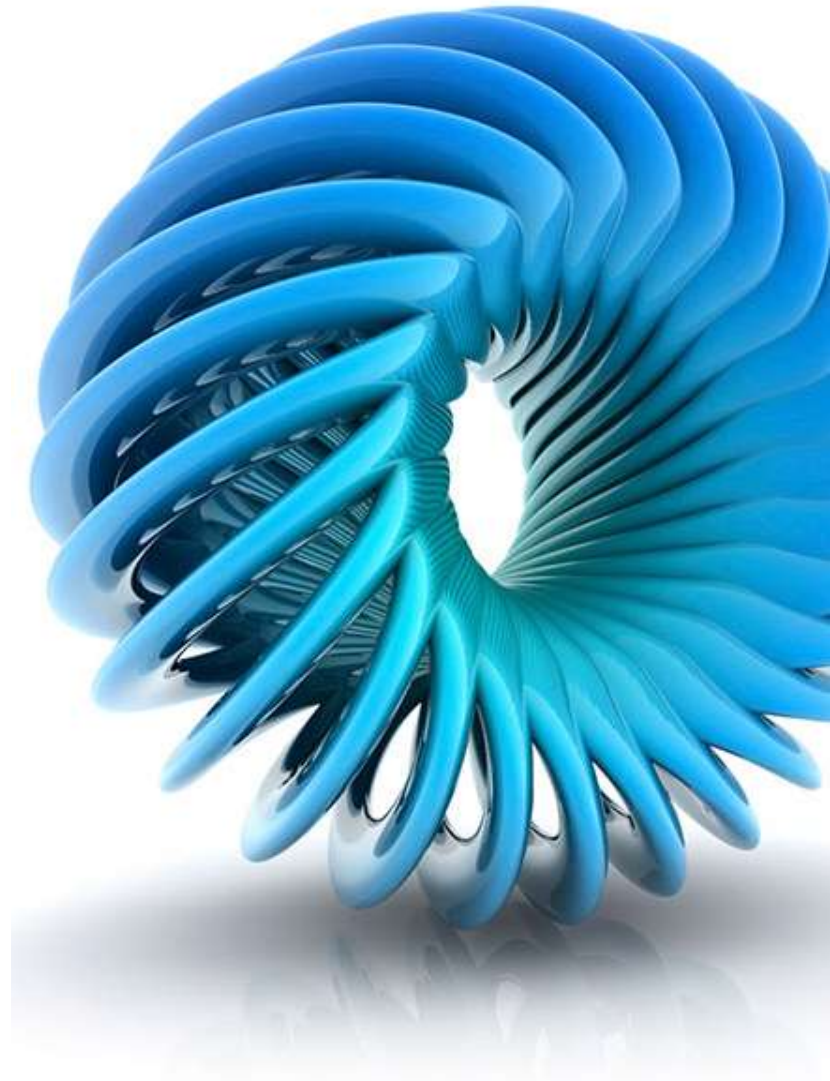


ALLEN & OVERY

17 October 2013

Update on EMR



Chris Andrew and Mark Walker

The UK Energy Policy Trilemma

Security of Supply

- In the next decade a fifth of existing UK generating capacity will come off-line. DECC estimate electricity demand growth of 30% - 100% by 2050.

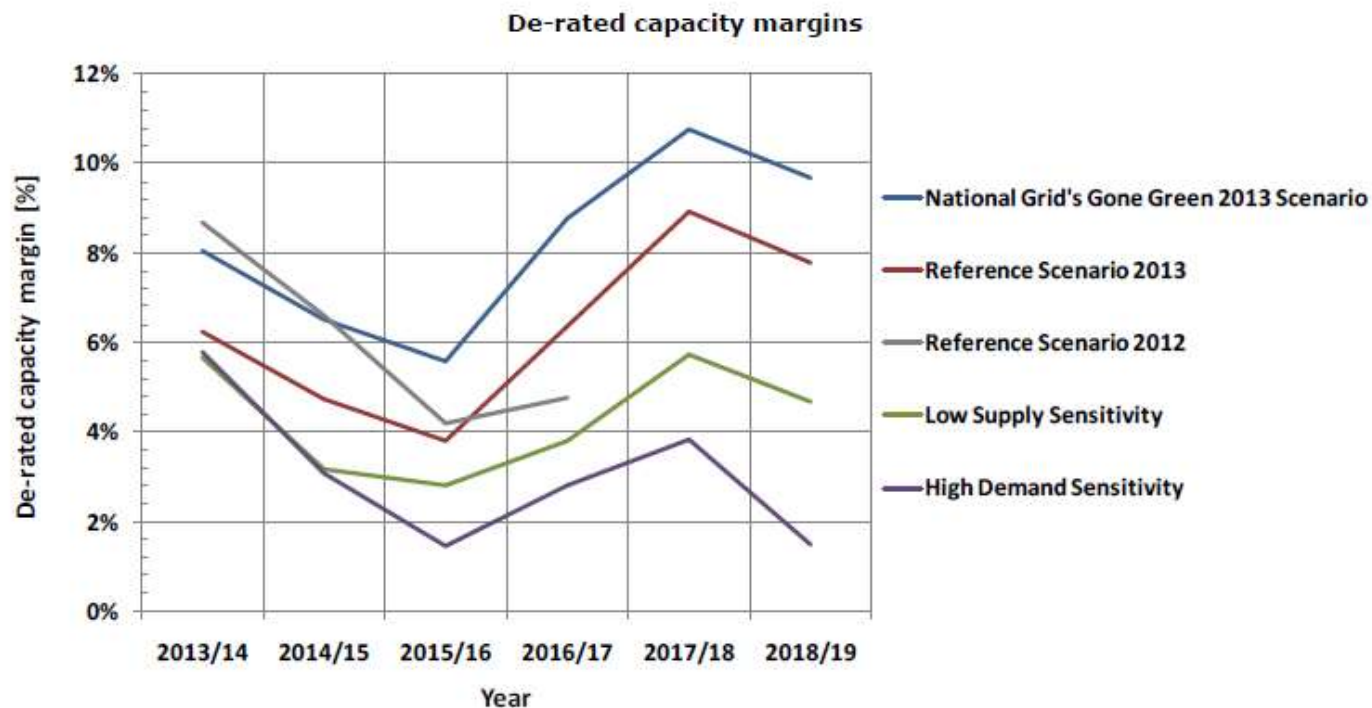
Decarbonisation

- DECC's 2050 Pathways analysis shows that the decarbonisation of the generation sector by around 2030 is effectively a necessity for meeting the legal requirements of the 2008 Climate Change Act to reduce CO₂ emissions by 80% 1990 – 2050.
- The Fourth Carbon Budget commits UK to 50% reduction by 2027, but a 2014 review will revise up the UK carbon budget to align with the EU, if the latter is on a different trajectory.
- The EU published in March 2013 a Green Paper on a 2030 framework for climate and energy policies; the UK Government Response support ambitious emissions reduction targets, but does not support a renewable energy target.

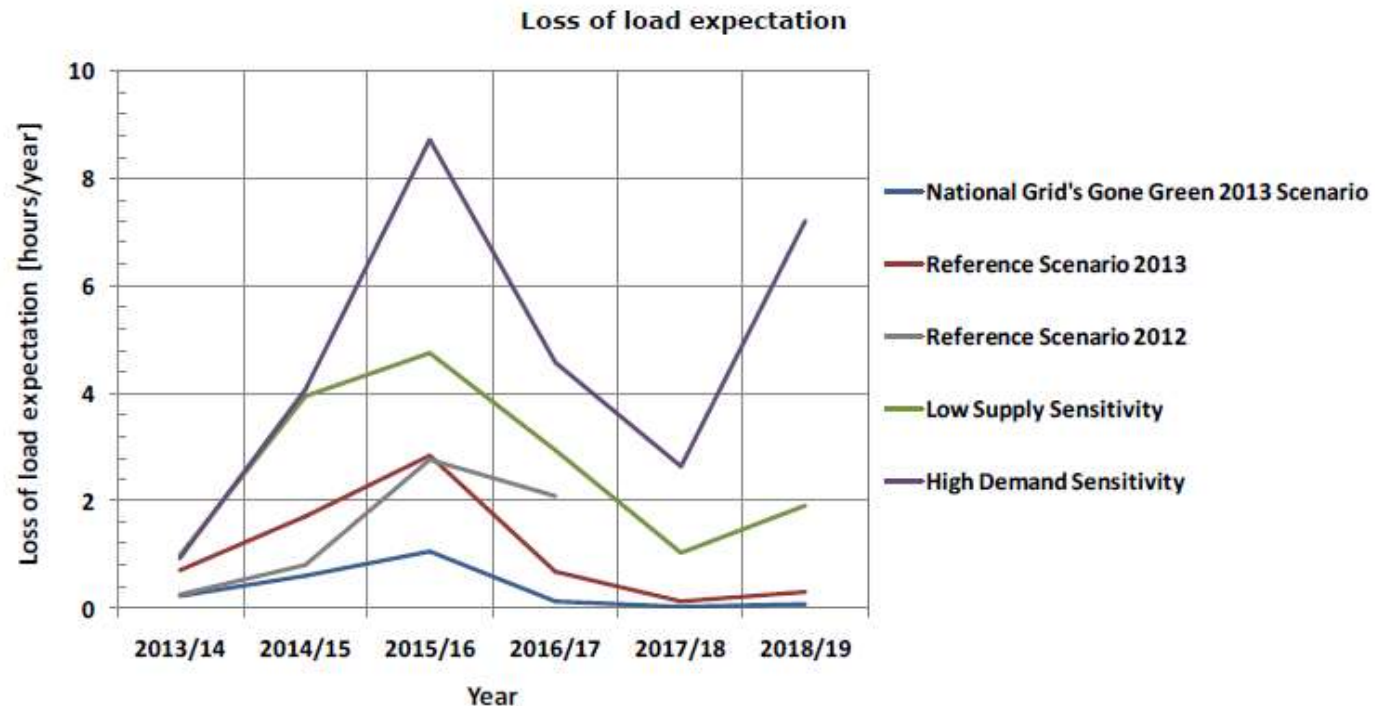
Affordability

- Between now and 2020 required expenditure on UK energy infrastructure is estimated at £110bn.
- Government acknowledges that consumer prices will rise. It no longer claims that EMR will reduce the effects of rising fossil fuel prices (as this is dependant on assumptions as to future fossil fuel prices), rather that EMR is a cheaper (10%) way of achieving 2030 carbon targets.
- The Levy Control Framework implies a subsidy (over and above the Carbon Price Floor) for large-scale low-carbon generation of £7.6bn (2012 prices) in 2020/21.

Ofgem Electricity Capacity Assessment June 2013 (1)

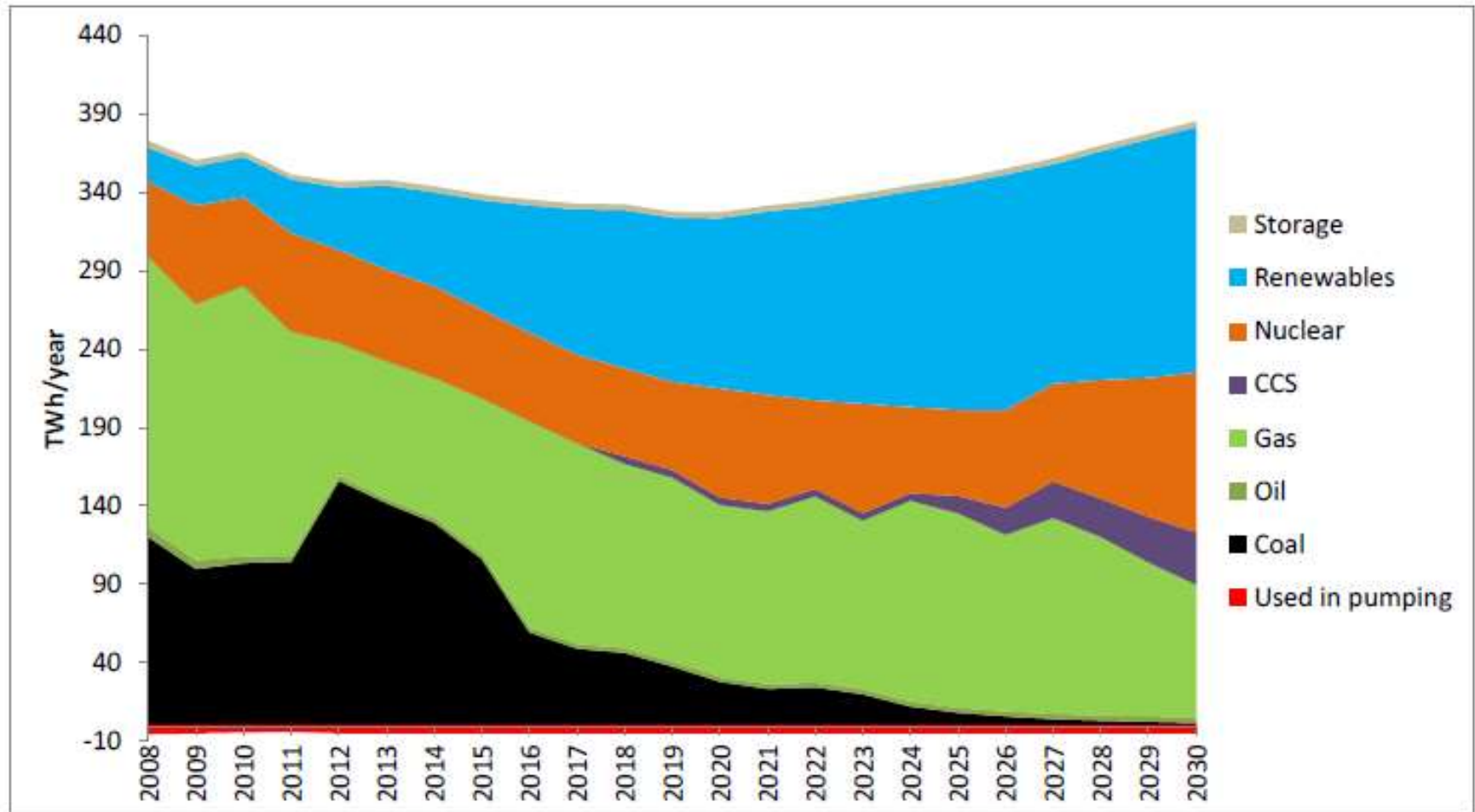


Ofgem Electricity Capacity Assessment June 2013 (2)



Note the proposed reliability standard for the EMR Capacity Market is LOLE of 3 hours/year.

Electricity supply by primary energy for all generators, 2010 to 2030



Source: DECC Energy and Emissions Projections – September 2013

Electricity Market Reform (EMR)

Contract for Differences (CfD)

Capacity Market

Carbon Price Floor

Emissions Performance Standard

Enhanced Wholesale Liquidity

“In the new, reformed UK electricity market, the economics of low carbon will stack up like nowhere else in the world.”

“The reforms are designed to provide investors with transparency, longevity and certainty in order to attract £110 billion of investment to bring forward new low-carbon generation for the 21st Century.”

Wholesale Electricity Price support - CfD

- Contracts for Difference (**CfD**) offered by a CfD Counterparty intended to provide low carbon generators a guaranteed tariff calculated as the difference between a strike price and a reference price taken from the wholesale electricity market.
- CfD replaces the 'pull' of the Renewables Obligation.
- CfD expected to be available from H2 2014.
- Generation not already accredited when the CfD is introduced will generally have a choice between CfD and RO until 31 March 2017.

Draft CfD Strike Prices (June 2013 consultation)

Technologies with Over 1 Gigawatt of Potential Deployment

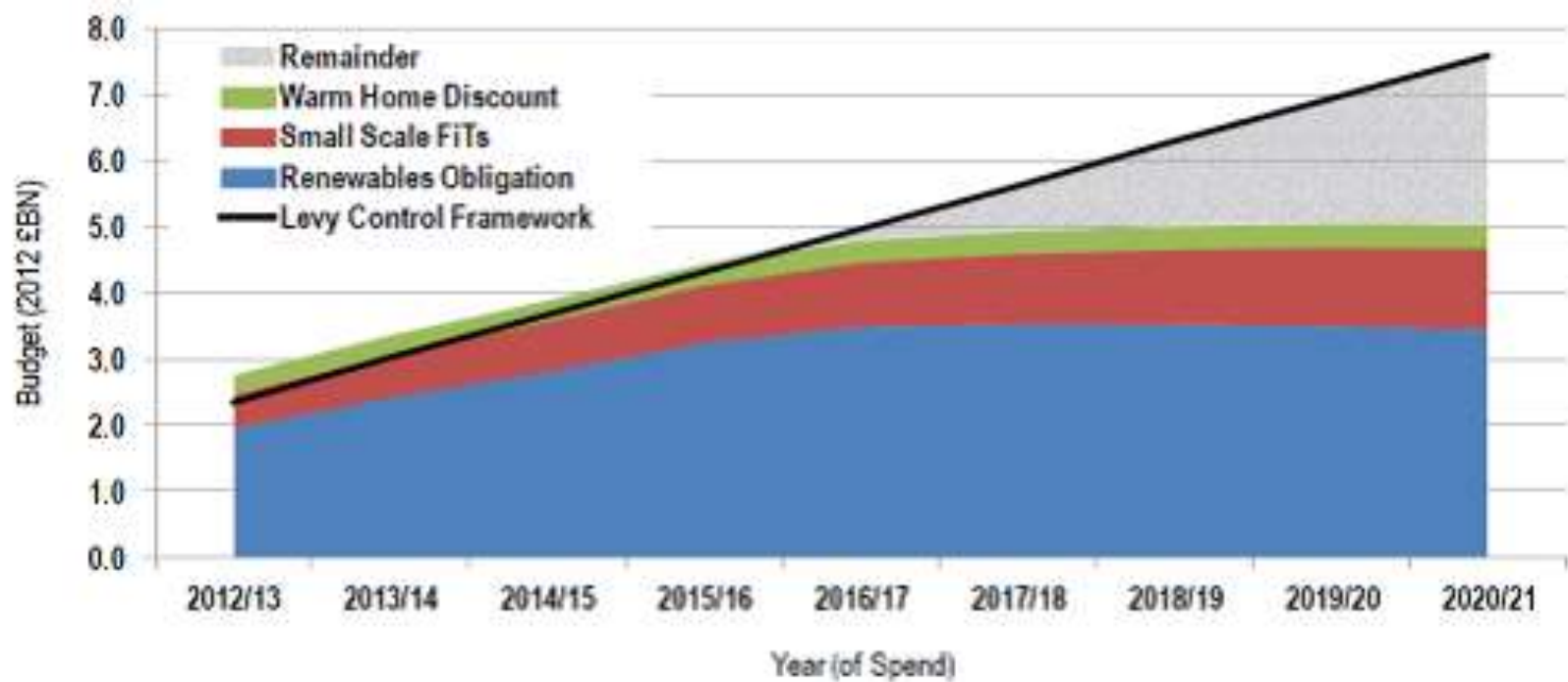
Renewable Technology	Draft Strike prices (£/MWh) (2012 prices)					Potential 2020 Deployment Sensitivities (GW)	2012 Roadmap Central View
	2014/15	2015/16	2016/17	2017/18	2018/19		
Biomass Conversion	105	105	105	105	105	1.2 – 4	[6]GW
Hydro	95	95	95	95	95	c. 1.7	
Offshore Wind	155	155	150	140	135	8 – 16	18GW
Onshore Wind	100	100	100	95	95	9 – 12	13GW
Large Solar Photo-Voltaic	125	125	120	115	110	2.4 – 3.2 ¹	7-20GW

Note that the relevant year is defined by a project's target commissioning date.

¹ Additionally DECC forecast 7.5GW small scale FIT PV

How big will the CfD pot be?

LCF – Upper Limits on Spend (£bn) (2011/12 prices)						
2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
£3.3	£4.3	£4.9	£5.6	£6.45	£7.0	£7.6

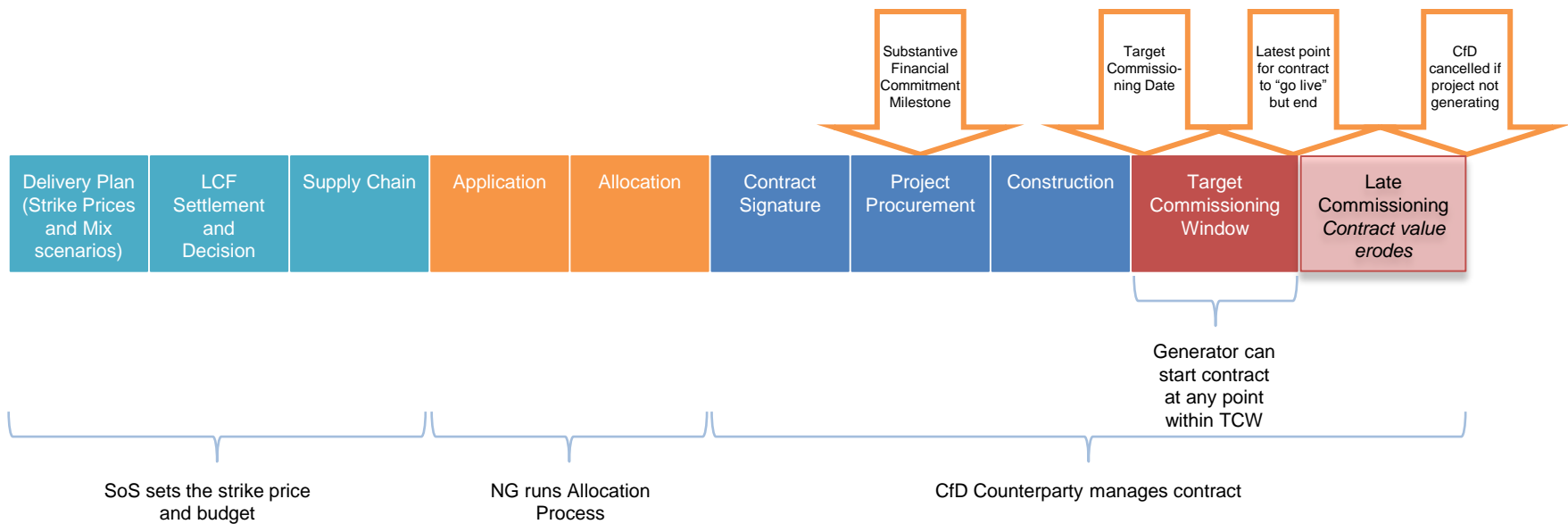


Source: GL Garrad Hassan

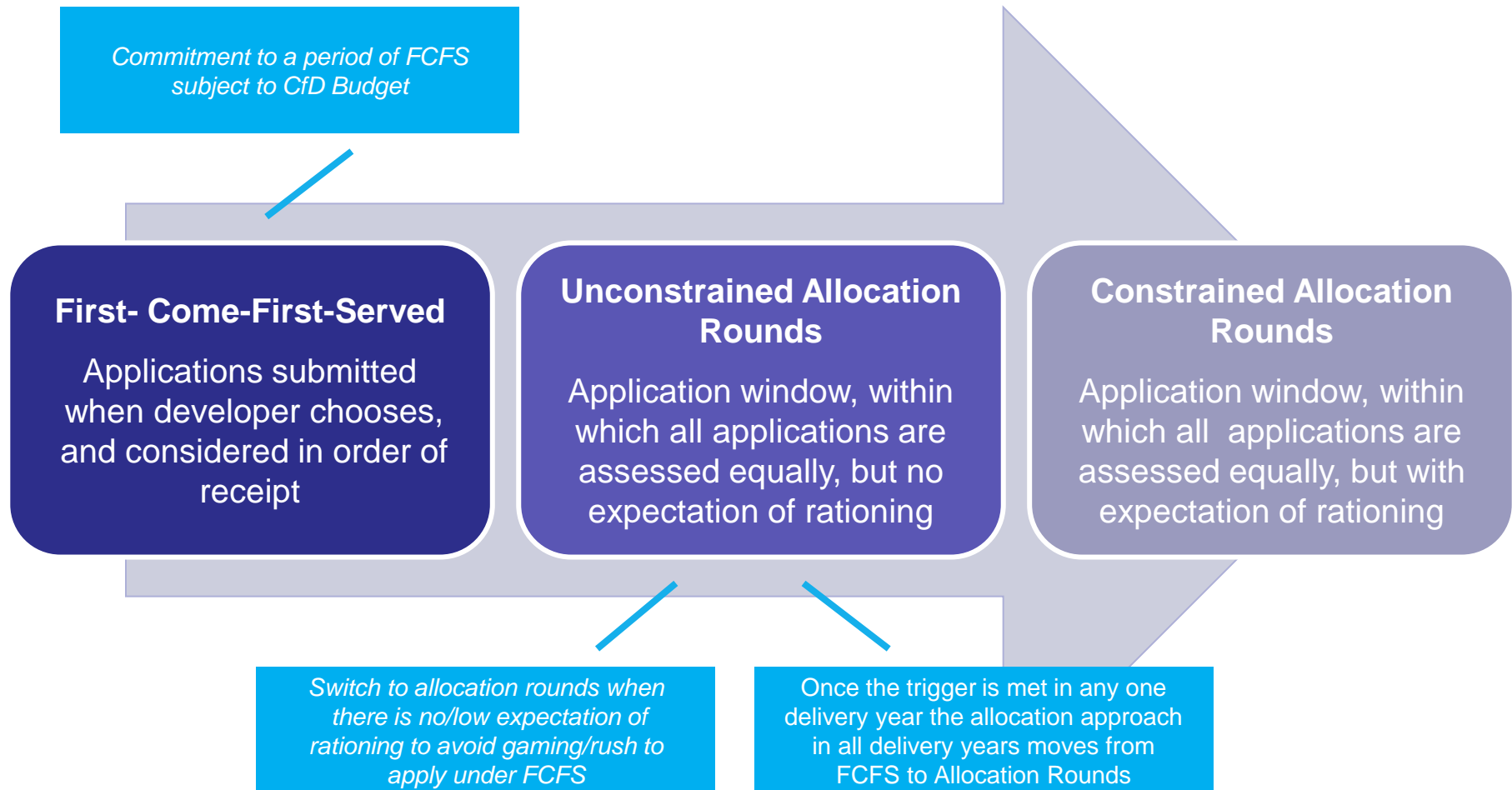
Capacity under DECC 2030 Scenarios

		Installed capacity in 2030 (rounded by GW)		
	Offshore wind	Onshore wind	CCS	Nuclear
100g CO ₂ /kWh scenario ⁹²	18	14	5	14
50g CO ₂ /kWh scenario	23	14	9	19
200g CO ₂ /kWh scenario	9	11	1	9
High CCS deployment scenario	11	14	12	12
High nuclear deployment scenario	10	13	1	20
High offshore wind deployment scenario	39	11	1	10

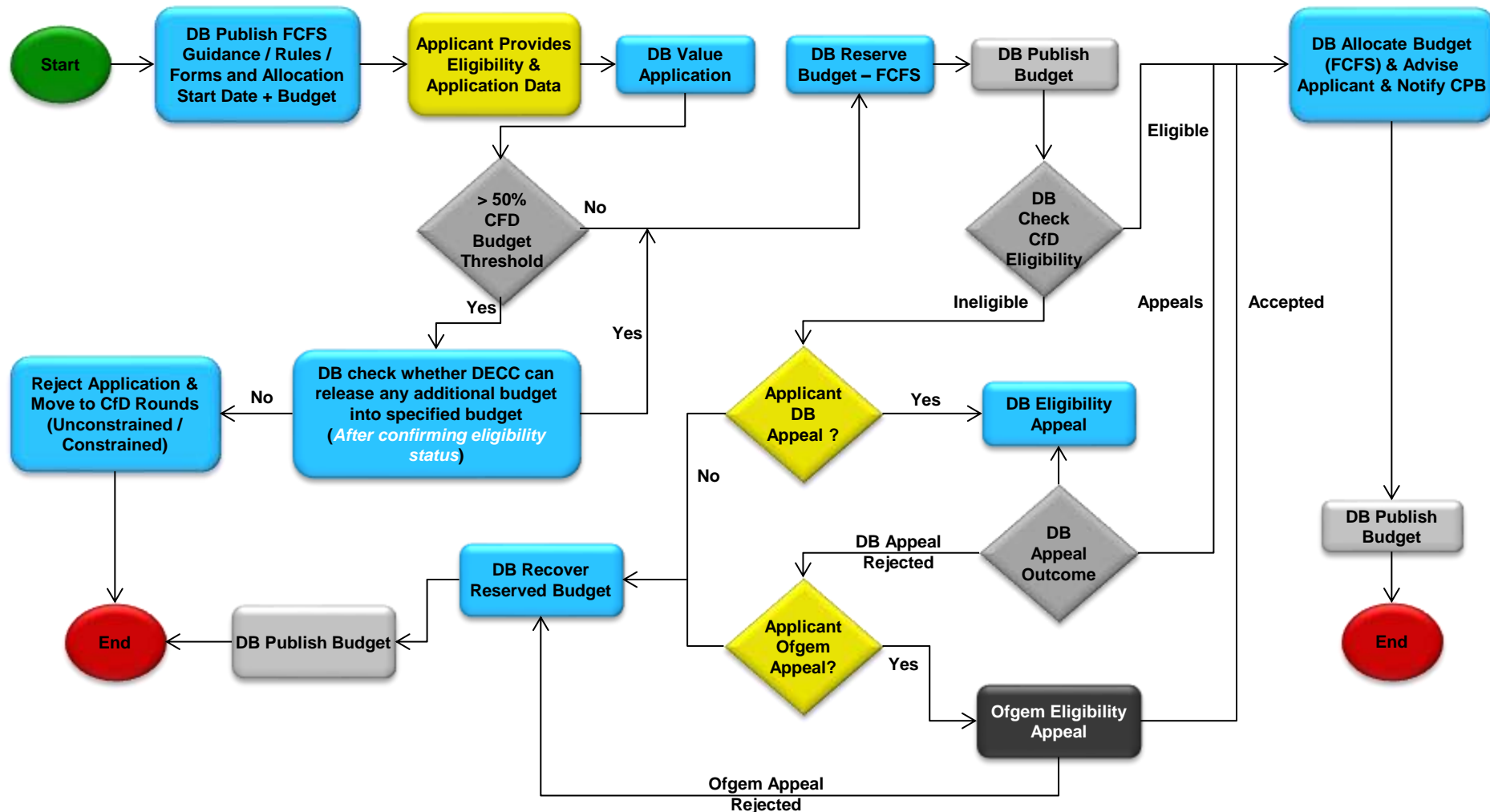
CfD Timeline



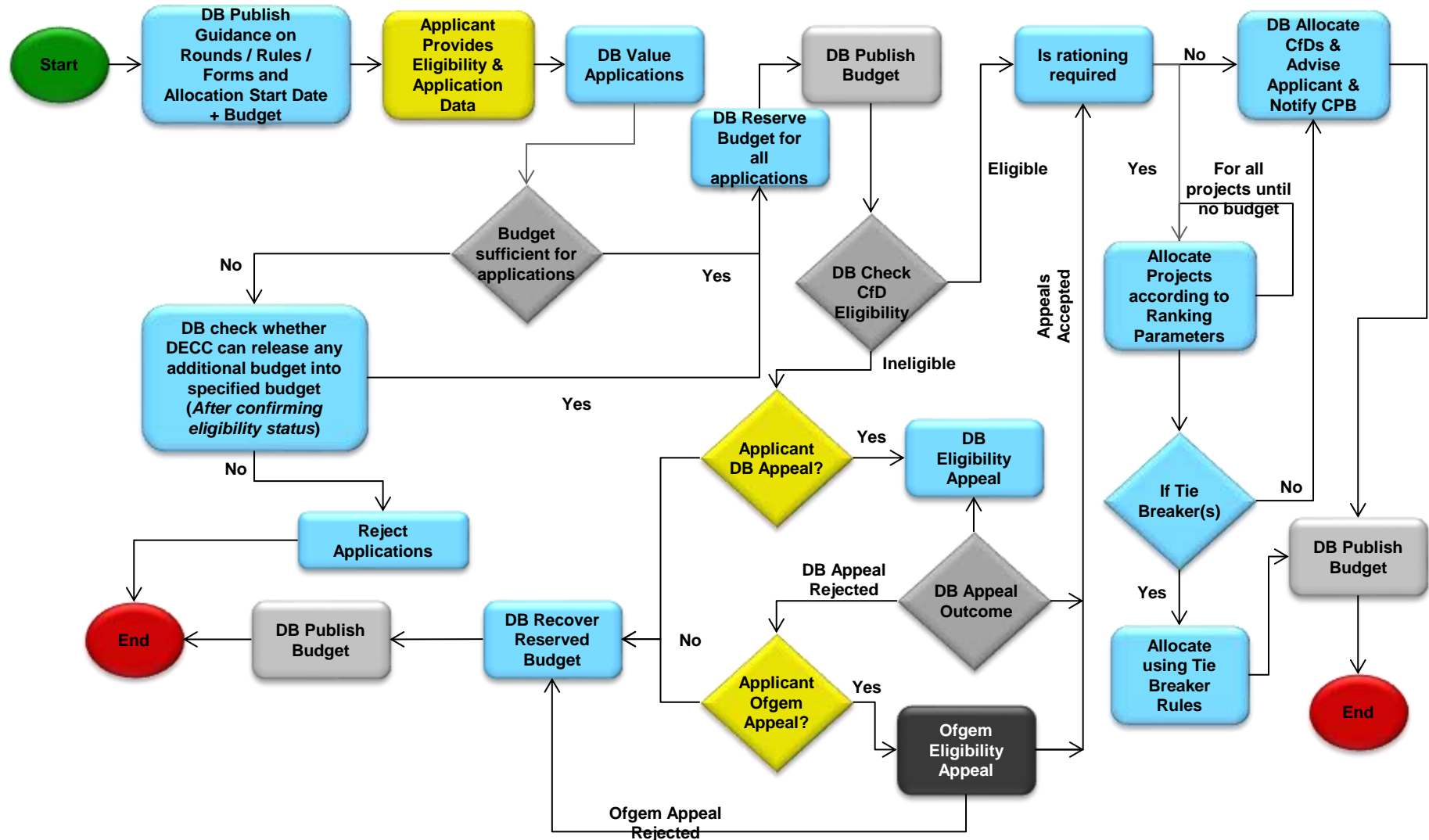
The Stages of CfD Allocation



First Come, First Served Allocation Process Map



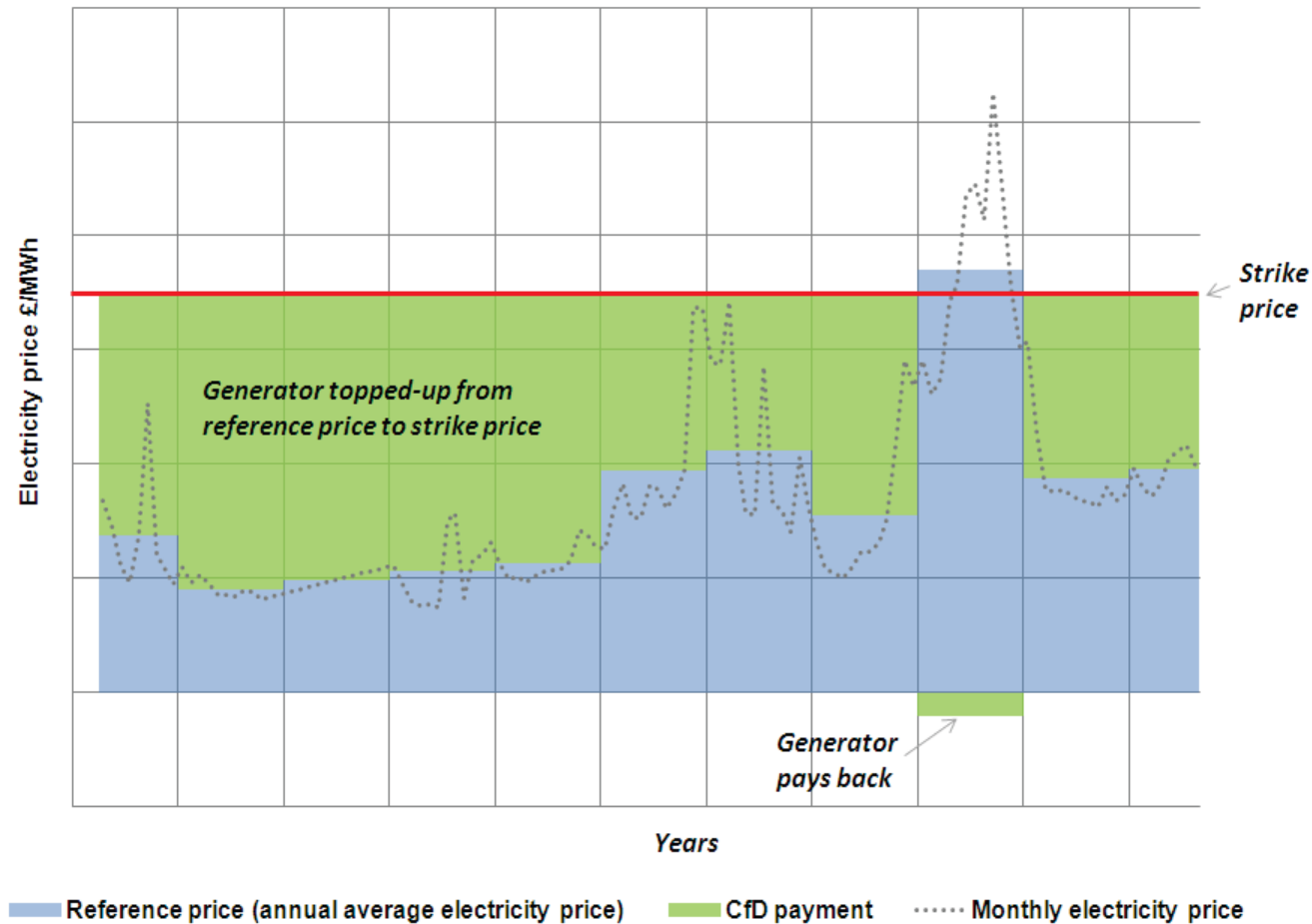
Allocation Round Process Map



Contracts for Difference

- Contracts for Difference for low-carbon generators calculated as the difference between the strike price and the reference price. Payments will be capped at the value of the strike price (i.e. generators take risk of negative prices).
- Reference Price
 - used as a proxy for the market price for electricity
 - intermittent generation: an hourly day-ahead price
 - base load generation: season ahead price, moving to year ahead when conditions allow.
- Strike Price
 - fully CPI indexed
 - initially, set administratively
 - later, competitive forms of price discovery. Timing will depend on when the market can support auctions/tenders. Envisaged that technology-specific auctions for contracts will take place towards the end of the decade/early 20s and greater competition between technologies towards and into the early 2020s.

CfD – Strike Price



Contracts for Difference (2)

- A draft CfD for renewables was released for (brief) consultation in August 2013.
- Further contract terms are expected to be published in December 2013.
- The terms of the CfD will be largely standardised across all technologies. However, some differences are anticipated between CfDs for intermittent technologies (e.g. wind, wave, solar) and base load technologies (e.g. nuclear, some biomass). Minor and necessary modifications may occur for individual generators. CfDs may be individually negotiated where generic terms are not suitable.
- Government will amend the Energy Bill to give itself the power to revise standard CfD terms. Not envisaged to apply retrospectively.
- Key Issues:
 - Credit Standing of the CfD Counterparty
 - Change in Law
 - Termination
 - Collateral
 - Reference Price and Capturability

Credit standing of CfD counterparty

- Robust credit story in a new regulatory structure is fundamental for investors
 - Reliant on secondary legislation
 - Need for a single CfD counterparty
 - Pro rata application of losses among generators
 - Mutualisation
 - Fixed v Variable supplier obligation
 - Reserve buffer – how allocated in pay when paid?

Change in Law – Breadth of protection

- What is the most appropriate mitigant for generators to balance affordability, deliverability and innovation:
 - Exposure to wholesale price
 - CPI indexation
- Concern that current protection is too narrow given selection of CPI as the commercial mitigant
 - Current exclusions from protection are:
 - Too extensive (eg “objectively justifiable”)
 - Too hidden from investors (see length of Foreseeable CiL definition)
- Changes that affect risk not cost
- Curtailment
- CiL during construction that prevents operation?

Change in Law – Compensation methodology

- A complex set of protection provisions concerns investors. Is the same approach appropriate for all sizes of project?
 - The approach assumes that a further investment at the hurdle rate is acceptable. Is this appropriate?
 - Netting costs and savings on a discounted basis to produce a single adjustment to the Strike Price
 - No lender of last resort
 - Is lack of SP indexation in revenue compensation a further discounting mechanic?
 - Costs of mitigation (including loss of revenue as part of anticipatory action) not covered
 - Certification standards, response periods and (lack of) interim assessment/reconciliation
 - Lack of clarity over independent disputes process
- Adjustment to strike price only occurs once a year?

Termination Events/Termination payment

- Amended (and streamlined) termination event proposals very welcome.
- Remaining questions:
 - Suitability of technical insolvency as a termination event if generator is still paying
 - Metering default needs clarification
- Robust direct agreement will be key for limited recourse finance
- Termination payment must be objective

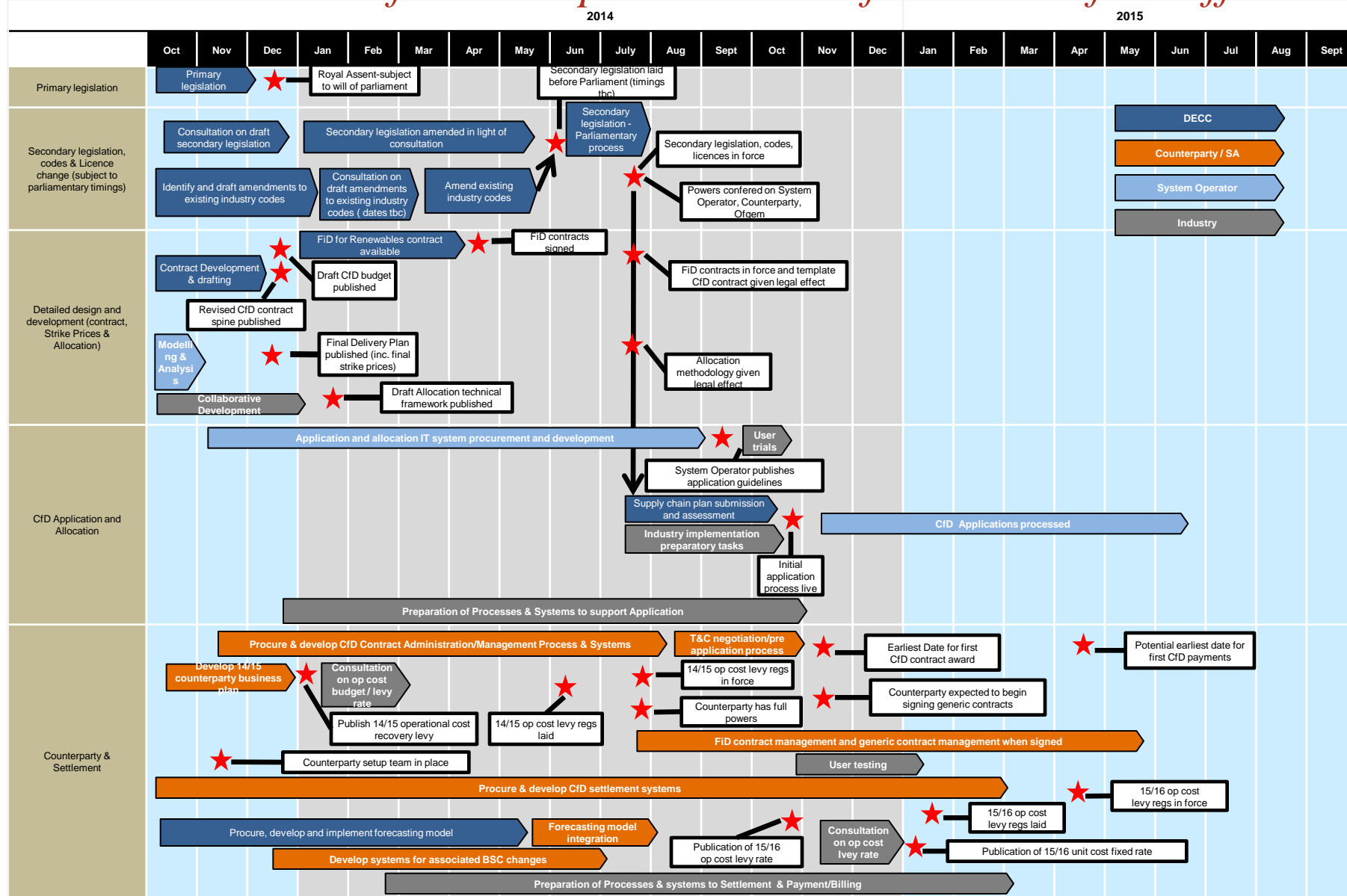
Collateral

- Is generator collateral necessary?
 - Simplicity and debt capacity
 - Can't pay versus Won't pay
 - Licence conditions

Reference Price and Capturability

- Latest proposals for baseload reference price are welcome
- Will they only drive liquidity to discrete points on the curve?
 - Does this feed perceived risk around changes to the Reference Price?
- Will non-integrated investors wish to take the risk on DECC estimates of capturability in a long term investment?
- Backstop PPA is key
 - Price: Equity protection
 - Conditions to availability

Indicative Timeline for the Implementation of Contracts for Difference



Investment Contracts

- Government recognises that lack of certainty as to changes proposed under EMR could lead to delay of investment decisions; “Investment Contracts” are intended to address this by enabling a final investment decision.
- Investment Contract similar to CfD but the Secretary of State is initially the counterparty. Difference payments are conditional on the relevant provisions of the Energy Bill being enacted.
- To be transferred into the CfD regime once finalised and established.
- Terms of Investment Contract must be laid before Parliament, to exclude information which likely to damage commercial interests but shall include strike and reference prices.
- State Aid?

Investment Contracts (2)

- Hinkley Point C is the leading candidate for an investment contract
- Investment Contracts for renewables projects are likely to require:
 - Publication of the First Delivery Plan including final CfD strike prices (which will be the Investment Contract strike prices) – December 2013?
 - Agreement of an allowance for ICs under the Levy Control Framework
 - Publication of the final CfD contract – December 2013?
 - Investment Contract will have differences to reflect the fact that the full CfD framework is not yet in place and will be conditional on State Aid clearance.
- Payments under Investment Contracts will be conditional on Royal Assent, applicable State Aid clearance and operation of the necessary settlement systems (April 2015?).
- Investment Contracts are available until the relevant CfD Regulations come into effect (longstop of end – 2015).

Investment Contract allocation (1)

Indicative date	Milestone and activity
27 June 2013	DECC issues “Final Investment Decision Enabling for Renewables: Update 2: Investment Contract Allocation”
July 2013	DECC publishes the draft EMR Delivery Plan
August 2013	DECC publishes drafts of the key CFD clauses
12.00 BST (midday) 6 September 2013	Deadline for application for Phase 2 - allocation of an Investment Contract
November 2013	Applicants for allocation of an Investment Contract in Phase 2 notified whether their projects have satisfied the minimum threshold evaluation criteria and (if so) requested to confirm in writing to DECC within 10 working days their interest in remaining in the FID Enabling for Renewables process

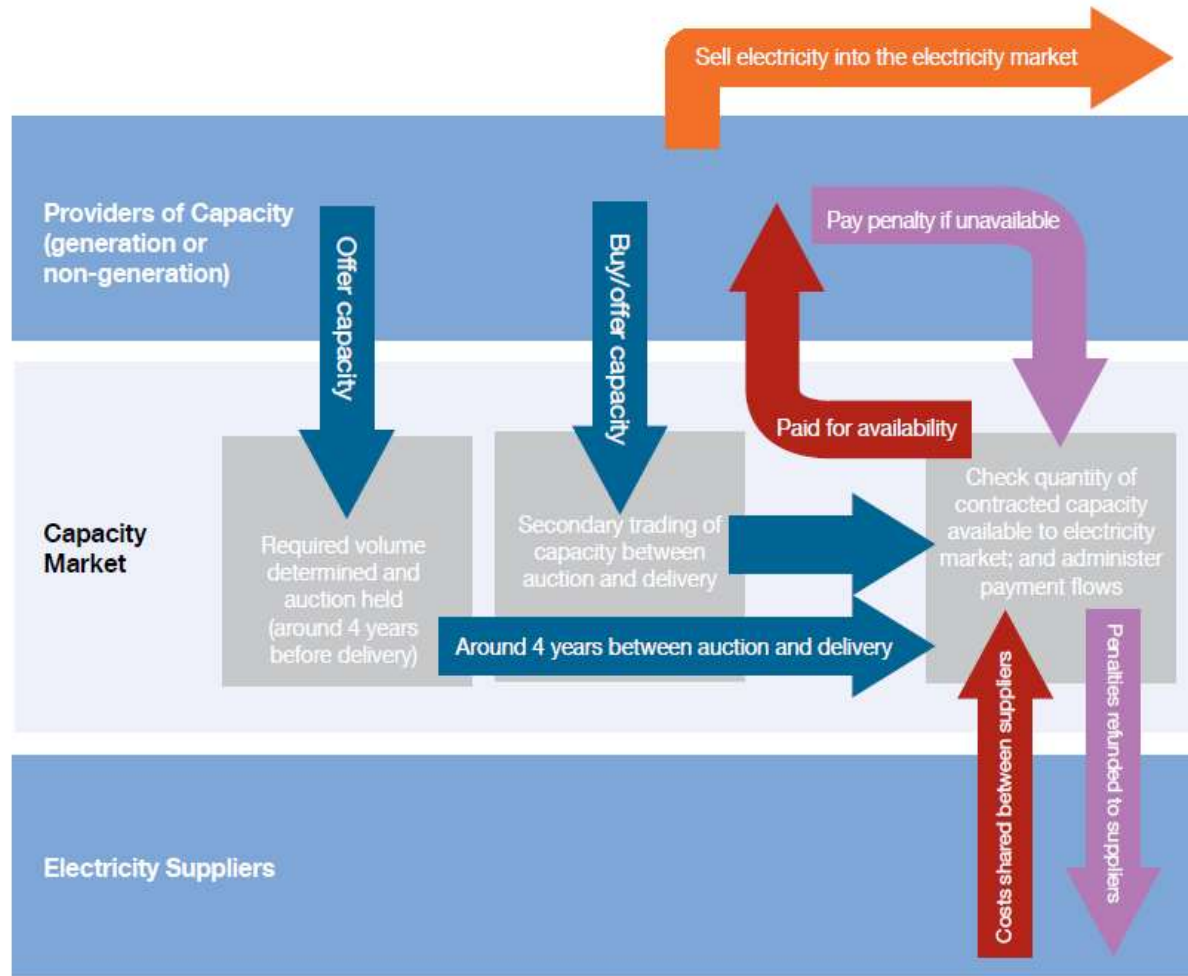
Investment Contract allocation (2)

Indicative date	Milestone and activity
December 2013	DECC publishes the final EMR Delivery Plan and standard form CFD
December 2013	DECC sends Investment Contracts to applicants whose projects meet the minimum threshold evaluation criteria
February/March 2014	Applicants make binding applications for Investment Contracts
Following receipt of binding applications for Investment Contracts	Assessment of affordability against LCF settlement levels and affordability constraints DECC completes any necessary down-selection process
March 2014	The Secretary of State enters into Investment Contracts with successful applicants Investment Contracts are laid before Parliament (subject to Parliamentary timetable)

Investment Contract allocation (3)

1. Applicants should note that the timings for Phase 2, except for the 6 September 2013 deadline for submission of applications, are indicative only and dependent on progress on key elements of the main EMR project. In particular:
 - a) all dates shown from the date of this publication (other than the 6 September deadline) are provisional and may change; and
 - b) dates from July 2013 onward are dependent on the dates of publication of the draft and final EMR Delivery Plans and the timing and extent of progress on developing the terms of the CFD. In particular, the timing for issuing Investment Contracts to applicants is dependent on the publication of the final EMR Delivery Plan and final standard form CFD.
 2. DECC may modify or alter its approach, process and timetable at any time. Further clarity on these matters may be provided by future updates.
 3. Note that DECC has subsequently indicated that the December 2013 version of the CfD may not be final. The implications of this for the Investment Contract process are not yet clear.
-

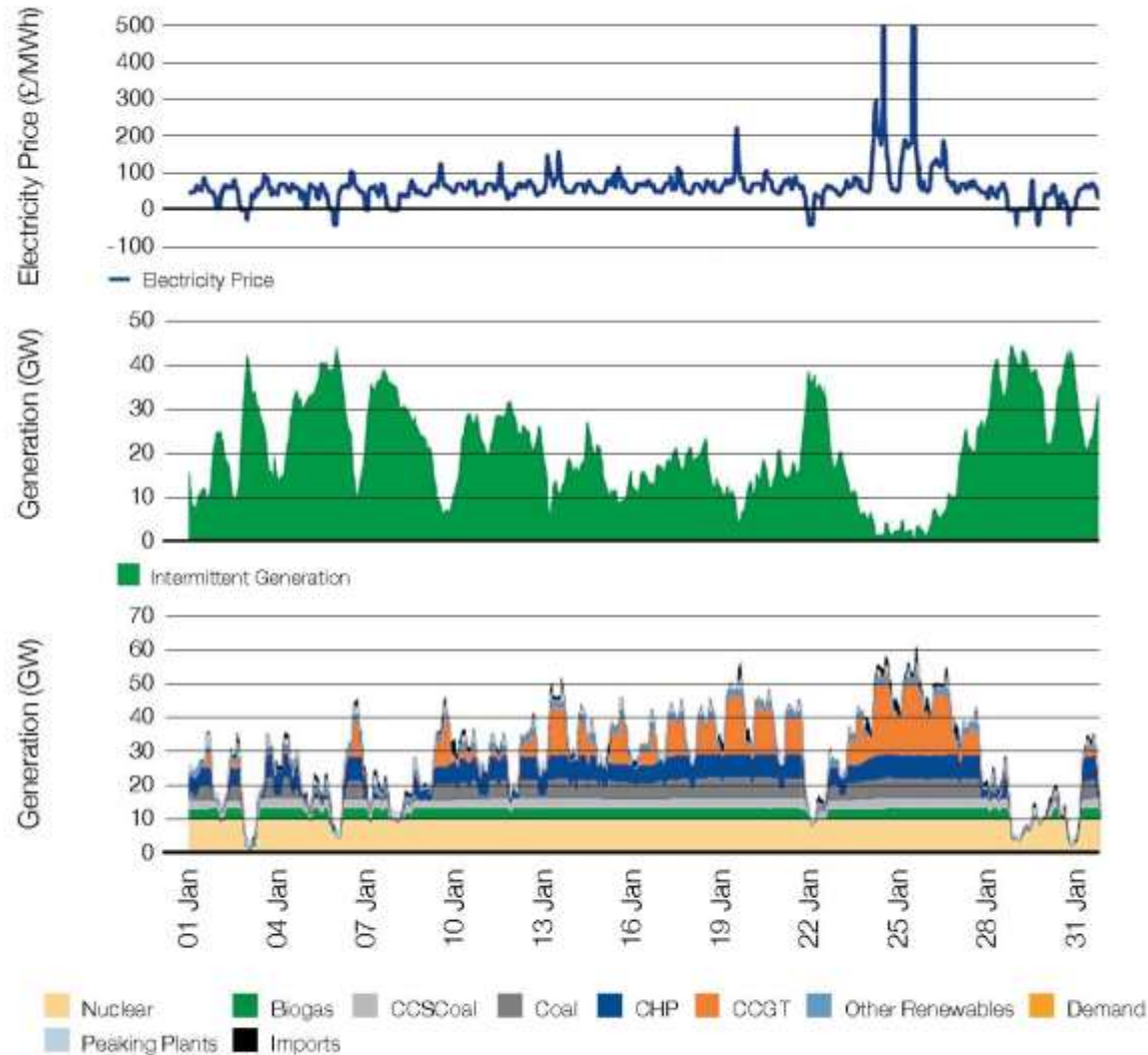
Capacity Market



Capacity Market – objectives

- Three different linked challenges:
 - diversification of supply (not to be over-reliant on one energy source);
 - operational security (to ensure that moment to moment supply matches demand); and
 - resource adequacy (sufficient capacity to meet demand eg in winter anticyclone low wind conditions).
- Large amounts of intermittent generation (i.e. wind) on the UK system will require back-up from flexible (e.g. gas plant).
- Low carbon generations (wind, nuclear) are characterised by low marginal prices. The price of carbon will increase.
- A capacity market will be intended to bring forward investment in flexible capacity to ensure security of supply.

British power market in January 2030 with January 2000 weather

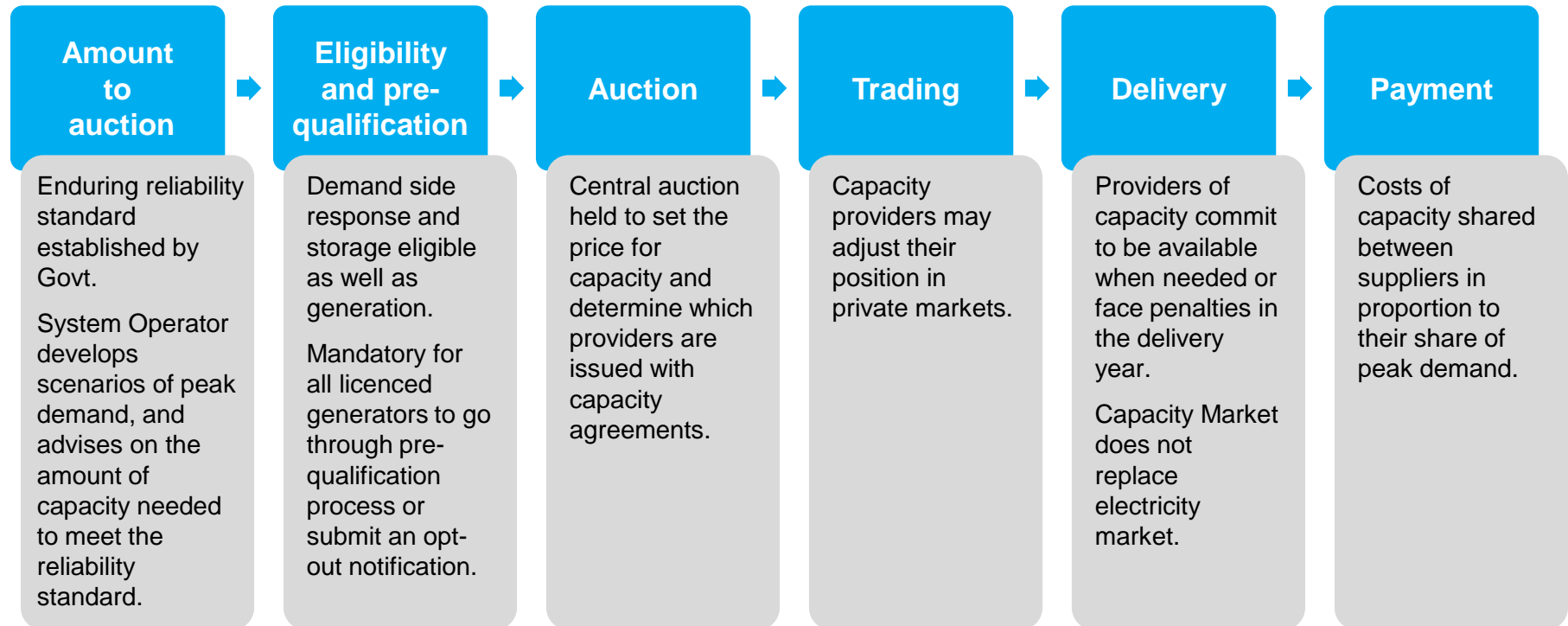


Source: Pöyry – Impact of Intermittency: How wind variability could change the shape of the British and Irish electricity market.

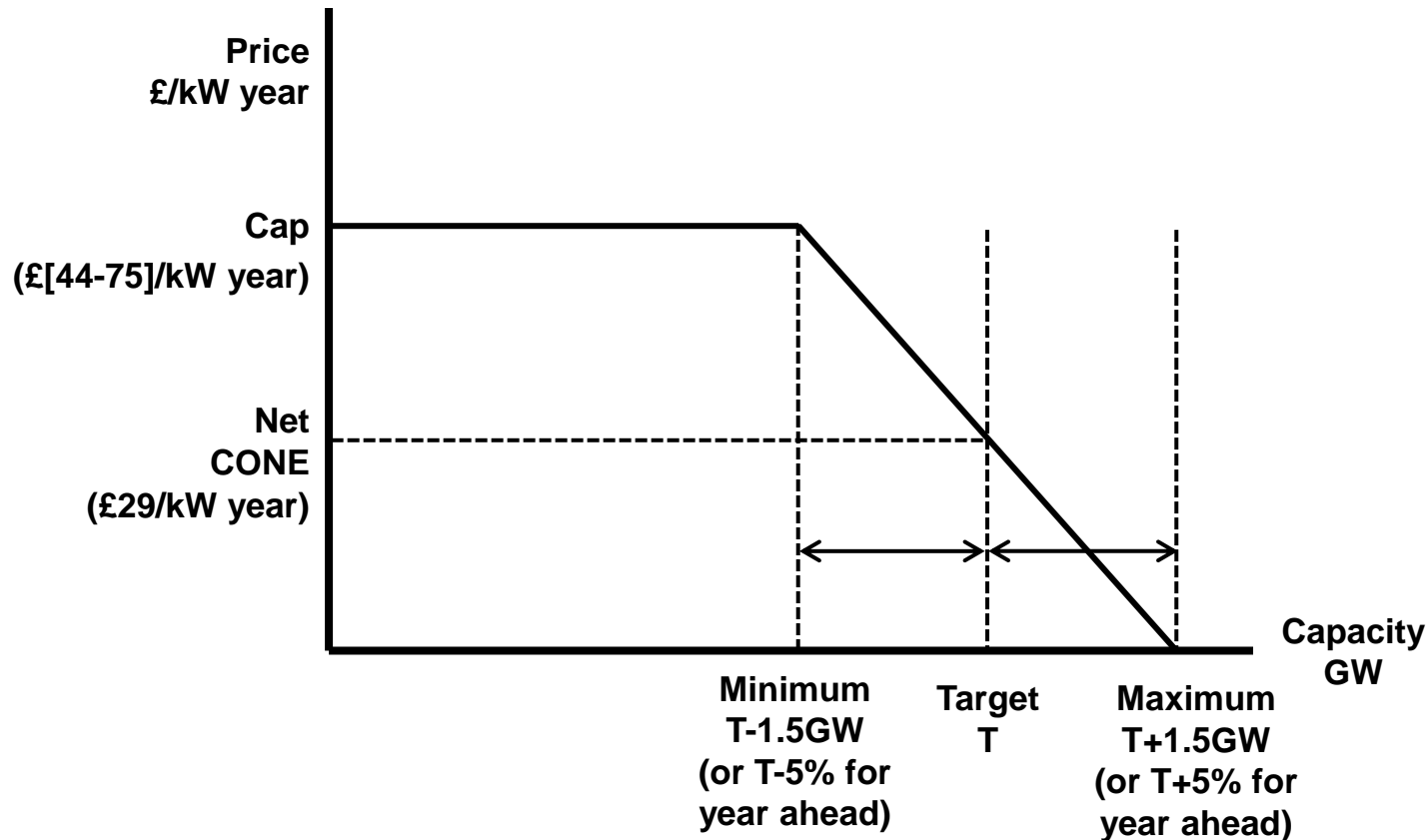
Capacity Market Overview

- Ministers to decide total capacity required (informed by an enduring reliability standard – indicatively set at LOLE of 3 hours/year).
- Mechanism to be a technology - neutral auction in which system operator accepts bids for the delivery of Capacity. Auction winners will enter into capacity agreements and will receive a capacity payment.
- Contracts for existing Capacity to be one year in length; will be longer for new Capacity.
- Neither the Capacity Market register entry nor the capacity agreement notice is intended to create a contractual relationship.
- Government proposes to run first auction in 2014 (for delivery of capacity in winter 2018/19).
- Demand side reduction and storage mechanisms may also participate in auctions.
- Every successful provider of capacity will be paid the clearing price set by the most expensive successful provider that bid into the auction (“pay as clear”).
- Delivered Energy Model: Participants will be subject to an annually capped financial penalty if in periods of system stress (designated on 4 hours’ notice) they are not delivering their obligated capacity (profiled in relation to actual demand).
- Secondary auctions to take place nearer the delivery time.
- Costs of mechanisms to be shared by energy suppliers through a settlement body.
- Generation that benefits from a CfD, ROCs, FiT, RHI, NER 300 or UK CCS commercialisation programme will be excluded.
- Detailed design proposals published for consultation in June 2013. Consultation on proposals for implementation (plus draft regulations) published last week. Statutory Security of Supply Report to be published later this month (together with the impact assessment).

Stages of Capacity Market Operation



Illustrative Capacity Demand Curve

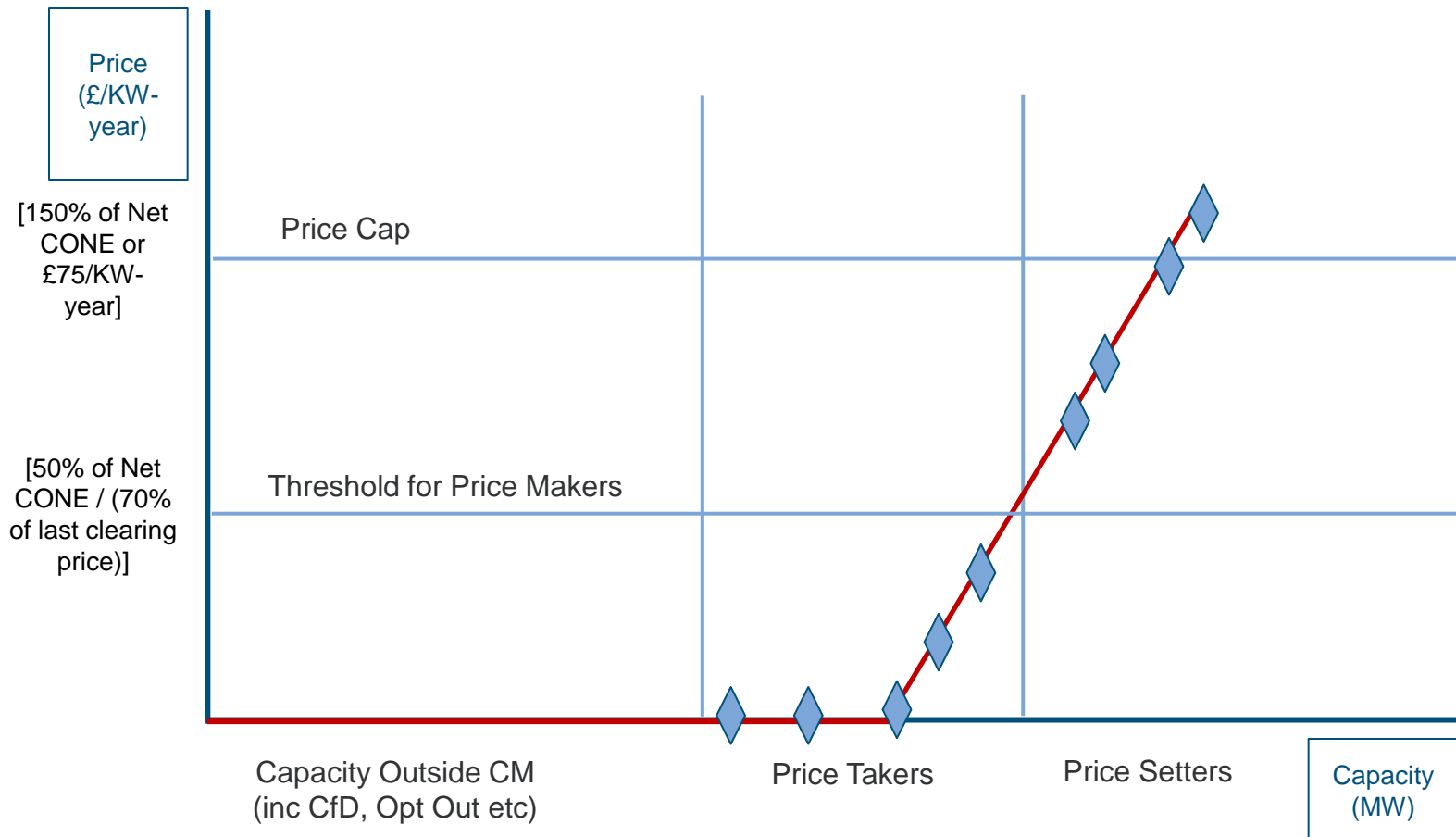


CONE (OCGT) is estimated at £47,000/MW per year.

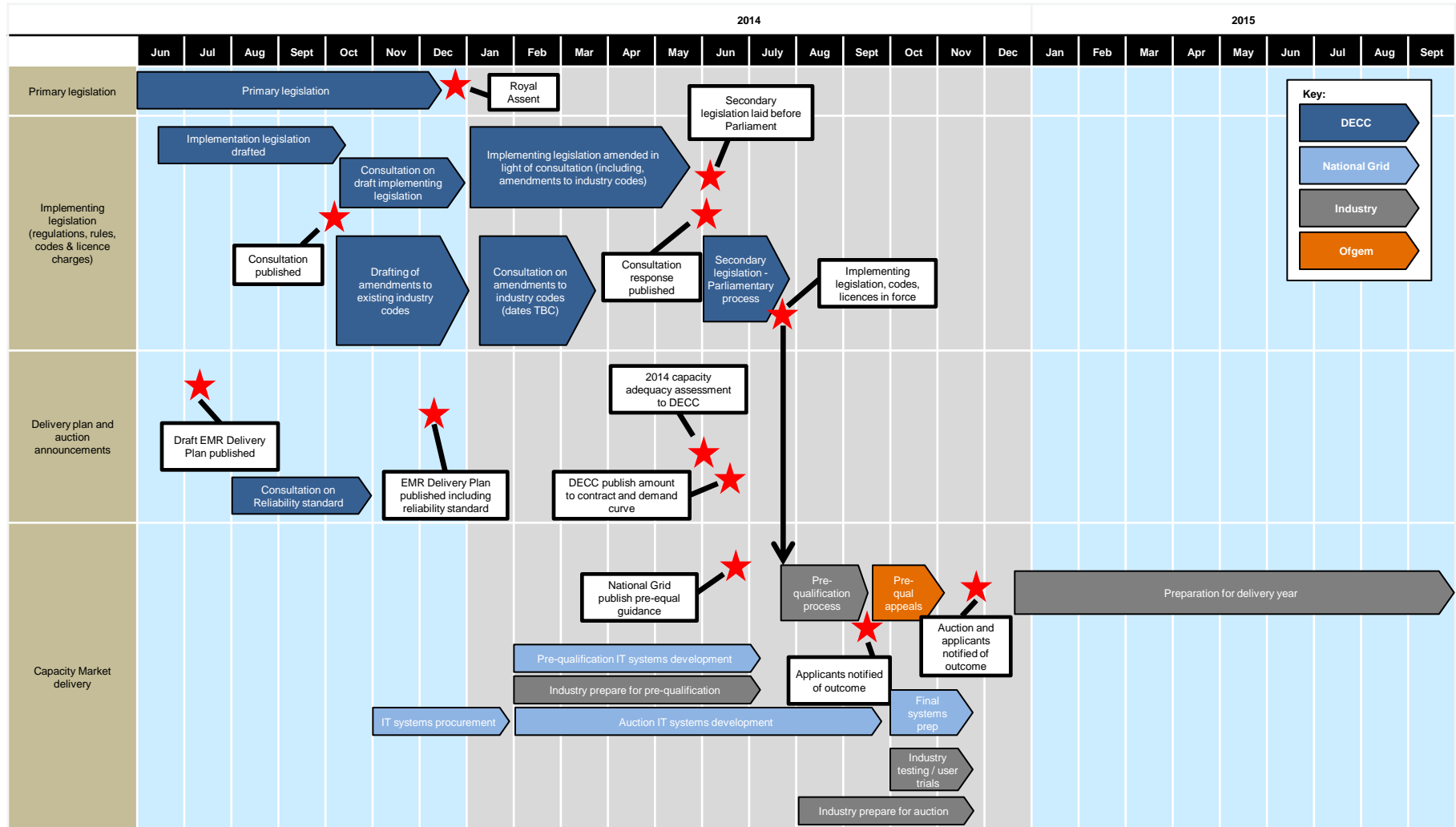
Net-CONE takes into account expected electricity market net revenue for the new entrant and is estimated at £29,000/MW per year.

VOLL is estimated at £17,000/MWh; reliability standard is LOLE of 3 hours/year.

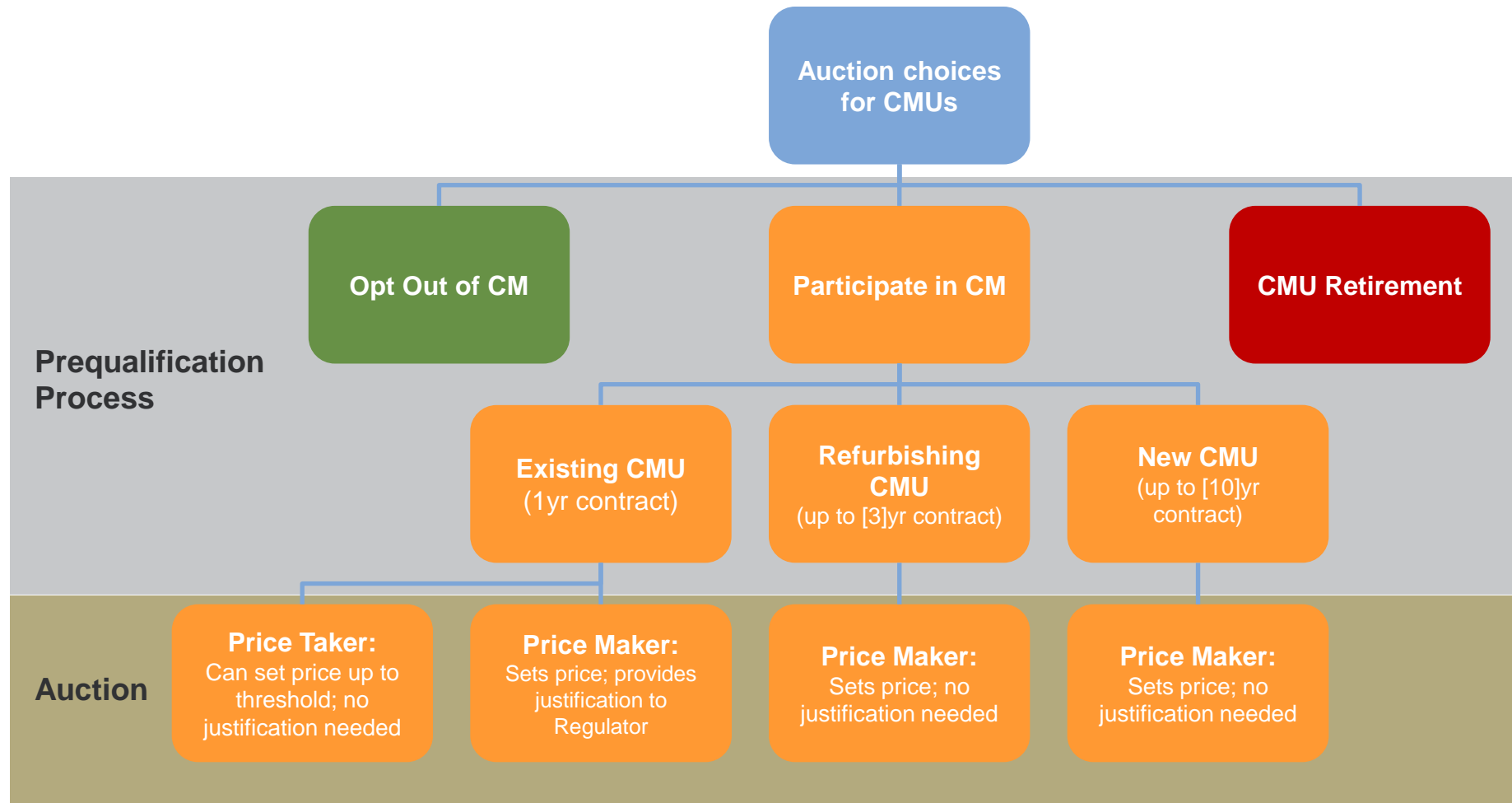
Illustrative supply curve



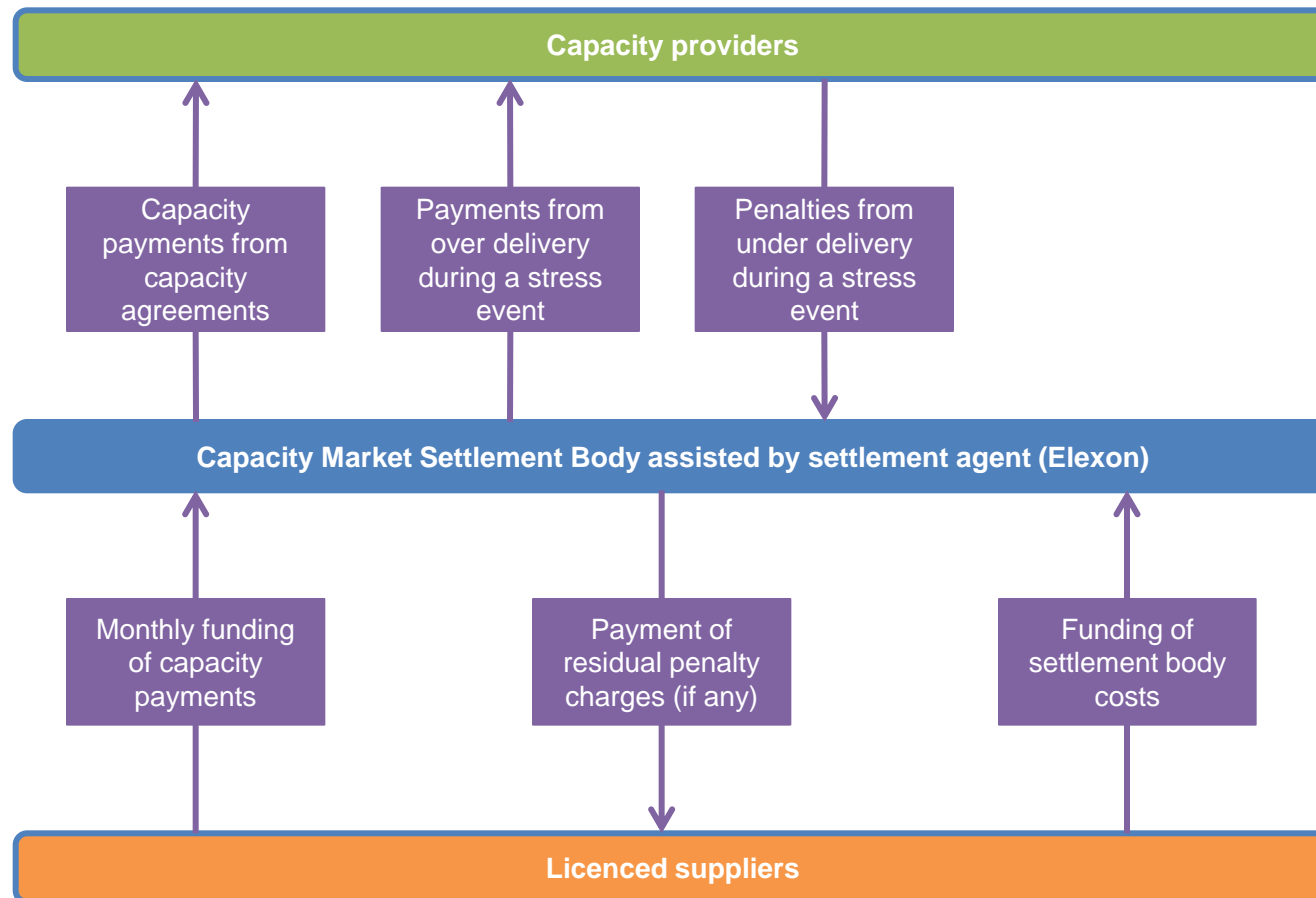
Proposed Pre-qualification and auction timeline



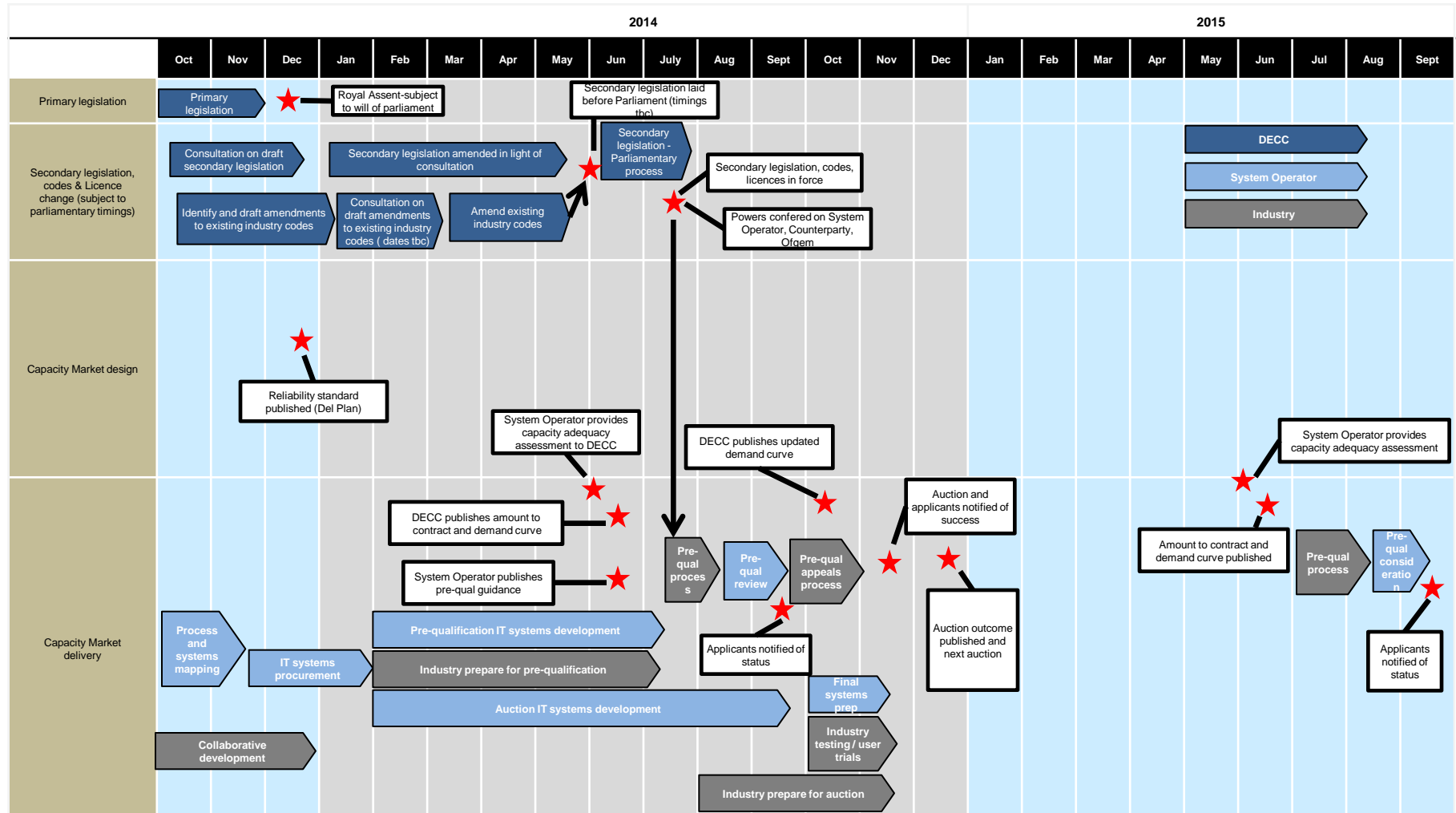
Summary of routes to auction for eligible providers



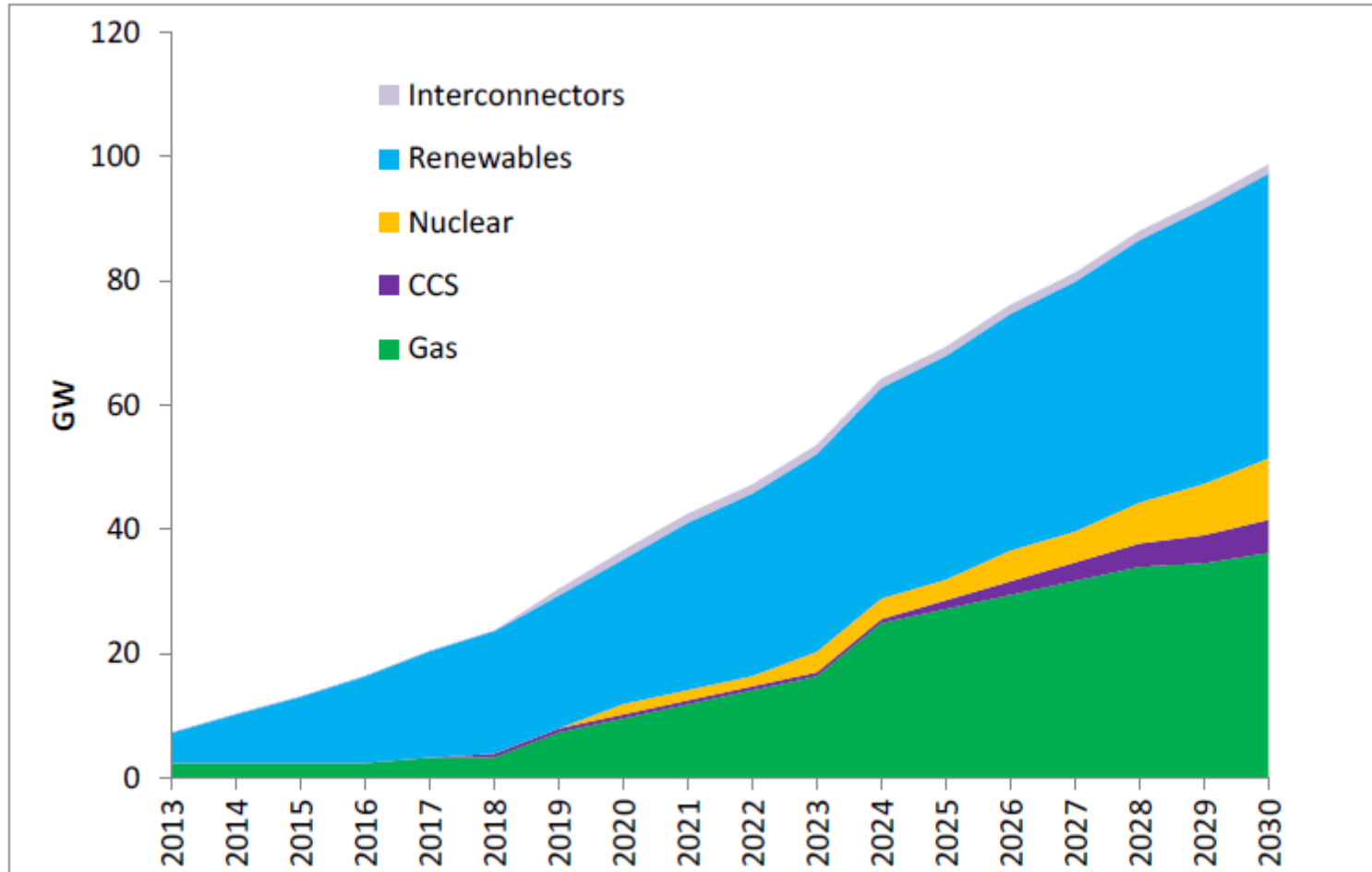
Overview of Capacity Market Payment Flows



Indicative Timeline for Implementation of the Capacity Market



Projected cumulative new build by plant type (MPPs)



Source: DECC Energy and Emissions Projections – September 2013

Impact of decarbonisation target on gas generation

The Energy Bill has been revised to include a power to set an emissions intensity standard for the power sector from 2030. A decision to exercise this power can (under the form of Energy Bill approved by the House of Commons) only be taken once the Climate Change Committee has provided advice on the Fifth Carbon Budget, in 2016.

	100gCo2/KWh	200gCo2/KWh	50gCo2/KWh
New CCGT Capacity, GW (2012-2030)	26	37	19
Total CCGT Capacity, GW (2030)	37	49	31
CCGT Generation, TWh (2030); % of total generation	89 22%	181 45%	41 10%
Average CCGT load factor (2030)	27%	43%	15%

Source: DECC – Gas Generation Strategy

A&O EMR site

<http://www.allenovery.com/UK-Electricity-Market-Reform>

Questions?

These are presentation slides only. The information within these slides does not constitute definitive advice and should not be used as the basis for giving definitive advice without checking the primary sources.

Allen & Overy means Allen & Overy LLP and/or its affiliated undertakings. The term partner is used to refer to a member of Allen & Overy LLP or an employee or consultant with equivalent standing and qualifications or an individual with equivalent status in one of Allen & Overy LLP's affiliated undertakings.

Contacts



Chris Andrew
Allen & Overy

Email: chris.andrew@allenovery.com

Tel: +44 20 3088 2684



Mark Walker
Allen & Overy

Email: mark.walker@allenovery.com

Tel: +44 20 3088 3316