop Date 95% (or 85% Offshore Wind) of the ICE must have been Commissioned
- Final Installed Capacity = capacity commissioned by the LongStop Date

Capacity - Timeline



 + Capacity can be reduced due to a Relevant Construction Event any time up to 3 months before LongStop Date

Capacity - Relevant Construction Event

Must meet two tests:

- First Awareness
 - Acting with a 'Reasonable and Prudent Standard'
 - Made due and careful enquiries would have not been aware
 - Not aware at the CFD application date
- Second Nature of event
 - Renders construction or commissioning of the Installed Capacity Estimate uneconomic

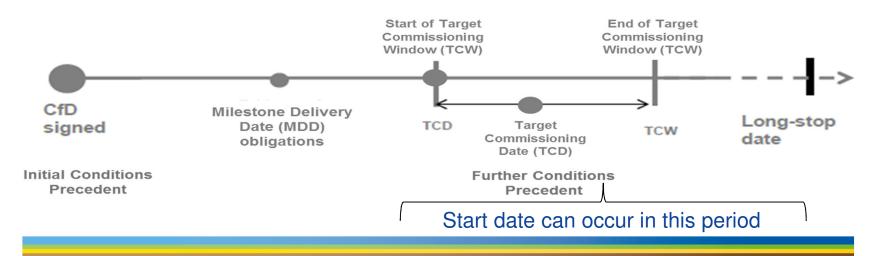
Further Conditions Precedent

- 80% of Installed Capacity Estimate commissioned
- Written confirmation from EMRS that Generator is ready for settlement system
- Compliance with Metering Compliance Obligations
- Certified electrical schematic diagram
- Communication equipment related to metering
- CHPQA Certificate and FMS (if applicable)
- 3 months notice of Start Date from Embedded Generators
- Market Supply Agreement from Embedded Generators

Failure to satisfy the Further Conditions Precedent by the LongStop Date may result in a termination event

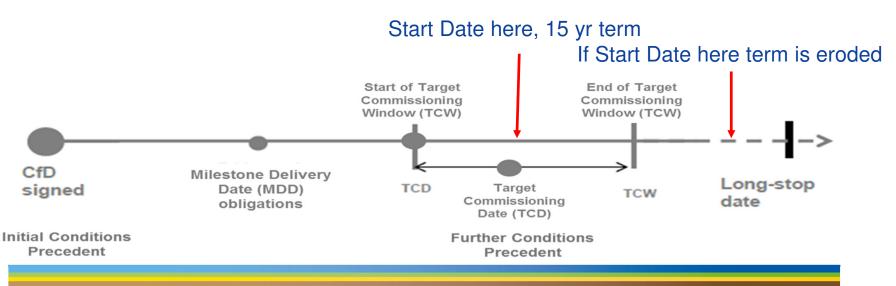
Start date

- After fulfilment of the last of the Operational Conditions Precedent the Generator is to submit a Start date Notice
- The Start date cannot be
 - earlier than first day of the Target Commissioning Window
 - Later than the LongStop Date
- Final Installed Capacity Notice is last notice to be submitted, following the Start Date and no later than 10 Business Days after the Longstop Date



Contract Tenure

- 15 Years of revenue commencing from the earlier of
 - Start Date
 - End of Target Commissioning Window
 - Contract duration is eroded if commissioning takes place after the end of the Target Commissioning Window and before the Longstop Date
- MWhs paid for is lesser of
 - metered Generation in the Settlement Unit
 - Installed Capacity Estimate or Final installed Capacity



Credit Support and Step In

- The Facility and the CFD must be in the same ownership
 - "stapling" breach is a Termination Event
- Failure to pay by a Generator on 3 occasions in 12 months requires the posting of collateral
- Lenders can request a LCCC/ Generator/ Lender Direct Agreement in the form given in Annex 3
 - initiated in the event of Default Termination or Pre Start Date Termination
 - 120 days of Step-In

Post Start Date Termination Events

- Known as Default Termination and is CFD Counterparty Enforcement Action
- Insolvency
- Non-payment (10 day cure period)
- Credit Support Default
- Transfer of Rights or Obligations or non Ownership of the Facility
- Fraud in relation to CFD
- Shortfall in Final Installed Capacity
- Metering
 - Technical Compliance (Metering Remediation Plan)
 - Access

Consequences of termination

- Pre Start Termination results in no payments
- 13 month lock out from Agreement Date
- Default Termination results in payment of net discounted cash flow to Low Carbon Contracts if less than 0
- Qualifying Change in Law could also lead to Termination, compensation principles applying to Change in Law is discussed separately



How does the Generator get paid? Payment flows and Settlement

Helen Turner
Chief Financial Officer

Outline

- Payments to generators
- LCCC funding sources and funding flows
- Payment timing
- Mechanisms to manage uncertainty

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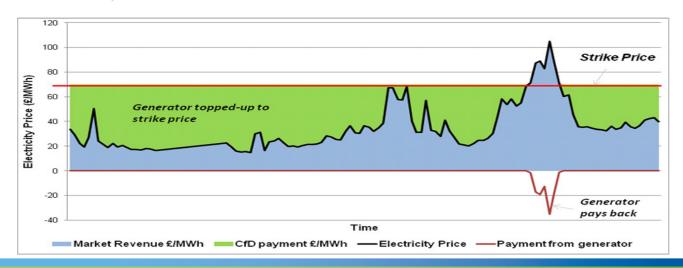
Payments to Generators

CFDs designed to provide long-term price certainty for low-carbon technologies

CFDs pay a variable 'top-up' to generators,

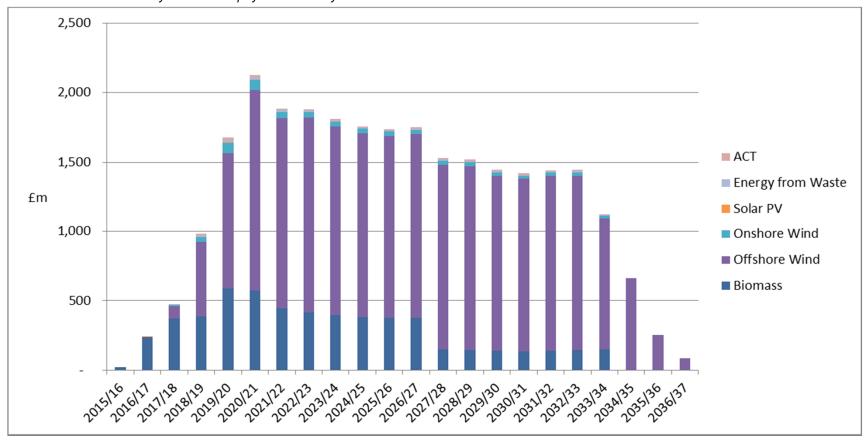
$$\left((StrikePrice)_{\left(\frac{\underline{\varepsilon}}{MWh}\right)} - MarketReferencePrice_{\left(\frac{\underline{\varepsilon}}{MWh}\right)} \right) * Generation_{(MWh)}$$

- Strike Price: Price determined by auction
- Market Reference Price: Measure of the average price of electricity

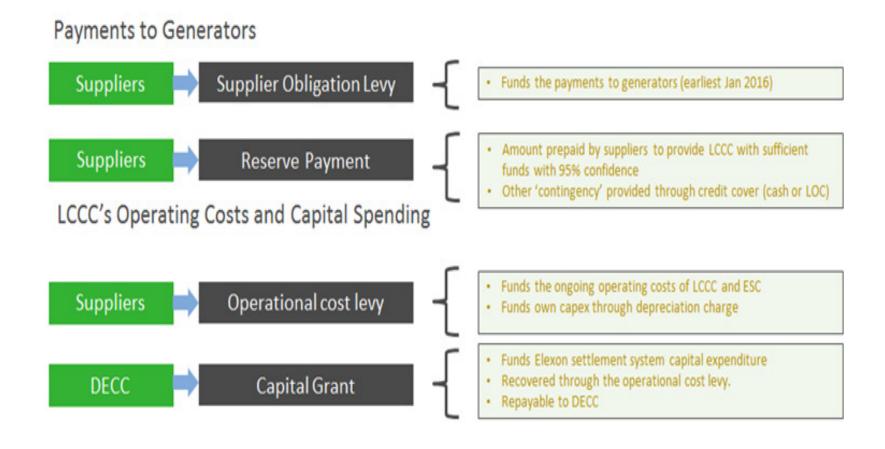


Payments to Generators-Investment Contracts and Round 1 CFDs

N.B. this is an indicative example of payments for the purposes of illustration only, and is not a forecast of the expected payments or levy applicable to Suppliers. Generators, Investors and Suppliers should not rely on this as an indication of the likely level of the payments or levy rates.



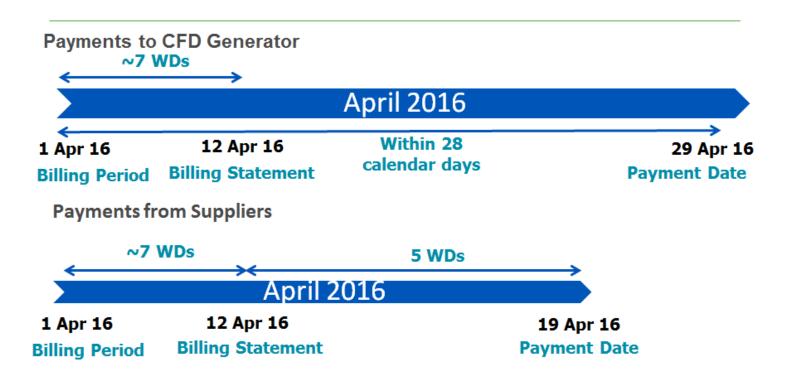
Funding sources



What is variable?

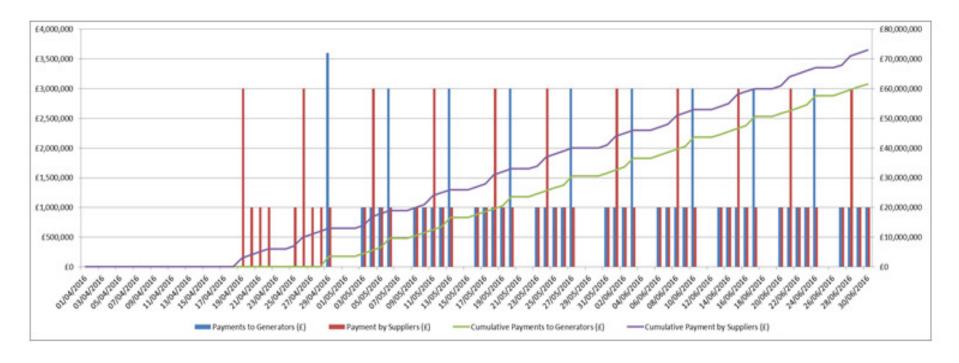
Payment Types		Total or Rate	Metered volumes	
CFD	Supplier Obligation Interim Levy Rate	Interim Levy Rate will vary on a quarterly basis	Supplier's metered volumes will vary daily in the calculation	
	Reserve Payment	Total Reserve Amount will vary on a quarterly basis	Supplier's metered volumes will vary within the reference period in the calculation	
	Supplier Operational Levy	Operational Levy will vary on an annual basis	Supplier's metered volumes will vary daily in the calculation	

Payment timing



Cash payments under the SO Levy – 2016 Q2

Daily cash flows under the SO Interim Levy Rate (excludes Total Reserve Amount)



CFD Reserve Payment



Reserve payment to cover 19 in 20 probability of being able to pay generators on time

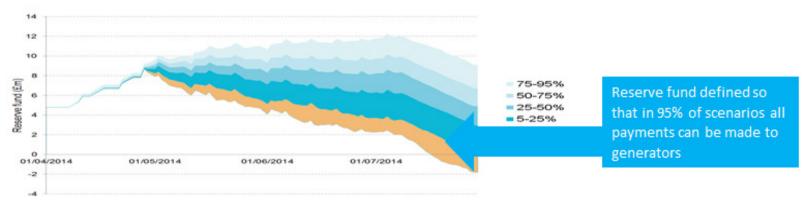
Forecasting Interim Levy Rate and Total Reserve Amount

CFD Supplier Obligation

 Suppliers will make pre-payments consisting of unit cost fixed rate, charged as a £/MWh rate on a daily basis, and lump sum 'reserve' payments at the start of each levy period for each quarter.

•
$$SO \ Levy_{(£/MWh)} = \frac{Total \ Payments \ to \ Generators_{(£)}}{Total \ Demand_{(MWh)}}$$

 Regulations require that the total reserve amount must be sized to give the Counterparty 95% confidence that it can make all payments in that levy period.

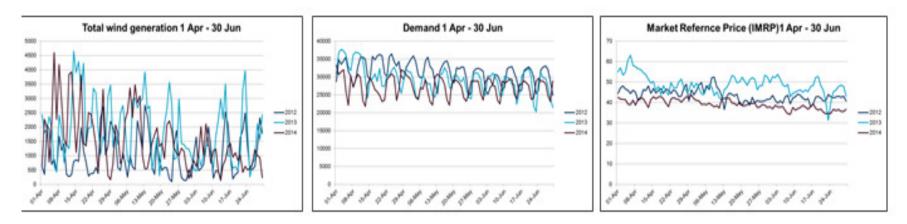


*Illustrative example

Forecasting CFD Payments

- Interim Levy Rate (£/MWh) and Total Reserve Amount is set 3 months in advance
- Key variables can change considerably from the time of forecast to when realised.

$$\textit{SO Levy}_{(\texttt{£}/\textit{MWh})} = \frac{(\textit{StrikePrice}_{(\texttt{£}/\textit{MWh})} - \textit{MarketReferencePrice}_{(\texttt{£}/\textit{MWh})}) * \textit{Generation}_{(\textit{MWh})}}{\textit{Total Demand}_{(\textit{MWh})}}$$



LCCC uses its Supplier Obligation Forecasting Model (SOFM) to set the interim rate and size of reserve payments and a Transparency Tool to explain our calculations to suppliers.

*Illustrative example

Approach to setting the Interim Rate

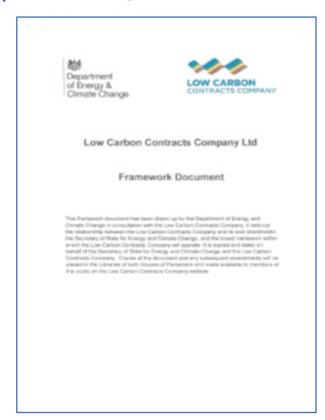
Our Framework Document sets our roles and responsibilities, how we are

governed, and in particular our guiding principle:

 "maintain investor confidence in the CFD regime and minimise costs to consumers"



To ensure prompt generator payment while not imposing undue burden on suppliers.



Tools to deliver the policy objective

Interim Levy Rate	 Payments by Suppliers on account
Total Reserve Amount	19 in 20 probability of being able to pay on time (reserve not set for extreme events – would burden suppliers unduly)
In Period Adjustments	 Unexpected events outside of 19 in 20 window (with 30 days notice to give Suppliers time to pay)

In-period adjustment

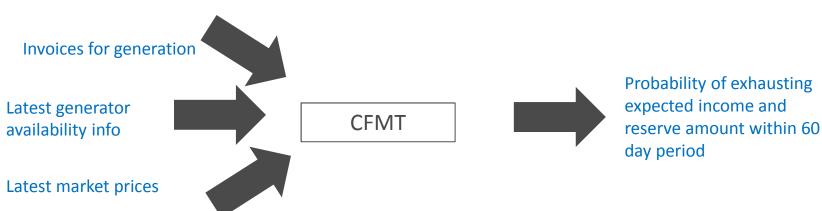
- Regulations give LCCC the ability to make in period adjustments
- The Contracts for Difference (Electricity Supplier Obligations) Regulations 2014 provides:
 - We are allowed (not obliged), to make in period adjustments:
 - To increase or reduce the Interim Levy Rate
 - To increase the Total reserve Amount (but not reduce)
 - Notice is 30 days

Drivers of uncertainty

- Generation start early/late
 - Potentially sudden change in expectations
 - We work closely with generators to minimise risks of uncertainty to this planned start date
- Plant outage (higher or lower than expected)
- Market price change (= Reference price change)
 - IMRP more risky than BMRP
 - BMRP risk much lower for Jul/Sept and Jan/March
- Intermittent generation (wind/solar)

Internal Alerts

We will move to enhanced monitoring when 60 day zero outlook exceeds 50%



The Contracts for Differences (Electricity Supplier Obligations) Regulations 2014

The CFD counterparty must take such steps as it considers necessary to ensure that electricity suppliers are kept informed of the likelihood that it will be unable to make all payments it is required to make to CFD parties during a quarterly obligation period.

If we move to enhanced monitoring, we

- will re-forecast our cash position more frequently
- may choose to highlight the increased risk of an in period adjustment through our Transparency Tool or other communications



Transparency

- Our assumption set is transparent (date of calculation, generation start date, load factor assumptions)
- If the risk of requiring more money in the near term increases significantly, we will move to enhanced monitoring of cash flow requirements
- Currently minded that criteria for enhanced monitoring will be related to the probability of cash shortfall within 60 days (to give us enough time to react, give notice and collect cash)
- We have created a Cash flow Forecast Monitoring Tool (CFMT) to assist us

In summary – managing uncertainty...

We aim to minimise the risk of unexpected impacts on cash flows

- •Our interim rate is set based on latest information (including generator updates about status under the contract)
- •Our reserve amount should prove sufficient in 19 out of 20 cases, so requests for in period adjustments are minimised
- •Timing between payments from suppliers and cash payments made to generators have been set to minimise the risk of shortfall
- •Suppliers get a minimum of 30 days' notice of changes if we need to ask for more (through an in-period adjustment)
- •We are working on proposals for enhanced transparency which may include early warning alerts when we moved to enhanced internal monitoring

Mechanisms to manage supplier payments

Credit Cover

- Lodged collateral will be called to cover late payments of:
 - Interim rate
 - Reserve Amount payment
 - Mutualisation
- Credit cover is cash or letter of credit
- Supplier must lodge collateral sufficient for 21 days of Interim Levy Rate payments

Mutualisation

- If suppliers do not pay invoices within 2 days of the due date
 - LCCC can draw down credit cover to cover the non-payment
- If the defaulting supplier has insufficient credit to cover its payments
 - LCCC can trigger mutualisation
- Mutualisation is when overdue amounts from a defaulting supplier are paid by all non-defaulting suppliers in proportion to their market share

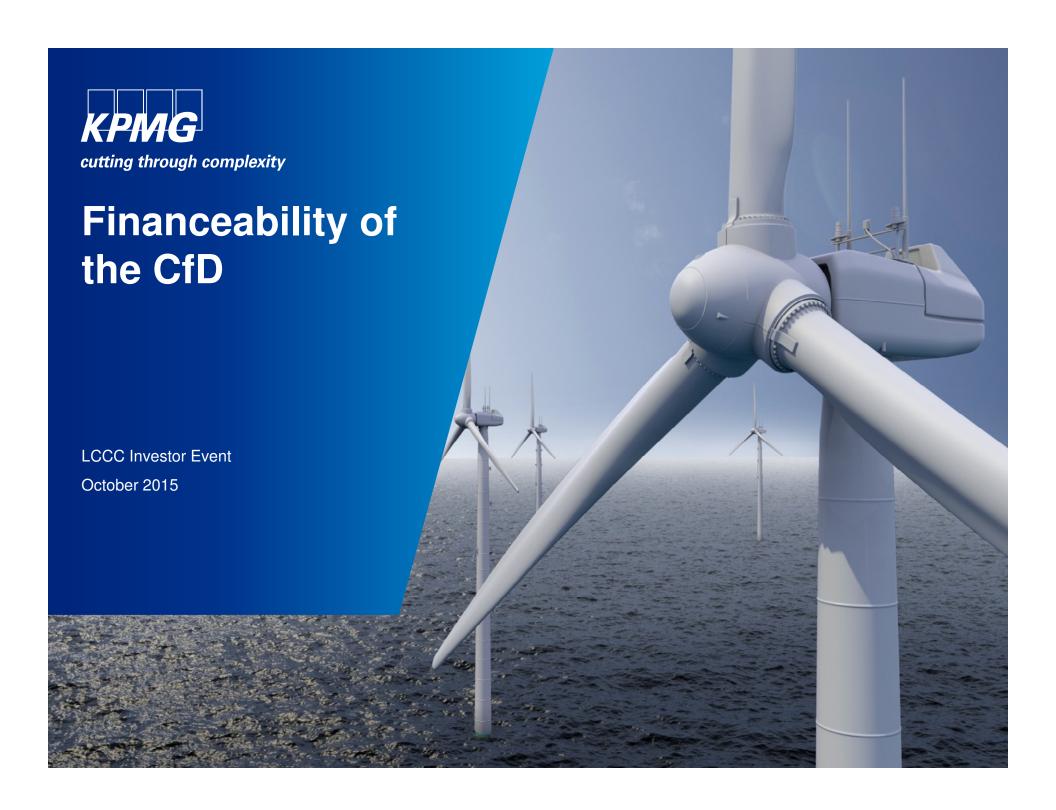


Panel discussion: Financeability of the CFD and maintaining Investor confidence

CFD designed to preserve the value of the strike price: but comes with obligations

- Strike price, CPI, BSUoS,
 Transmission Losses
- Qualifying Change in Law
- Qualifying Shutdown Event
- Generation Tax
- Curtailment

LCCC objective is "to proactively manage CFDs in a way that builds investor confidence...by adopting a proactive contract management approach that focuses on early engagement and clear and straightforward communication with generators."



The CfD – Key commercial issues

Certainty of payment flows

- Pay when paid principle
- Credit enhancement (collateral/SoLR)
- Risk/Buffer fund



Ability to achieve reference price

- Basis risk
- PPA Discount



Change in law protection

- Breadth of coverage
- Trigger event(s)
- Compensation amount



Overall regulatory framework – EMR is a paradigm shift in low carbon support mechanism design

Termination events

- Number of events
- Trigger
- Impact on project economics



Other key commercial terms

- Term
- Inflation



Route to market

PPA versus Trading Services Agreement



Will CfDs be harder or easier to finance than ROs?

Risk area	Risk characteristics under RO	Risk characteristics under CfD	Risk characteristics under PPP	Impact on risk profile of moving to CfD
Revenue risk	 Changes in the wholesale power price and ROC recycle price have direct impacts on project revenue 	 Changes in the wholesale power price do not have direct impacts on project revenue (subject to PPA) There is a risk that the generator will not achieve the full Strike Price (see below) 	■ Generally availability based	
Long-term PPA	 A PPA is required to sell power 15 year contract strictures currently provide a fixed discount profile 	 A PPA is required to sell power The PPA will not require a floor price therefore there is no adverse impact on the offtaker's credit rating 	■ N/A	

- Increase in risk profile under CfD
- Substantially no change in risk profile under CfD
- Decrease in risk profile under CfD

Will CfDs be harder or easier to finance than ROs? (cont.)

Risk area	Risk characteristics under RO	Risk characteristics under CfD	Risk characteristics under PPP	Impact on risk profile of moving to CfD
Political risk	 Reliance on grandfathering RO is primary legislation UK government does not have a history of retroactively changing energy policy 	 Strike Price set in a contract with Change in Law (CiL) clause Removes reliance on implicit assurance of grandfathering 	 Contractual protection under voluntary termination 	
Credit risk	 Counterparty is the PPA provider The ROC is a tradable certificate and therefore can be sold to alternative offtakers in the event of offtaker default 	 Credit risk for the CfD is presented in the form of the LCCC rather than the offtaker 	 Counterparty either central Government or local authority supported directly by central Government 	

Increase in risk profile under CfD

Substantially no change in risk profile under CfD

Decrease in risk profile under CfD

Will CfDs be harder or easier to finance than ROs? (cont.)

Risk area	Risk characteristics under RO	Risk characteristics under CfD	Risk characteristics under PPP	Impact on risk profile of moving to CfD
Change in law	CiL driven by PPA terms. In practise the burden of CiL is likely to be shared between generators and offtakers CiL driven by PPA terms.	 The CiL provisions under CfD are highly detailed and complex Contractual protection for the CfD is provided for both specific and discriminatory changes so cover is wider than the RO in some cases, but is still limited in other cases Achieve price certainty at contract signature – far earlier than RO plant 	 Established CiL position Protection for specific and discriminatory change in law No general change in law protection during construction Capped exposure to general CiL in operations 	

- Increase in risk profile under CfD
- Substantially no change in risk profile under CfD
- Decrease in risk profile under CfD

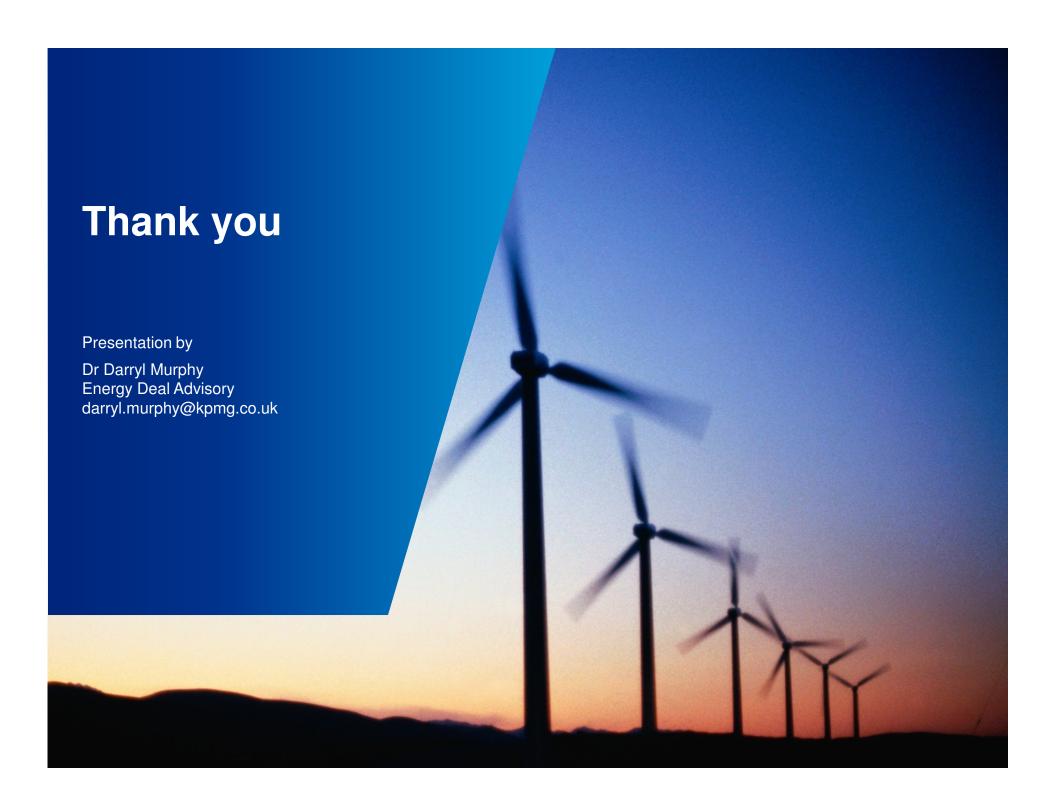
Will CfDs be harder or easier to finance than ROs? (cont.)

Risk area	Risk characteristics under RO	Risk characteristics under CfD	Risk characteristics under PPP	Impact on risk profile of moving to CfD
Indexation	■ RO is linked to RPI	 The Strike Price is fully indexed at CPI Potential upside from the move to CfD if debt is financed in high inflation periods 	 Contract either fully or partially indexed to RPI 	
Novelty risk	RO is a well understood mechanism	The CfD mechanism is new and untested	Well established in UK	
Transmissio n charging and curtailment risk	 Under RO this risk is allocated between the generator and the offtaker 	The risk is more limited under the CfD, but important protection is being provided to generators for transmission charging and curtailment	■ N/A	

Increase in risk profile under CfD

Substantially no change in risk profile under CfD

Decrease in risk profile under CfD



LCCC – A project perspective





MGT Biomass Project

- 299MW dedicated biomass in Teeside
- Received FIDeR CFD in Apr 13
- The project received State Aid approval in Jan '15
- Macquarie Capital acting as FA and sponsor

Engagement with LCCC

- CFD transferred to LCCC and project assigned a Case Officer
- Extension agreed to milestone dates as a result of State Aid delays

LCCC – A project perspective





LCCC Engagement Key Lessons

- LCCC has been set up to deliver projects
- Clear from our engagement that LCCC will do what they can to help projects succeed within the CFD framework
- Regular dialogue is very important
- Open sharing of information particularly to ensure any issues or risks to delay should be highlighted early to be solved