

# Baseload Reference Price

Expert Group, 29 May 2013

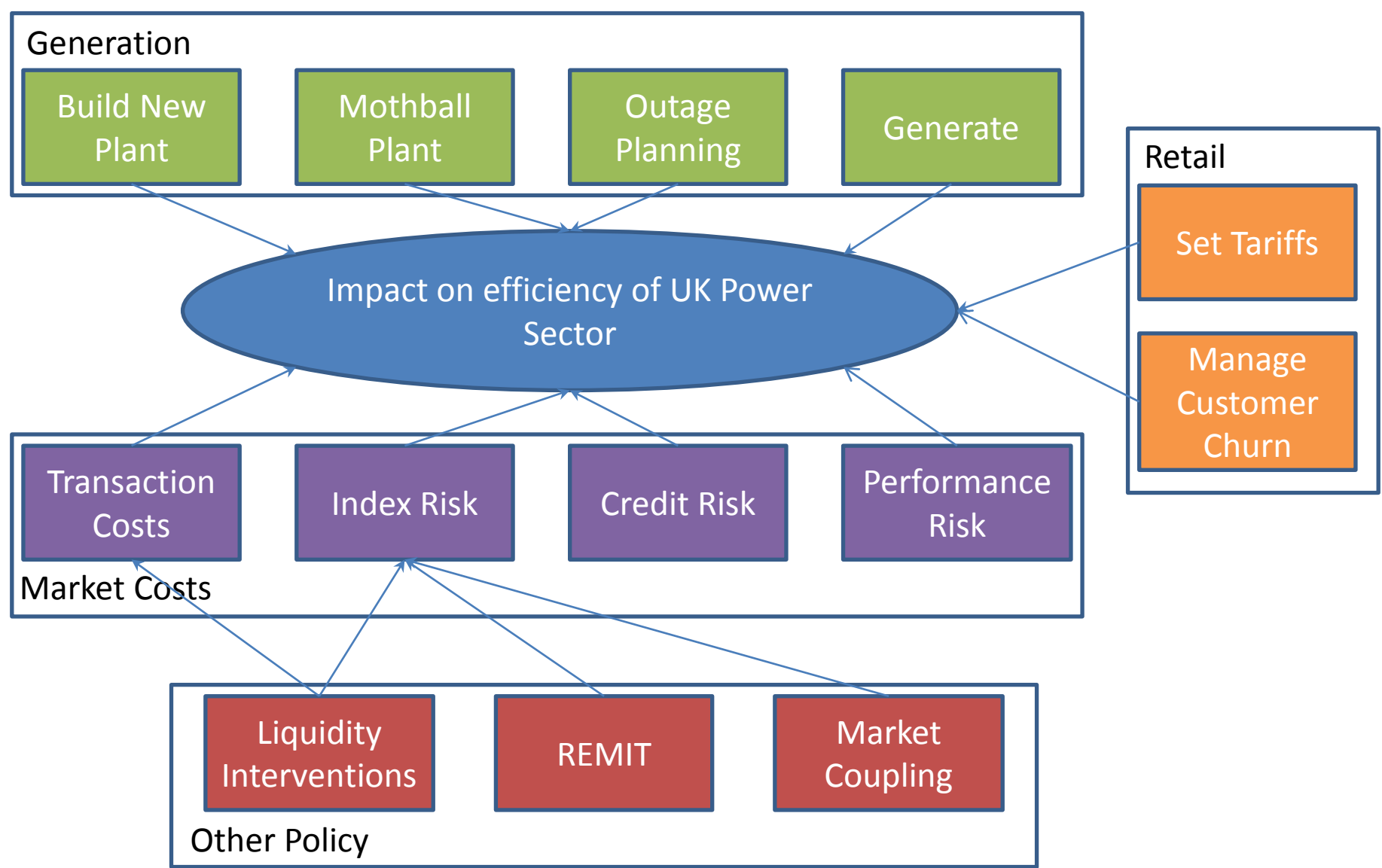
- “Straw Man” Proposal
- Policy Considerations in Setting the Baseload Reference Price
- Picking an Index – a Trade Off
- Allowing for Evolution
- Correcting Incentives for the Index (Outage Planning)
- Effect of Further Regulation

# “Straw Man” Proposal to DECC

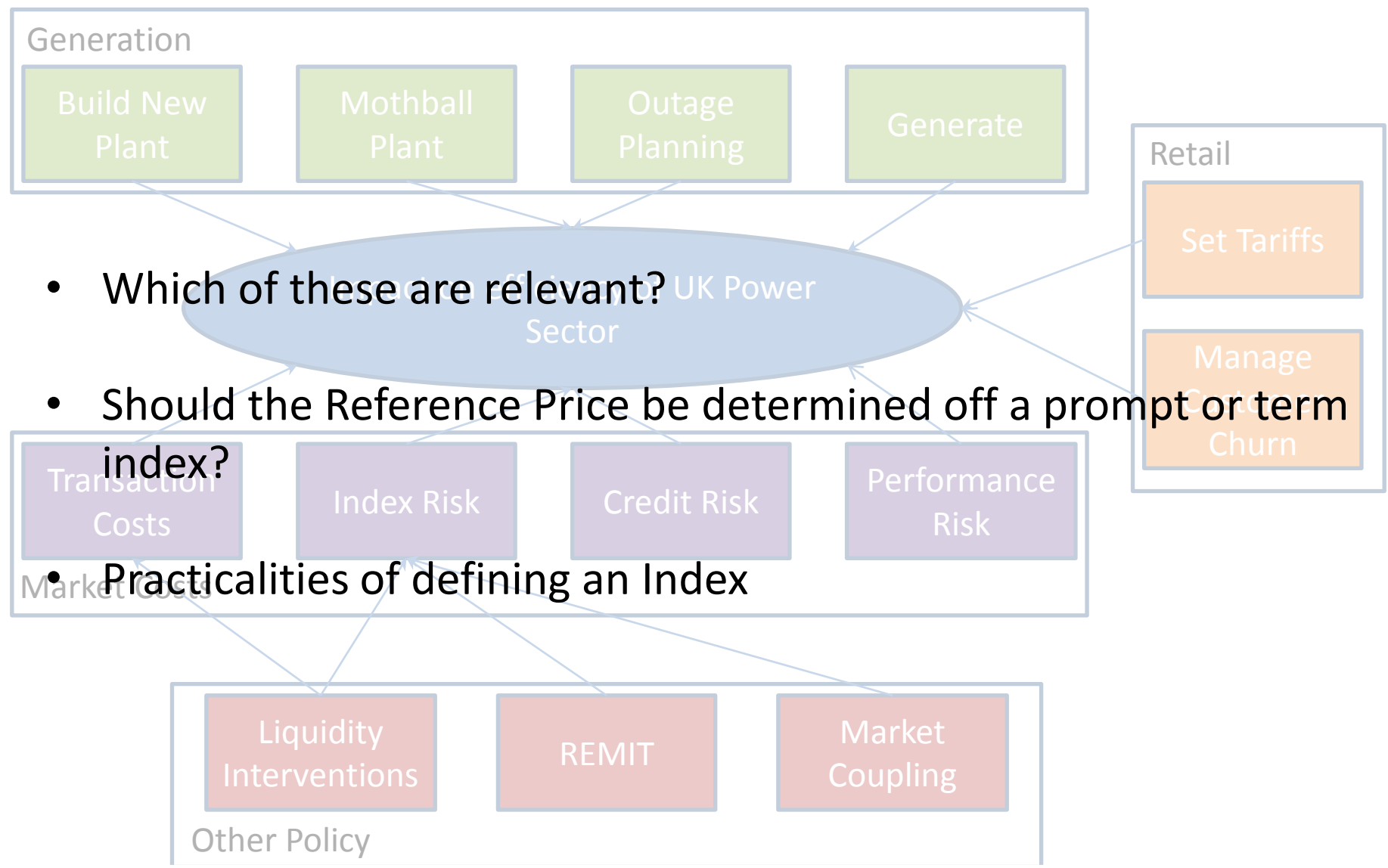
- Reference Price Based Off Traded Price for Seasonal contracts
  - Trade Weighted Average of reference prices for last 30 days Traded (Reference Price Sample Period)
- Reference Price should be reviewed periodically, to see if it can move to a longer term indices
  - FiT CfD's should make up no more than [30]% of volume traded during Reference Price Sample Period
  - Reference Price should average across all indices with [5%] or more of traded volume (MW) – with average weighted to quantity traded
  - Should be at least [80%] chance of 3 or more trades per day of the relevant contract during the Reference Price Sample Period
- Whilst a “seasonal” reference price is used, generators will need to present a cost-benefit analysis for any planned outages outside the “normal” outage season

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# Baseload Reference Price Design – Impact on Efficiency



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# Generation Factors

## Build New Plant

- Long run decision to build new plant (or close old plant)
- Implicitly ***not relevant for FiT CfD plant*** during the CFD term

## Mothball Plant

- Medium run decision to lay-off staff at an existing power station
- Implicitly ***not relevant for FiT CfD plant*** during the CfD term

## Outage Planning

- Trade off of multiple costs:
  - Generator cost of labour
  - Generator cost of “missed” outage (including voided warranties)
  - System security – as reserve margin is eroded
  - Energy prices – as low cost power stations are “unavailable”
- Generator has primary responsibility to schedule
- Trading ***further forward*** encourages generator to schedule outages when market prices are low

## Generate

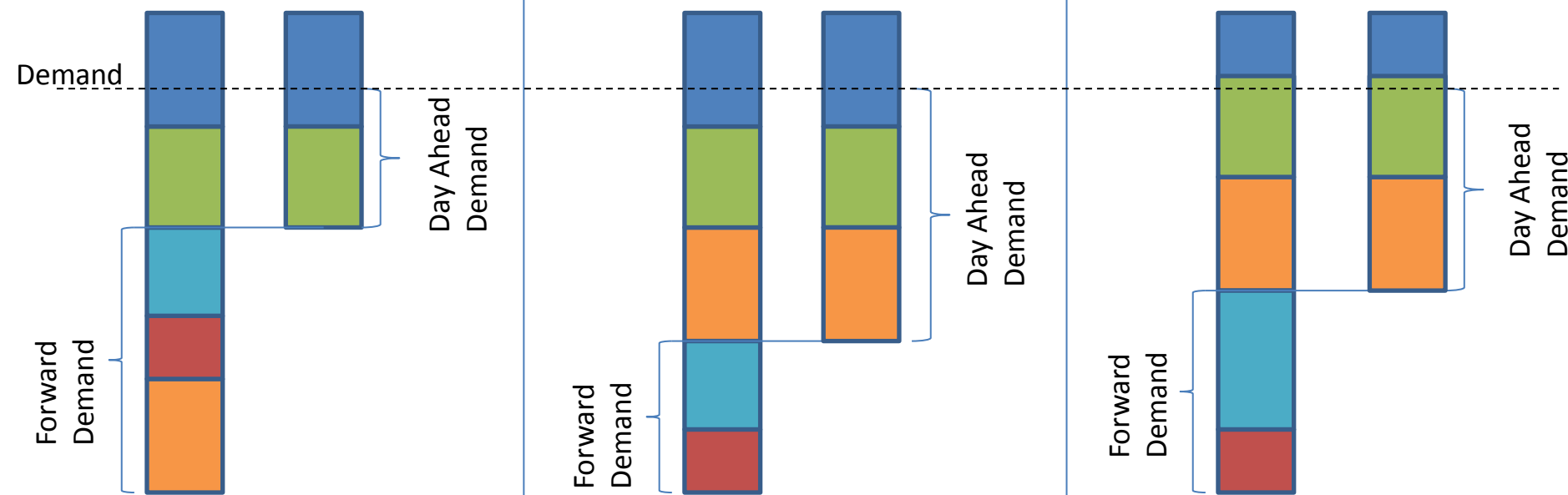
- Ideal – those stations with lowest avoidable costs generate
- CfD distorts decision – as generators only paid if generate
  - Opportunity cost is CfD margin, not fuel cost
- Selection of contract term for reference price
  - First Order – no impact;
  - Second Order – ***Short term compounds the issue of negative prices***

# Potential to compound the issue of negative day-ahead pricing

**A: Baseload FiT  
Forward Contracted**

**B: Baseload FiT  
Day ahead indexed,  
demand moves to Day Ahead**

**C: Baseload FiT  
Day ahead indexed,  
Some demand still  
contracts forward**



- Case "A" is as the Baseload FiT CfD was intended to work;
- Case "B" is with the Baseload FiT CfD plant moving to the day-ahead market, along with the associated demand
- Case "C" risks negative pricing in the Day Ahead. The FiT CfD plant moves to Day Ahead, but some demand still buys forward. Both Forward and Day Ahead Markets now distorted, with negative prices at Day Ahead

## Key:



Gas – Unhedged

Gas – Forward Contracted



Wind



Coal



FiT Baseload



## Set Tariffs

- Need to buy “Baseload” year (or more) forward to significantly reduce risk
- Few Baseload customers – so will need to buy other products to cover “shape”
- Arguably – effective price of FiT CfD plant is known (implying no need to hedge);
- However, still has an impact on the cash-flows in settling the contract
  - “Difference” payments to generator will ultimately be covered by receipts from customers; however, timing may be different
  - Cash-flow risk reduced if Supplier trades forward

## Manage Customer Churn

- Need to tune contract cover as
  - customers are gained and lost (churn)
  - “Coldness” of winter becomes more certain
- For churn – trading is principally intra-Supplier, so ***less relevant to FiT CfD***
- For “Coldness”, generation parties should be those “at the margin” between Baseload and mid-merit plant – ***implicitly not FiT CfD plant***

## Transaction Costs

- Costs of doing a trade (payments to intermediaries, cost of having a trading team etc)
- ***Not seen as significant***

## Index Risk

- Risk that the price obtained by the generator through its trades differ from that determined as the reference price
- Initial modelling suggests this ***risk is not significant***
- Other policy interventions should reduce this risk further

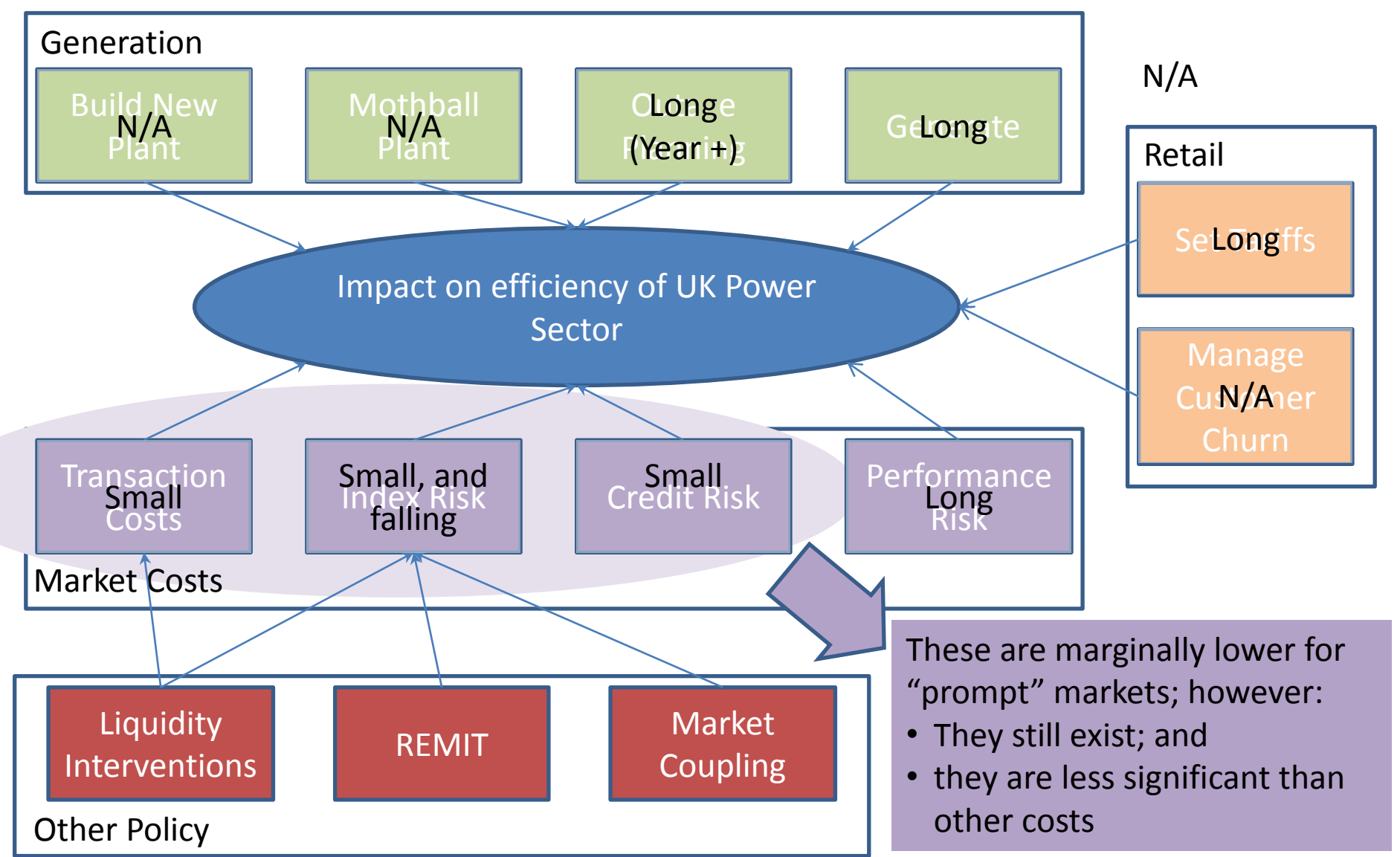
## Credit Risk

- Risk that Counterparty fails to pay the generator
- Market has various means to manage:
  - Use of intermediaries
  - Cleared / margined markets
  - Counter-party approval for brokered trades
- Initial analysis - ***risk is small, and does not vary significantly with term of contract***

## Performance Risk

- This is the risk that the generator is unable to generate (e.g. due to a forced outage)
- The cost and risk of forced outage is intrinsic to the market – and has to be borne somewhere
  - Lost Revenue (to Generator)
  - Increased purchase costs (of replacement generation)
  - Reduced security of supply (from depleted capacity margins)
- Generator is best placed to manage the reliability of its plant (and hence this risk)
- ***Generator trading forward is preferred*** – as it then faces most of the costs imposed by its reliability issues

# Baseload Reference Price Design – Go for a “Term” Index

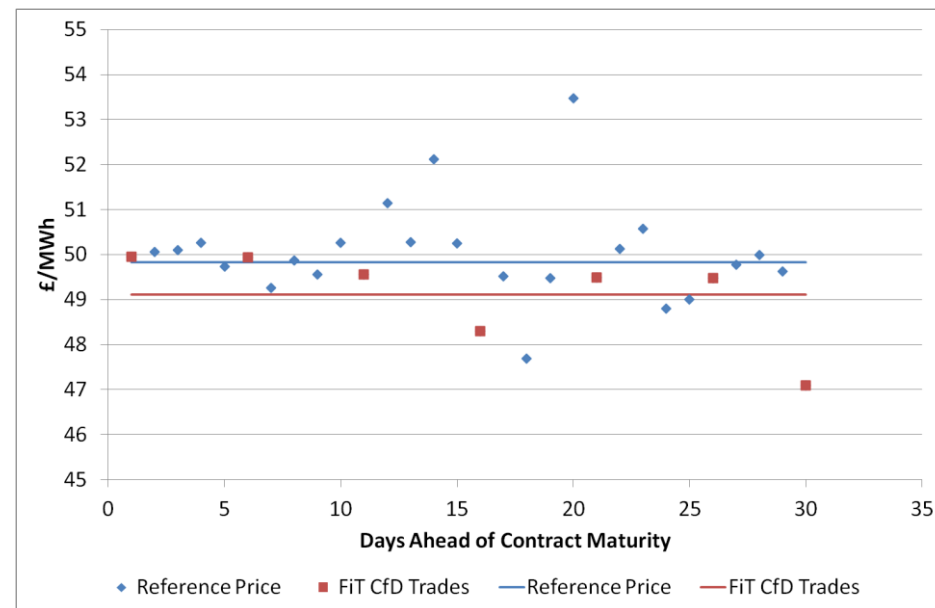


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## Selecting a reference price – a Trade Off

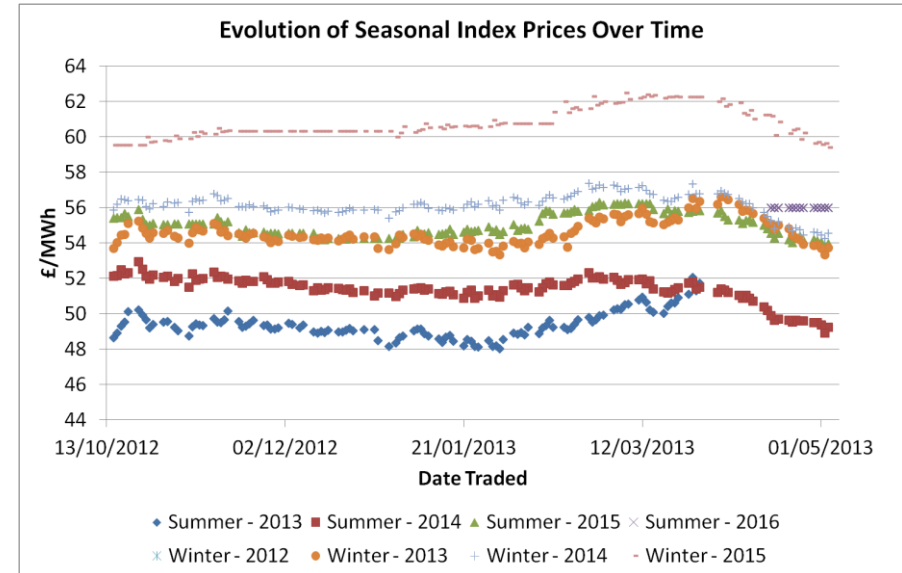
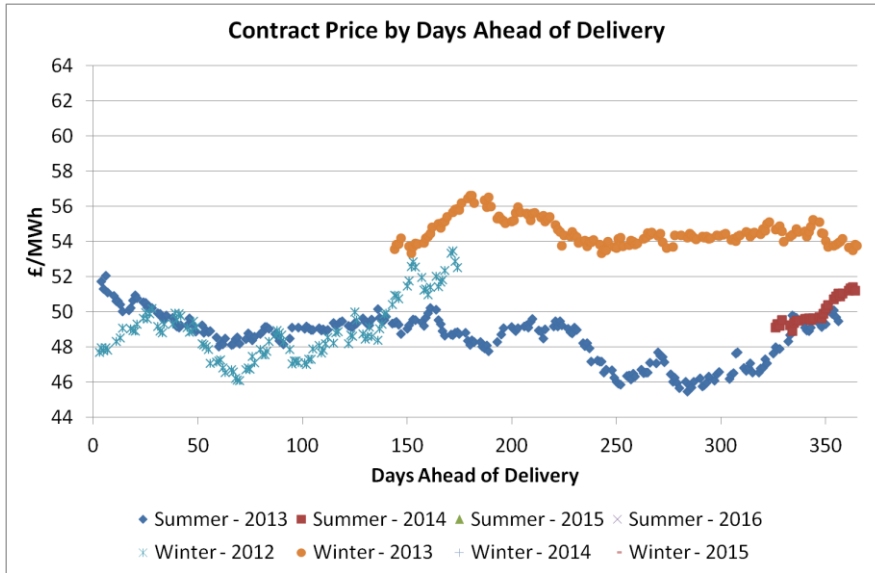
- **Which Contract?:** Ideally Annual Baseload
  - Delivers efficient outage planning
  - Supports Supplier tariff setting;
  - However, Index Risk grows, as liquidity is limited
- **Time over which reference price is measured influences “Index Risk”**
  - Risk that Fit CfD Generator trades on “the wrong day”

- Risk that Generator trades do not match the index due to timing
  - Large generators can do more trades → longer reference period
  - Smaller generators can do fewer trades → shorter reference period
- Risk that Generator trades “move the market”
  - Market “knows you are coming”
  - Volumes exceed liquidity



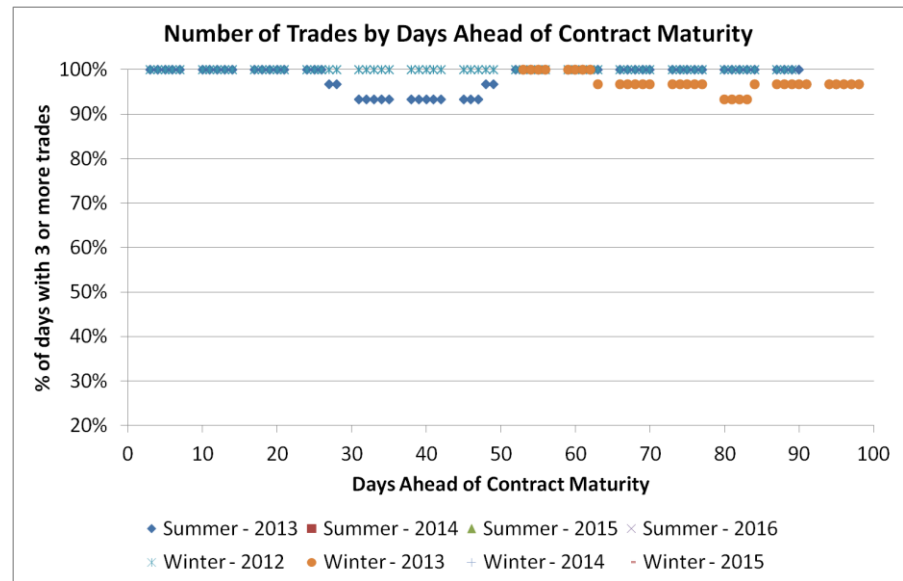
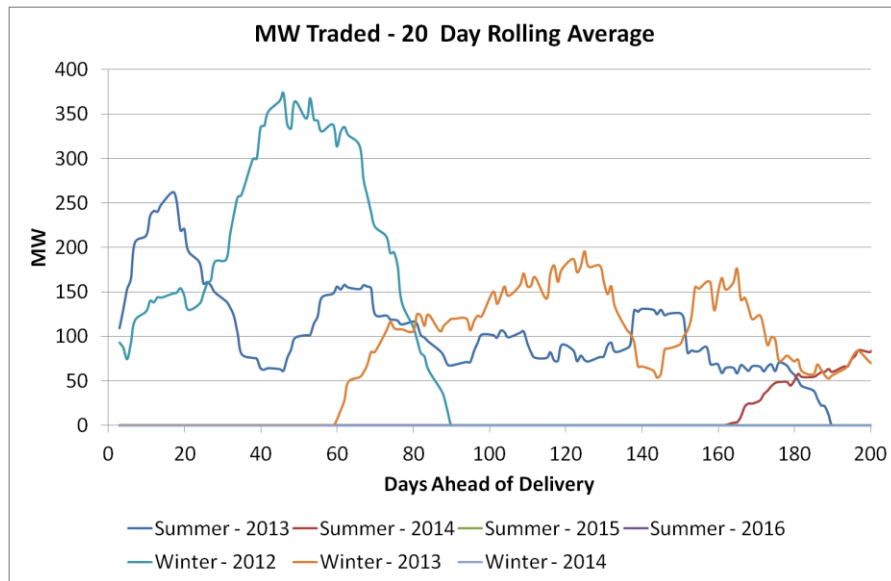
- Risks Substantially Reduced if index is stable and liquid

# Seasonal Price seems “Reasonably” stable for last 60 to 100 days



- On LEBA data, only two seasons have traded to maturity
- Summer 2013 is follows the trend for Winter 2013 closely, suggesting movement in the index is due to new information – rather than intrinsic index volatility
- Winter 2012 data looks erratic

# Seasonal Liquidity seems “reasonable” for last 30 traded days



- On current LEBA data, there are a reasonable number of trades for the last 30 days of trading and even a 1GW plant would make up a small proportion of market if traded daily (~3% of Summer 2013 quantities for last 30 days)
- Suggest reference price is initially based on “average” over last 30 days trading



# Which Average?

- Time Weighted?
  - A simple average of all prices in the for the relevant period (Reference Price Sample Period);
  - A CfD plant owner can minimise its “index” risk by trading “flat” over the Reference Price Sample Period;
  - However – arguably does not reflect the true average – and may then increase Reference Price risk to Suppliers
- Trade Weighted?
  - Each price is “weighted” by the quantity of energy traded on that day.
  - Gives the “true” average of energy traded through the Reference Price Sample Period
  - The approach more classically used for setting price indices
  - May increase reference price risk to Generator – but arguably reduces it for Suppliers
- Initial View – Trade Weighted Average is more correct

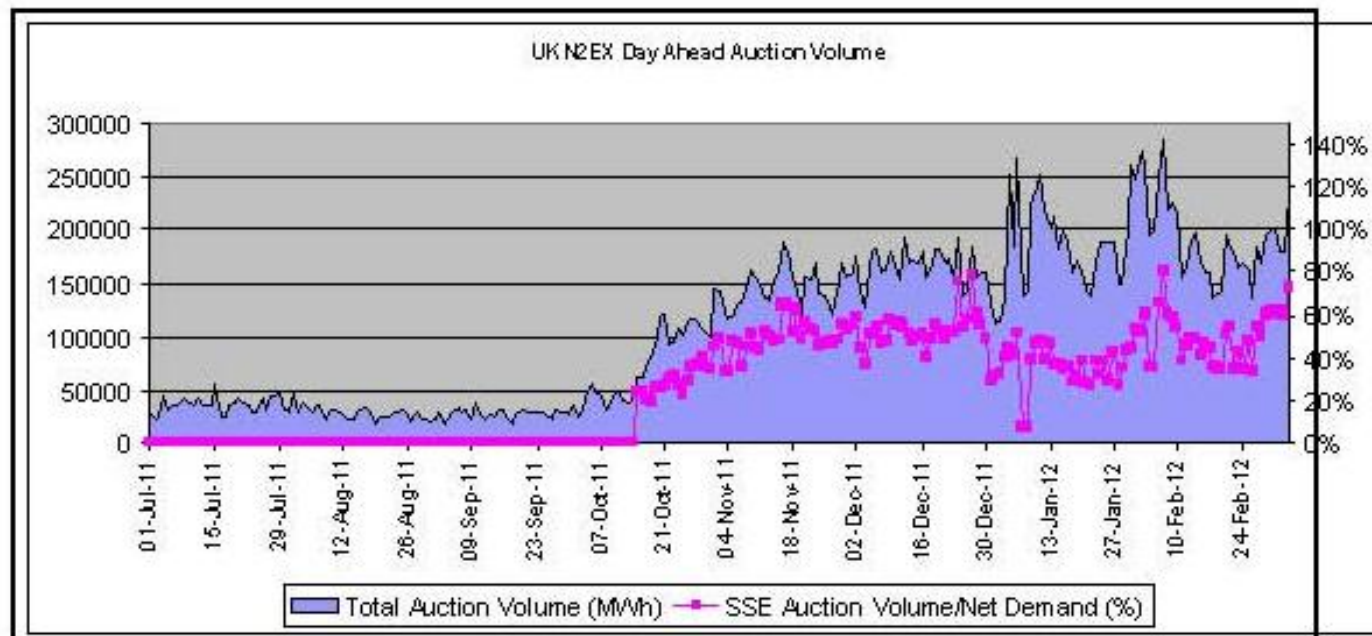
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# Should the reference price change?

- Changing the reference price definition does represent a risk
  - Risk that a subsequent index is more “risky” than the old one
- There is an option of “grandfathering” or “vintaging” the reference price
  - Reference price definition is fixed for a contract once it is let;
  - Improved liquidity in annual or multi annual contracts would lead to a change in the reference price for subsequent contracts
  - This risks taking liquidity away from the indices for early CfDs – increasing index risk
- Choice?
  - Analysis indicates that cost of index risk is low
  - Matching product selection with Ofgem liquidity interventions should further reduce index risk

# Why Allow for Evolution

- Liquidity in forward markets will develop over time:
  - The presence of the FiT CfDs will itself drive liquidity
  - Market Making objectives will drive liquidity
  - Liquidity may move between markets



# Changing the definition of the reference price (STRAW MAN)

## **What Can Change?**

- Which Contract (Year Ahead, Season Ahead)
- How Long is the Reference Price Sample Period?

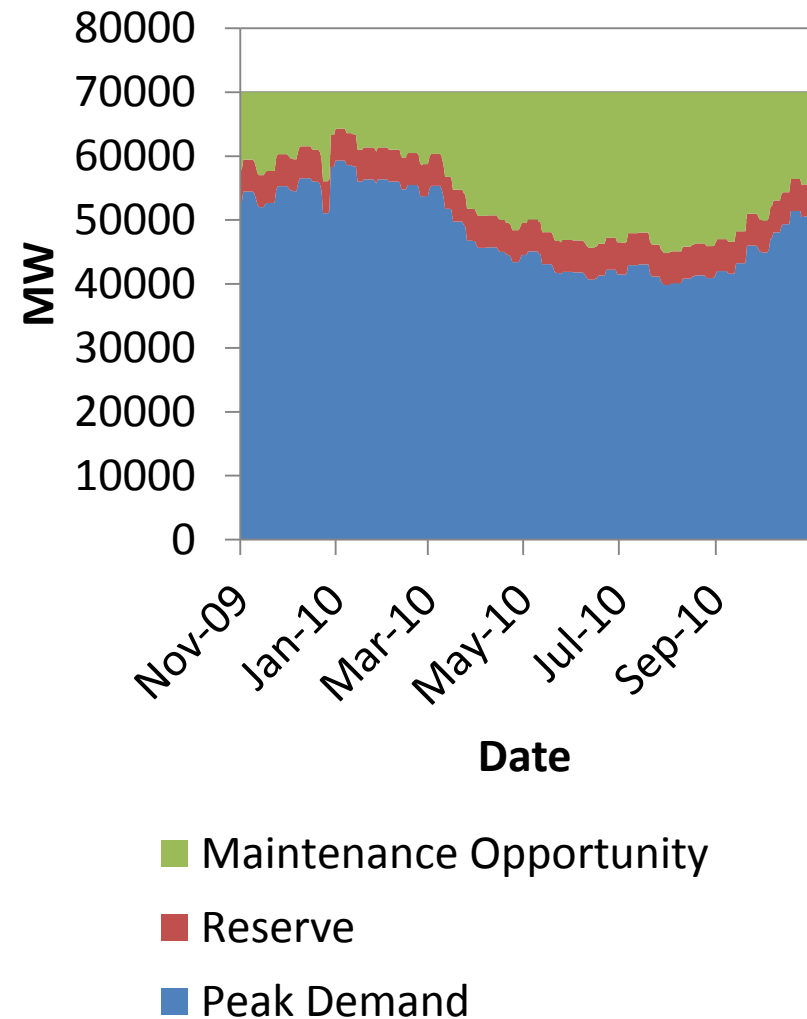
## **Subject to What Guidance?**

- Which Indices are Monitored (existing) liquidity must be sufficient such that, during the Reference Price Sample Period, FiT CfD would be no more than [30]% of the market (subject to review – when the impact of FiT CfD on other markets is noted)
- All Indices with over [5%} of trades should be included – weighted to represent the quantity of energy they trade
- It should be at least [80%] likely that there are 3 or more trades of the relevant product during the Reference Price Sample Period
- Select the longest term contract that satisfies the above

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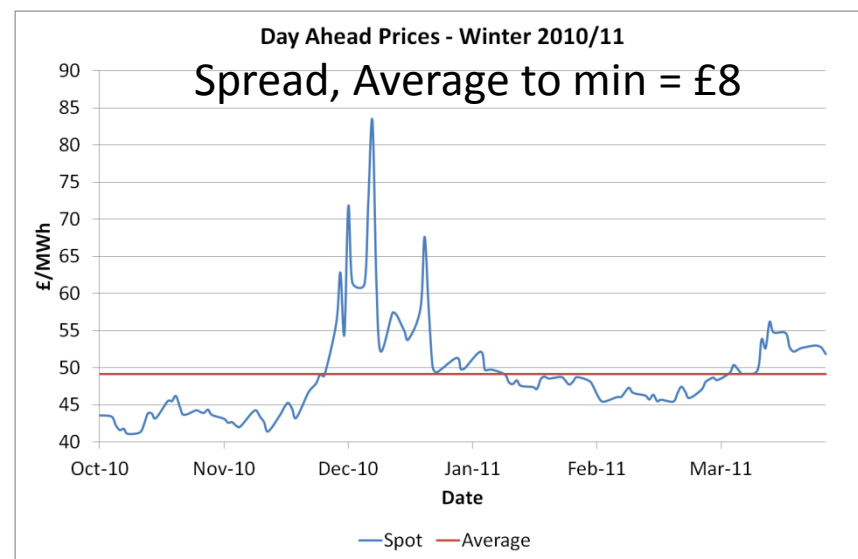
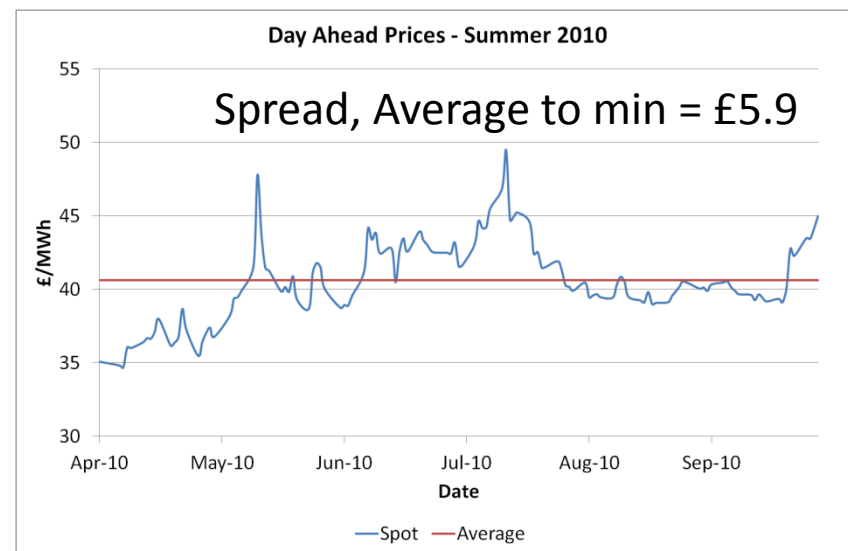
# Outage Planning Incentives

- Generation Outages give rise to several costs
  - Cost of the outage (to Generator)
  - Cost of missed outages (to Generator)
  - Lost Revenue (to Generator)
  - Increased Energy Purchase Costs (to Customers)
  - Reduced Energy Security (to Customers)
- For most generators, this is not a problem
  - Lost Revenue is lowest in summer, when prices are lower
  - Summer also has largest “maintenance opportunity”, so impact on security of supply is minimised
  - NG Coordinate Generation outages (through OC2) to support generation security



# Incentives seen by a Baseload FiT CfD plant may differ

- “Market” cost to Baseload FiT CfD plant of an outage is:
  - Price obtained for forward sales *less*
  - Price to “buy out” commitments in day-ahead market
- Simplistically, this means optimal outage is in season with the greatest difference between average and minimum day-ahead price
- Analysis (albeit limited) of seasonal prices show this “Spread” is greater in Winter; however, it is more “risky”
  - Need perfect foresight of when it will turn cold
  - If get it wrong – prices are more volatile, so cost could be higher





## Outage Incentives – Further Intervention Needed?

- The Incentives of Baseload FiT CfD generators to take outages in summer are weakened if we use a seasonal index for a reference price
- If this gave rise to security issues – we would have early warning through Grid Code (OC2) Outage planning – however, this is not a “binding” process
- Consideration is then needed for how to “correct” incentives:
  - Require cost benefit justification for planned outages outside of the natural outage season (currently Summer)
  - Consider measures to correct incentives on generator

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# Effect of Further Regulation - Liquidity

- “Market Maker” proposals being progressed
  - requires major players to hold offers and bids in forward markets
  - Limits on bid-offer spreads
- Should improve certainty over market price and confidence in indices
  - Major players do not need to trade – so liquidity will only increase if there are others that do want to trade;
  - now face a “risk” if their bids or offers are accepted
  - This “risk” to major players should drive their bids to closely match price expectations – even where liquidity is low

## Effect of Further Regulation - REMIT

- Key relevant impact of REMIT is where there are multiple-indices for the same/similar products (Season, Annual etc)
- Differences between these indices would then result from:
  - Fundamental differences in the value of the products being traded;
  - Manipulation by market participants; or
  - (rarely) anomalous trades on one index
- Under REMIT, all trades will be reported to an industry regulator
  - Manipulation of an index should be self evident, and removed over time.