Removing Capacity Discounts

Entry Charging Review Group, 11th November 2009

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Introduction

- An action from the second Entry Charging Review Group meeting was “to provide analysis to support the selection of reserve price options, concentrating on historic data”.
- The first part of this presentation looks at the revenue that National Grid would have collected from April 2008 to March 2009 if entry capacity discounts were removed.
  - The European methodology of applying multipliers across months for daily capacity is also considered.
- The second part of this presentation covers the potential entry capacity revenue going forward if entry capacity discounts were removed.

NTS Revenue (April 2008 to March 2009) if Entry Capacity Discounts had not Applied

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Revenue Collected through Daily Auctions

This table shows the revenue that was collected through the Day Ahead Daily System Entry Capacity (DADSEC), Within-Day Daily System Entry Capacity (WDDSEC) and Daily Interruptible System Entry Capacity (DISEC) auctions from April 2008 to March 2009.

ASEP	DADSEC (£)	WDDSEC (£)	DISEC (£)	Total
AVONMOUTH LNG	1,078.00	27.00	570.00	**1,675.00**
BACTON	412,744.79	39,984.17	84,377.14	**537,106.10**
BARROW	2,018.40	411.70	3,359.00	**5,789.10**
BARTON STACEY	0.00	0.00	0.00	**0.00**
BURTON POINT	0.00	0.00	0.00	**0.00**
CHESHIRE	0.00	0.00	0.00	**0.00**
DYNEVOR ARMS LNG	730.40	64.00	250.00	**1,044.40**
EASINGTON & ROUGH	161,342.32	20,595.08	237,811.28	**419,748.68**
GARTON	0.00	0.00	0.00	**0.00**
GLENMAVIS LNG	1,071.00	240.00	830.00	**2,141.00**
HATFIELD MOORS ONSHORE	0.00	0.00	0.00	**0.00**
HATFIELD MOORS STORAGE	0.00	989.40	178.80	**1,168.20**
HOLEHOUSE FARM STORAGE	0.00	0.00	0.00	**0.00**
HORNSEA STORAGE	11,787.50	8,248.44	3,478.41	**23,514.35**
ISLE OF GRAIN LNG	130.80	55.00	0.00	**185.80**
MILFORD HAVEN	0.00	0.00	0.00	**0.00**
PARTINGTON LNG	11,711.42	112.32	560.50	**12,384.24**
ST FERGUS	29,460.00	11,379.13	16,792.80	**57,631.93**
TEESSIDE	12,802.50	2,512.50	2,806.69	**18,121.69**
THEDDLETHORPE	70,198.04	8,501.61	21,531.81	**100,231.46**
WYTCH FARM ONSHORE	0.00	0.00	0.00	**0.00**
Total	**715,075.17**	**93,120.35**	**372,546.43**	**1,180,741.95**

Removing Capacity Discounts

This table shows the revenue that would have been collected through the DADSEC, WDDSEC and DISEC auctions if MSEC reserve prices had been applied on a daily basis (p/kWh/day) from April '08 to March '09.

ASEP	DADSEC (£)	WDDSEC (£)	DISEC (£)	Total
AVONMOUTH LNG	1,078.00	35,347.76	7,169.60	**43,595.36**
BACTON	628,003.33	8,864,929.64	10,505,411.05	**19,998,344.03**
BARROW	3,046.60	29,815.20	1,504,457.96	**1,537,319.76**
BARTON STACEY	0.00	0.00	0.00	**0.00**
BURTON POINT	0.00	0.00	0.00	**0.00**
CHESHIRE	0.00	0.00	0.00	**0.00**
DYNEVOR ARMS LNG	388.40	6,410.20	4,284.80	**11,083.40**
EASINGTON & ROUGH	231,244.20	2,122,925.93	10,179,165.94	**12,533,336.07**
GARTON	0.00	0.00	0.00	**0.00**
GLENMAVIS LNG	1,602.00	3,819,354.48	376,409.95	**4,197,366.44**
HATFIELD MOORS ONSHORE	0.00	0.00	6.60	**6.60**
HATFIELD MOORS STORAGE	0.00	5,406.50	2,331.30	**7,737.80**
HOLEHOUSE FARM STORAGE	0.00	0.00	121.62	**121.62**
HORNSEA STORAGE	17,538.40	2,933,209.51	4,254,167.93	**7,204,915.84**
ISLE OF GRAIN LNG	130.80	21,470.10	10,277.14	**31,878.04**
MILFORD HAVEN	0.00	0.00	0.00	**0.00**
PARTINGTON LNG	11,522.42	12,689.09	5,994.09	**30,205.60**
ST FERGUS	44,145.00	21,979,573.57	54,062,455.49	**76,086,174.05**
TEESSIDE	19,090.00	2,231,236.66	4,636,341.87	**6,886,668.53**
THEDDLETHORPE	107,188.22	2,085,565.99	4,505,127.65	**6,697,881.87**
WYTCH FARM ONSHORE	0.00	0.00	0.00	**0.00**
Total	**1,064,977.38**	**44,147,934.63**	**90,053,722.99**	**135,266,635.00**

Gas Flow Allocations Above Monthly Capacity Bookings - Assuming "Near-Perfect" Trading

This table shows the revenue that would have been collected from allocations above monthly capacity bookings from April '08 to March '09 if MSEC reserve prices were applied. The full effect of Shippers with allocations above or below their monthly capacity bookings is hidden by the aggregation of the results by ASEP. It therefore assumes "near perfect"" trading.

ASEP	Revenue from Monthly Capacity Bookings (£)	Revenue from Allocations Above Monthly Capacity Bookings if MSEC Prices were Applied (£)	Total
AVONMOUTH LNG	730.00	391.88	1,121.88
BACTON	18,230,396.12	2,305,893.66	20,536,289.78
BARROW	606,299.38	0.00	606,299.38
BARTON STACEY	0.00	0.00	0.00
BURTON POINT ONSHORE	21,763.16	0.00	21,763.16
CHESHIRE STORAGE	12,982.60	0.00	12,982.60
DYNEVOR ARMS LNG	13,761.20	126.63	13,887.83
EASINGTON	52,611,219.68	475,723.30	53,086,942.98
GARTON	2,759,400.00	0.00	2,759,400.00
GLENMAVIS LNG	128,948.00	31,516.28	160,464.28
HATFIELD MOORS ONSHORE	2,809.26	0.00	2,809.26
HATFIELD MOORS STORAGE	213,813.61	1,067.25	214,880.86
HOLEHOUSE FARM STORAGE	35,532.98	0.00	35,532.98
HORNSEA STORAGE	1,982,307.14	262,930.89	2,245,238.03
ISLE OF GRAIN LNG	8,300,386.00	422.67	8,300,808.67
MILFORD HAVEN	20,332,048.00	0.00	20,332,048.00
PARTINGTON LNG	730.00	746.27	1,476.27
ST FERGUS	104,166,120.43	0.00	104,166,120.43
TEESSIDE	5,068,805.42	0.00	5,068,805.42
THEDDLETHORPE	2,275,260.96	189,709.38	2,464,970.34
WYTCH FARM ONSHORE	0.00	0.00	0.00
Total	**216,763,313.94**	**3,268,528.22**	**220,031,842.16**

Applying European Multipliers

Applying the average of the multipliers used across Europe to the revenue generated from gas flow allocations above monthly capacity bookings increases the revenue from £3.3m to £12.4m.

Month	UK	Average of Other European Multipliers
January	1	10.03
February	1	10.03
March	1	5.44
April	1	4.66
May	1	3.38
June	1	3.38
July	1	3.38
August	1	3.38
September	1	3.42
October	1	4.29
November	1	4.81
December	1	9.60

ASEP	Revenue from Gas Flow Allocations Above Monthly Capacity Bookings if MSEC Prices were Applied (£)	With European Multipliers Applied (£)
AVONMOUTH LNG	391.88	3,916.95
BACTON	2,305,893.66	8,383,802.08
BARROW	0.00	0.00
BARTON STACEY	0.00	0.00
BURTON POINT ONSHORE	0.00	0.00
CHESHIRE STORAGE	0.00	0.00
DYNEVOR ARMS LNG	126.63	1,225.99
EASINGTON	475,723.30	1,814,510.21
GARTON	0.00	0.00
GLENMAVIS LNG	31,516.28	306,171.76
HATFIELD MOORS ONSHORE	0.00	0.00
HATFIELD MOORS STORAGE	1,067.25	3,740.48
HOLEHOUSE FARM STORAGE	0.00	0.00
HORNSEA STORAGE	262,930.89	1,138,808.05
ISLE OF GRAIN LNG	422.67	1,929.62
MILFORD HAVEN	0.00	0.00
PARTINGTON LNG	746.27	7,288.12
ST FERGUS	0.00	0.00
TEESSIDE	0.00	0.00
THEDDLETHORPE	189,709.38	691,481.49
WYTCH FARM ONSHORE	0.00	0.00
Total	**3,268,528.22**	**12,352,874.76**

Gas Flow Allocations Above Monthly Capacity Bookings - Not Accounting for Trading

- This table shows the revenue that would have been collected from gas flow allocations above monthly capacity holdings from April 2008 to March 2009 if MSEC reserve prices were applied.
- The volume of capacity in excess of monthly capacity holdings has been calculated for each individual Shipper Licensed entity before being aggregated for each ASEP, and **the results do not take account of shipper trading of capacity**.

ASEP	Revenue from Monthly Capacity Bookings (£)	Revenue from Daily Capacity Bookings (£)	Revenue from DADSEC, WDDSEC and DISEC auctions if MSEC prices are applied (£)	Revenue from Gas Flow Allocations Above Monthly Capacity Bookings if MSEC Prices were Applied (£)
BACTON	18,230,396.12	537,106.10	19,998,344.03	
BARROW	606,299.38	5,789.10	1,537,319.76	
EASINGTON & ROUGH	52,611,219.68	419,748.68	12,533,336.07	
ST FERGUS	104,166,120.43	57,631.93	76,086,174.05	
TEESSIDE	5,068,805.42	18,121.69	6,886,668.53	
THEDDLETHORPE	2,275,260.96	100,231.46	6,697,881.87	
Total	**182,958,101.99**	**1,138,628.96**	**123,739,724.31**	**71,137,977.39**

Summary (Historic Analysis)

- The historic analysis suggests that change in shipper capacity procurement behaviour will have a significant impact should we;
  - remove zero reserve prices for on-the-day Firm (WDDSEC) and Interruptible (DISEC) capacity, and remove reserve price discounts for Day Ahead Daily System Entry Capacity (DADSEC)
    - ***Non zero daily capacity prices might be expected to result in lower quantities of daily capacity Sold***
  - adopt the European methodology of applying different factors to daily capacity according to the month it is purchased
    - ***Price differentials between daily/monthly and monthly/quarterly might be expected to result in greater reliance on longer duration products***

Potential Future Entry Capacity Revenue if Entry Capacity Discounts Were Removed.

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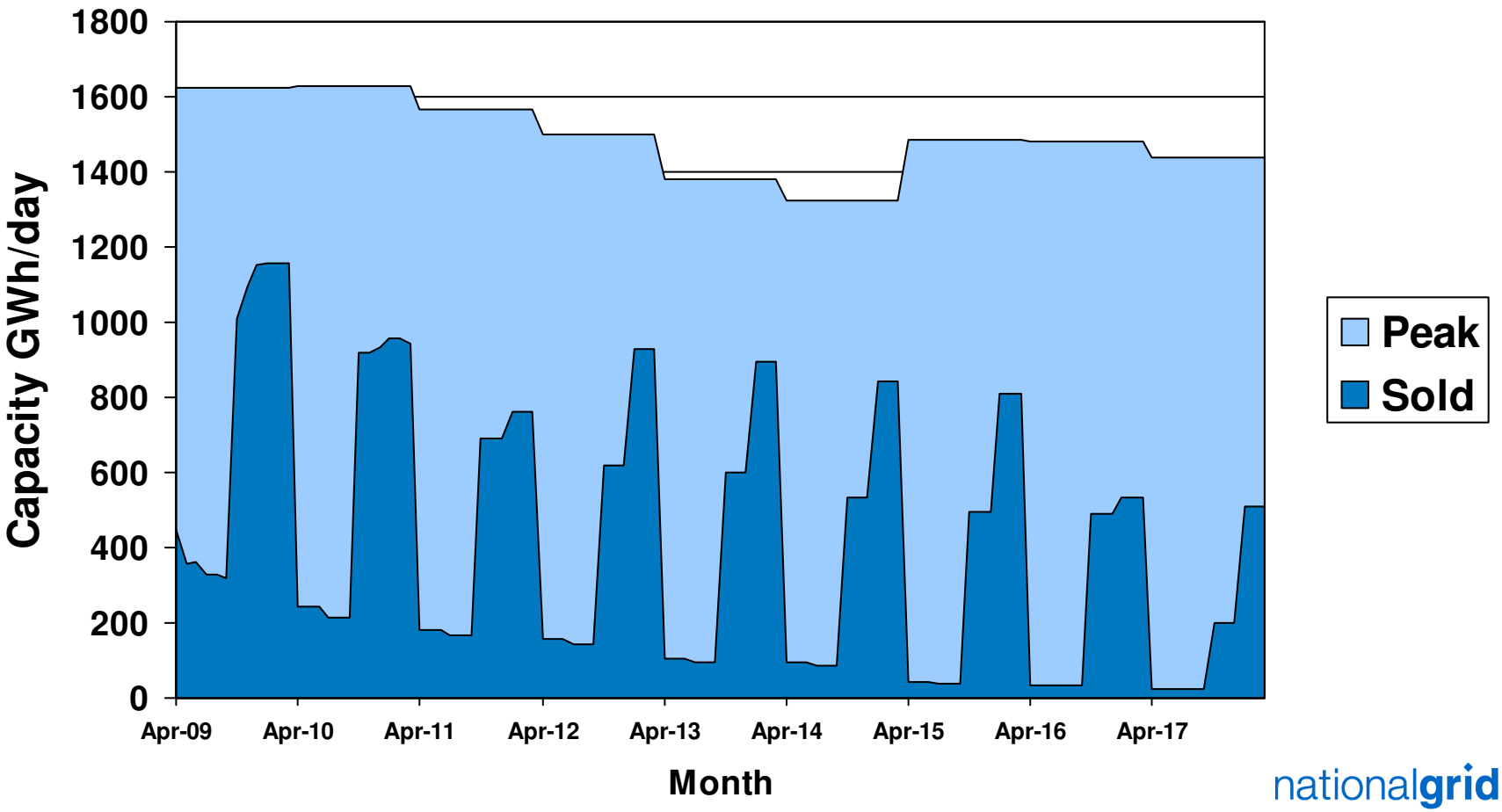
Future Impact of Removing Entry Discounts

- The following analysis covers a forecast of entry capacity revenue going forward taking into account the potential removal of daily capacity discounts.
- The assumptions required in order to forecast entry capacity revenue are
  - Forecast peak supply levels
  - Forecast supply profiles
  - Capacity sold
  - Capacity requirement

Sold Capacity & Forecast Supplies

- The following graph shows the Bacton entry capacity sold at 1st October 2009 and the 2008 Ten Year Statement forecast peak supplies



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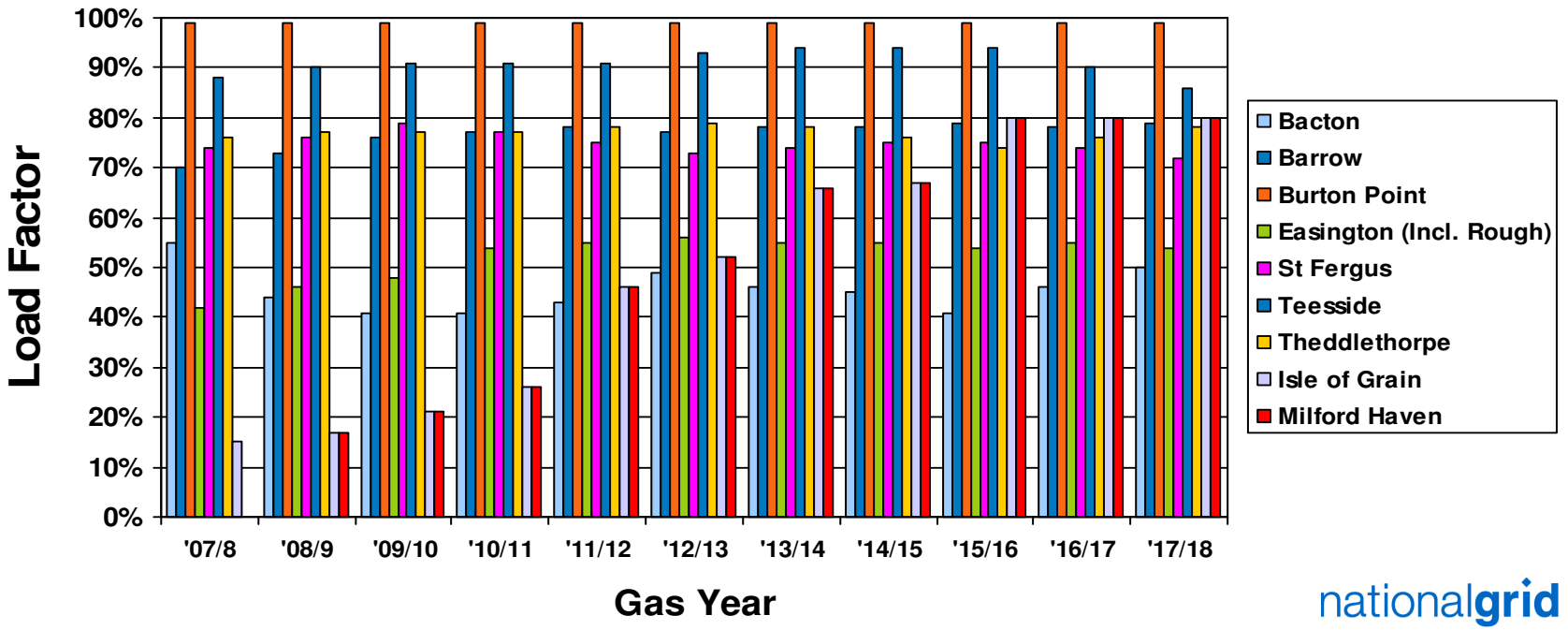
Profile (Load Factor) of Capacity Required

- The Ten Year Statement (TYS) provides forecast peak and annual supply data but experience indicates that capacity for peak supplies will not be procured 365 days per year
- The following graph shows the TYS load factor for each ASEP
  - Load Factor = ratio of average daily supply to peak supply
  - The average daily supply is calculated from by the annual forecast divided by 365



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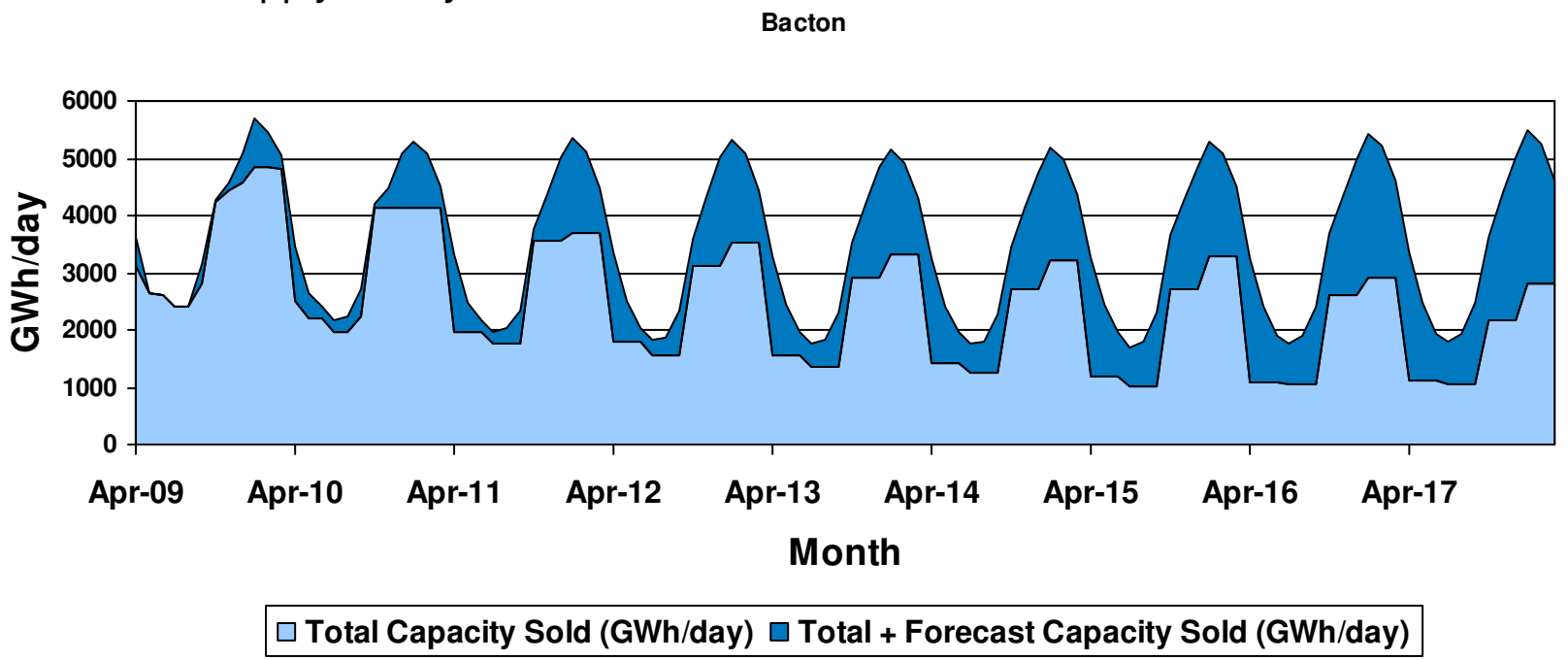
Model

- To take the “load-factor” into account, a profile, with the maximum equal to the forecast maximum supply and average equal to the forecast annual supply, can be fitted for each ASEP
  - Maximum supply in January equals peak supply (minimum supply in July)
  - Maximum supply equals peak supply unless load factor <50%
    - If load-factor<50%, January supplies are scaled down to avoid a negative supply in July



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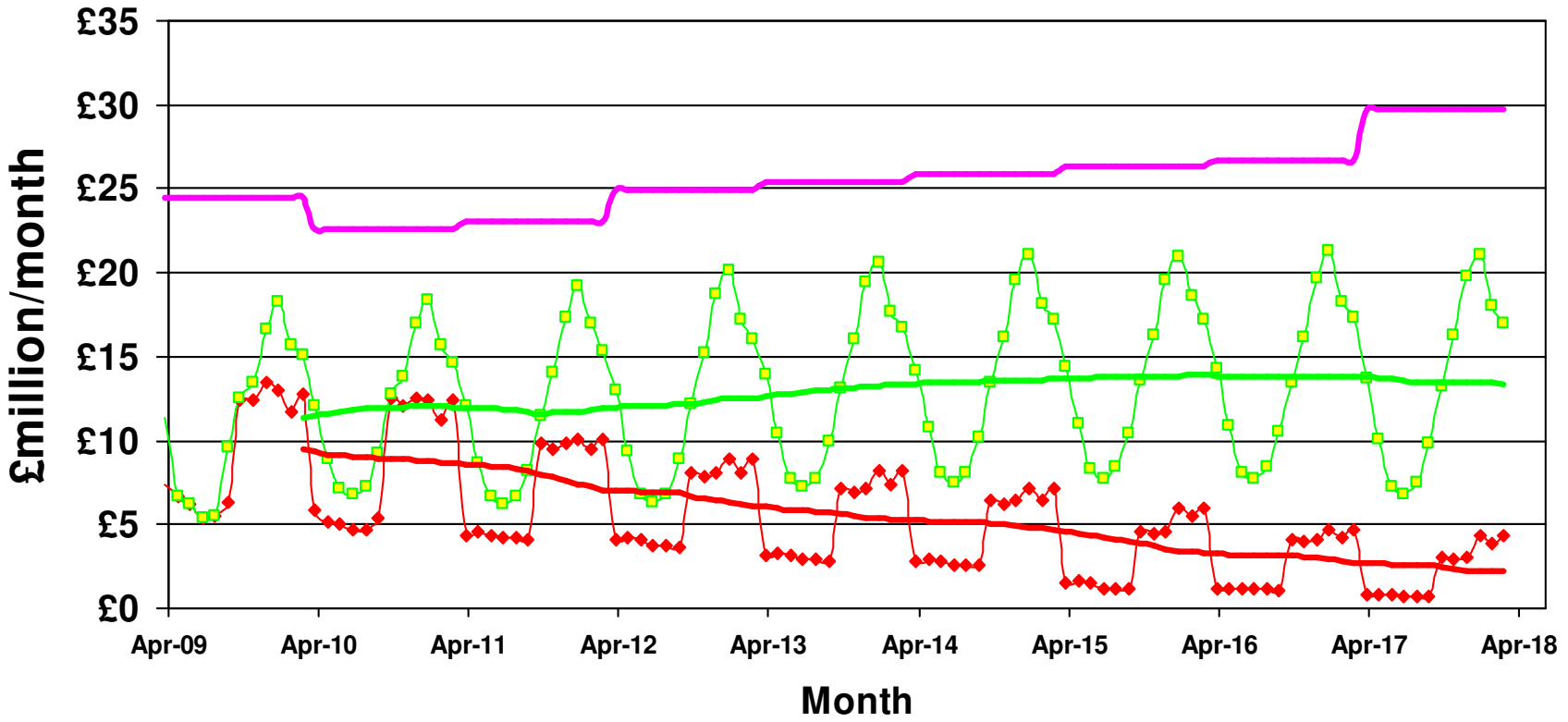
Assumptions

- Forecast capacity required for all beach ASEPs has been calculated on this basis
- Capacity is assumed to be procured to exactly meet forecast supply and paid for
- 2009 QSEC prices have been used as the latest forecast of future prices

Forecast & Allowed Monthly TO Revenue

Post meeting slide correction



The 12 month moving averages have been included so that they can be compared with the allowed revenue which is fixed for the 12 months of the formula year (April to March).

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Summary (Forward Looking)

- The forward looking analysis suggests that, assuming the removal of entry capacity discounts (firm & interruptible), entry capacity revenue will increase as more capacity is procured based on prices generated from the Transportation Model
  - NB prior to 2007 prices were based on UCAs and were on average 33% lower compared to the prevailing prices
- Removal of discounts will not necessarily remove the shortfall between TO target entry revenue and TO entry capacity revenue (depending on shipper booking behaviour)

European Model

- **The shortfall between allowed and forecast revenue could be met through adopting a more European based charging model**
  - Prevailing UK Charging Methodology – daily rate for all products (durations) 1/365th annuitised LRMC
    - Discounts; 33% day-ahead daily firm & 100% for within day firm & interruptible daily capacity
  - European Model
    - Annual cost = annuitised LRMC (adjusted for allowed revenue where required)
    - Monthly & Daily Price Factors applied such that; Monthly charges greater than 1/12th of annual, Daily charges greater than 1/365th of annual
    - No or minimal discounts
- **Assumptions would need to made about the following in order to set appropriate daily to monthly and monthly to quarterly/annual price ratios**
    - Quantity of capacity procured through each product
    - Shipper procurement strategies
    - Level of trading

Further Analysis

- Views are invited as to what further analysis might inform an appropriate price level for daily (firm & interruptible) and monthly capacity relative to quarterly/annual…