

CMP213 Impact Assessment Modelling



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Ofgem Stakeholder Event
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Introduction

- Purpose of Modelling
- Overview of the Model
- Modelling Approach
- Summary of Results
- Q & A Session

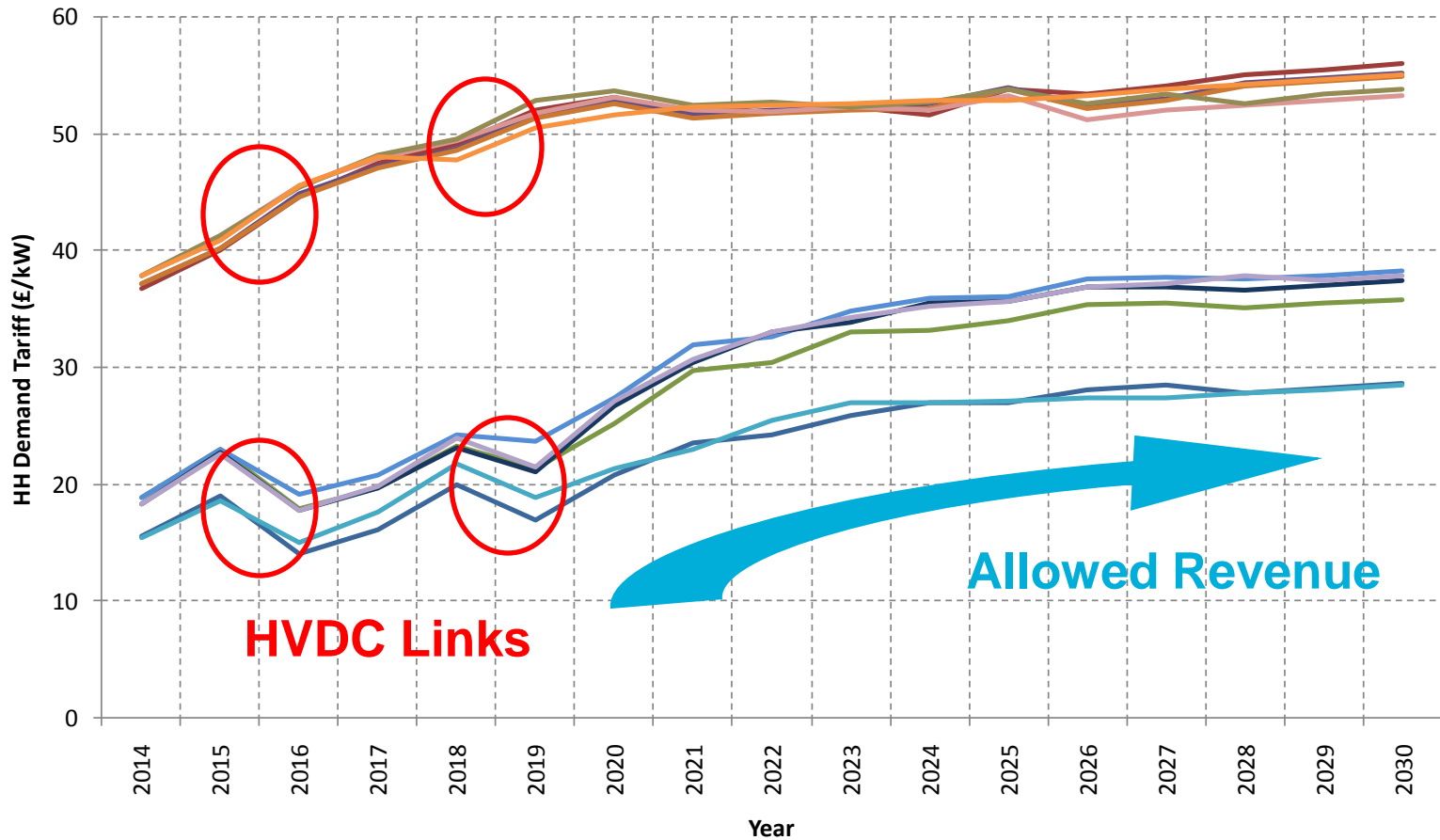
Purpose

- To provide a robust evidence base to enable a comparison of different options proposed under CMP213 and its alternatives.
- By establishing a long term illustration of the direction taken by the following under each model:
 - Tariffs
 - Generation build & retirements
 - Transmission investment
 - Power Sector Costs
 - Costs to the consumer
- Exact timing of events may vary in reality but provide a good representation of long term trends. It is not intended to provide a year on year forecast of actual tariffs.

Approach

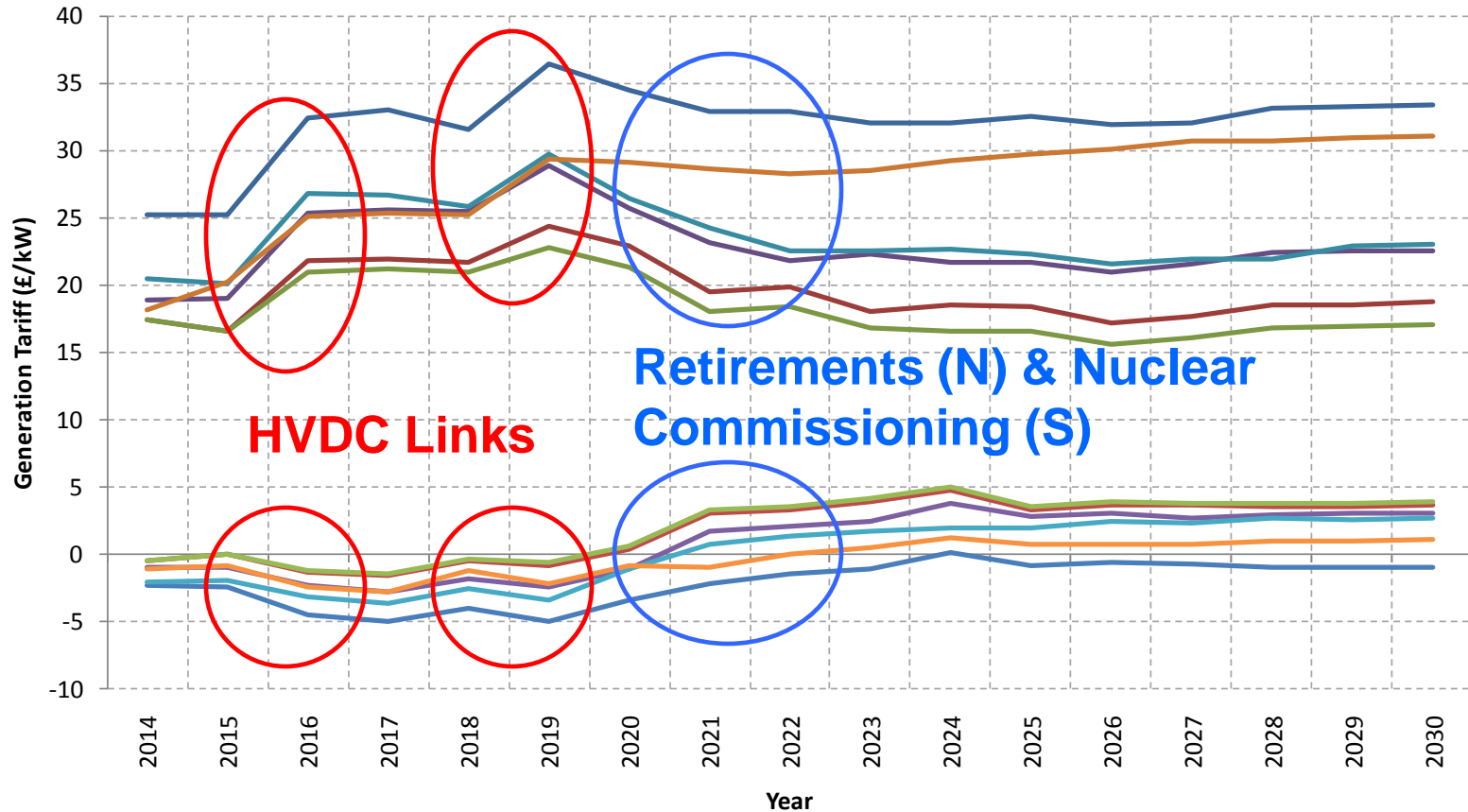
- Input data sourced from public domain (e.g. DECC commodity price forecasts).
- Available generation projects reviewed and updated (e.g. offshore).
- Revenue recovery split 27:73 Generation to Demand.
- CfD strike prices set to achieve:
 - 30% of demand met by renewables by 2020;
 - Carbon intensity of ~100g/kWh in 2030; and
 - Approximately 14GW of nuclear generation by 2030.
- Engagement with CMP213 Workgroup:
 - Assumptions on nuclear life extensions.
 - CfDs & Capacity Mechanism active from 2018-19.
 - Changes to modelling of the Capacity Mechanism.

Demand Tariffs



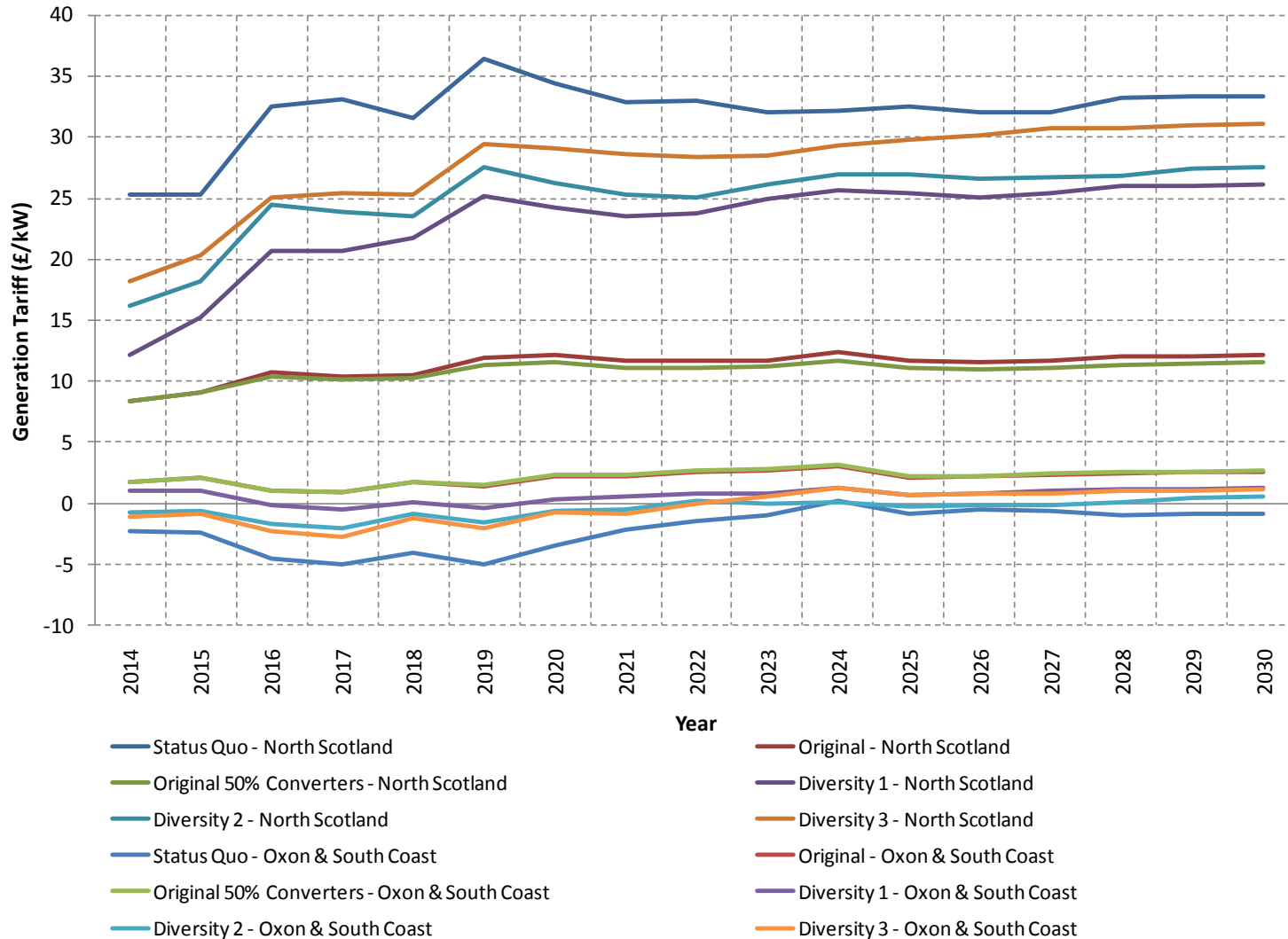
- Status Quo - Northern Scotland
- Original - Northern Scotland
- Status Quo - South East
- Original - South East
- Original 50% Converters - Northern Scotland
- Original 50% Converters - South East
- Diversity 1 - Northern Scotland
- Diversity 1 - South East
- Diversity 2 - Northern Scotland
- Diversity 2 - South East
- Diversity 3 - Northern Scotland
- Diversity 3 - South East

Generation Tariffs (70% Conventional)



- Status Quo - North Scotland
- Original 50% Converters - North Scotland
- Diversity 2 - North Scotland
- Status Quo - Oxon & South Coast
- Original 50% Converters - Oxon & South Coast
- Diversity 2 - Oxon & South Coast
- Original - North Scotland
- Diversity 1 - North Scotland
- Diversity 3 - North Scotland
- Original - Oxon & South Coast
- Diversity 1 - Oxon & South Coast
- Diversity 3 - Oxon & South Coast

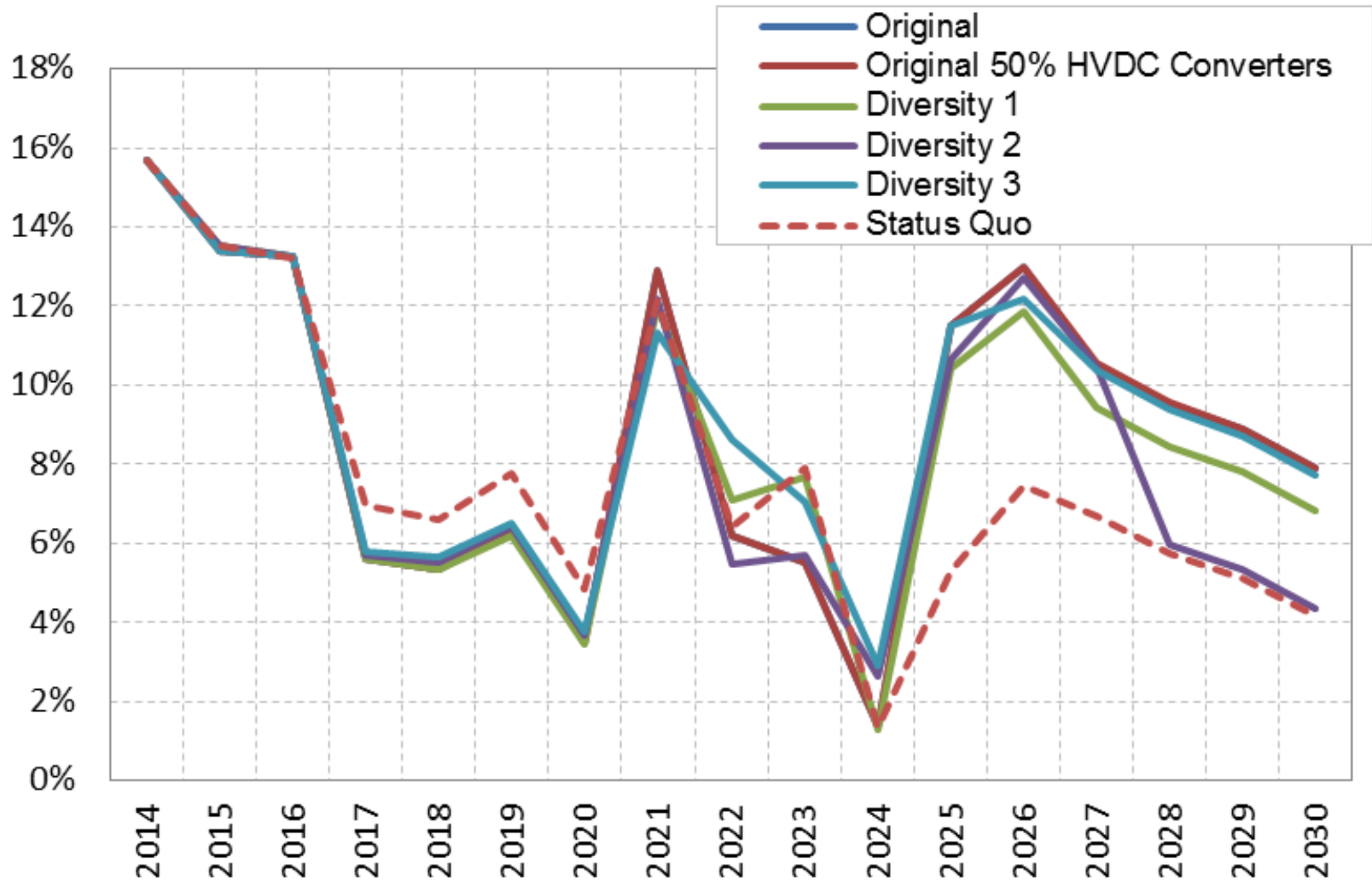
Generation Tariffs (30% Intermittent)



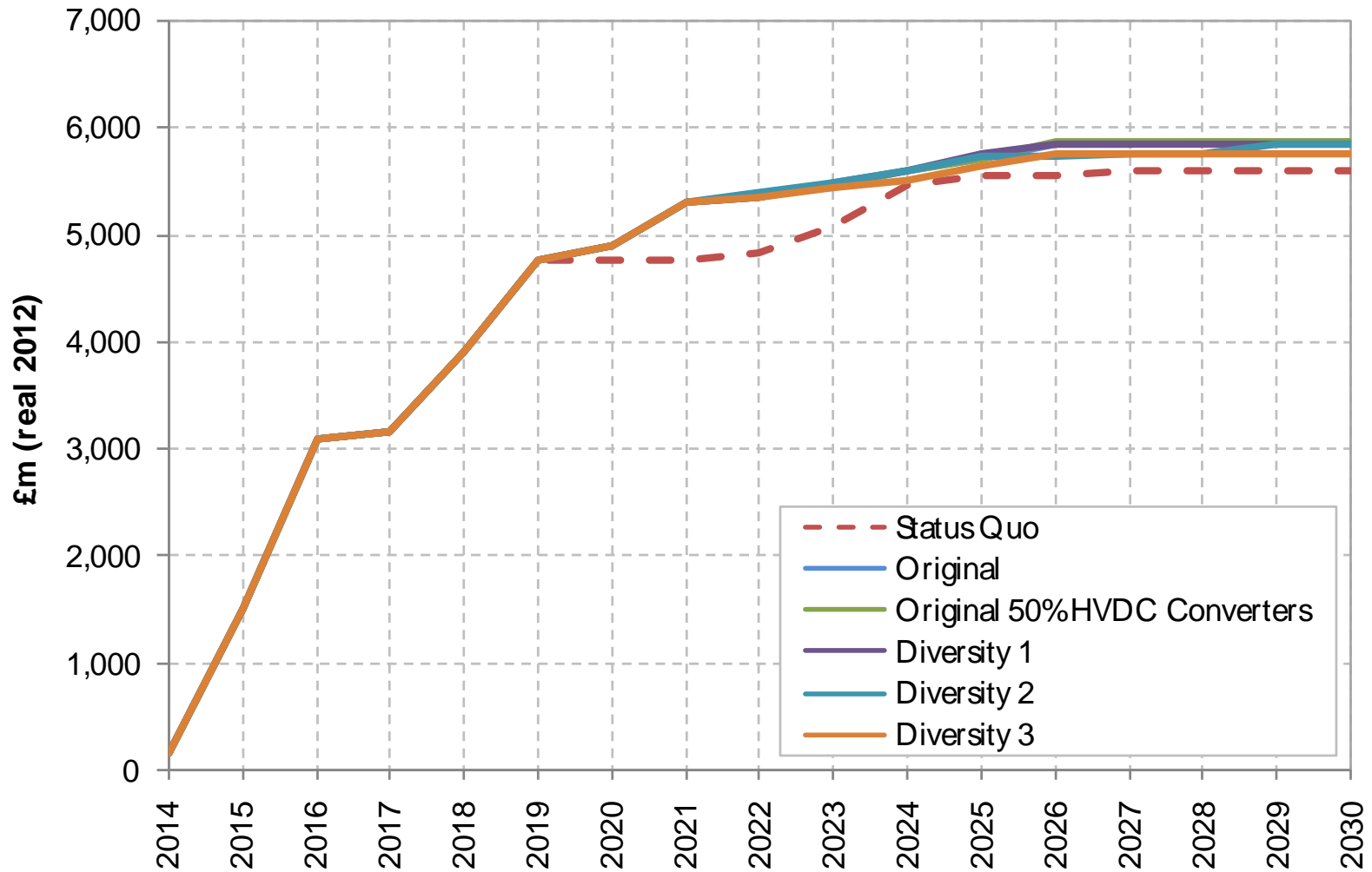
Generation Mix

- CMP213 & Alternatives have little effect on CCGT build
 - Diversity 3 has greater build rate, but offset by additional closures
- Retirements based upon profitability
 - Capacity Mechanism
 - Timing variations from Status Quo
- Additional onshore wind built under CMP213 and its alternatives
 - Greater under original (601MW by 2030) than diversity options (284MW)
- Less offshore wind build under CMP213 and its alternatives (e.g. 1.2GW by 2020 and 2.1GW by 2030 under diversity 1).
- 900MW additional CCGT CCS capacity built by 2030 under CMP213 and its alternatives

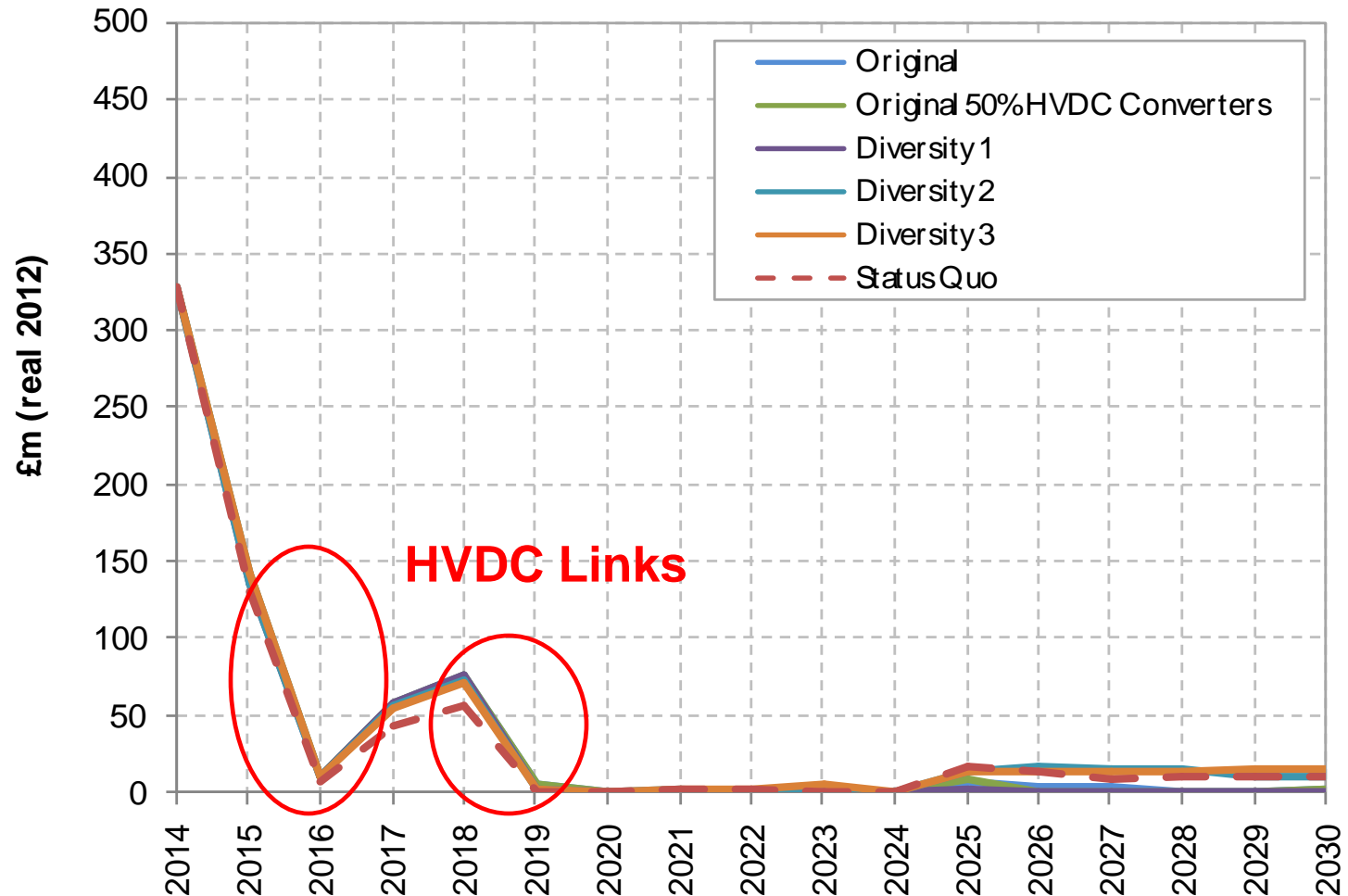
Capacity Margins



Transmission Investment Costs



Transmission Constraint Costs



Cost Summary

		NPV 2011-2030 (£m real 2012)				
		Original	Diversity 1	Diversity 2	Diversity 3	HVDC (50% Option)
<i>Benefit relative to Status Quo</i>						
Power sector costs	Generation costs	874	1,448	-230	-1,447	835
	Transmission costs	351	550	309	91	340
	Constraint costs	-7	9	-32	-42	-5
	Carbon costs	152	-58	259	231	171
	Decrease in power sector costs	1,370	1,949	306	-1,167	1,342
Consumer Bills	Wholesale costs (inc. capacity payments)	2,465	1,793	1,513	6,509	2,498
	BSUoS	-4	4	-16	-21	-2
	Transmission losses	-90	-9	-5	25	-98
	Demand TNUoS charges	322	408	230	48	320
	Low carbon support	495	1,597	-104	-1,873	431
	Decrease in consumer bills	3,188	3,792	1,618	4,689	3,148

Summary of Results

- Renewables targets met by all models
- Tariff changes driven by similar events under each model:
 - Network investments (e.g. HVDC)
 - Revenue changes
 - Generation background changes (retirements/nuclear build)
- Small variations in generation mix under different models (offshore wind / onshore wind / CCGT CCS)
- Similar timings for major network investments
- Models inclusive of 50% HVDC converter costs within the locational charge produce similar results to 100% models
- All options reduce costs to consumers

Forthcoming Publications

- Indicative tariffs for 2014-15 (based on minded to position) – September 2013
- TNUoS Charge Calculator
- Update of 2014-15 tariff forecast (incorporating minded to position) – November 2013
- Draft Tariffs – End of December 2013

Further Information

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