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CMP213: Modeling approach review

Presentation to Stakeholder Event

CLIENT: Ofgem
DATE: 06/09/2013

Reputation built on Results

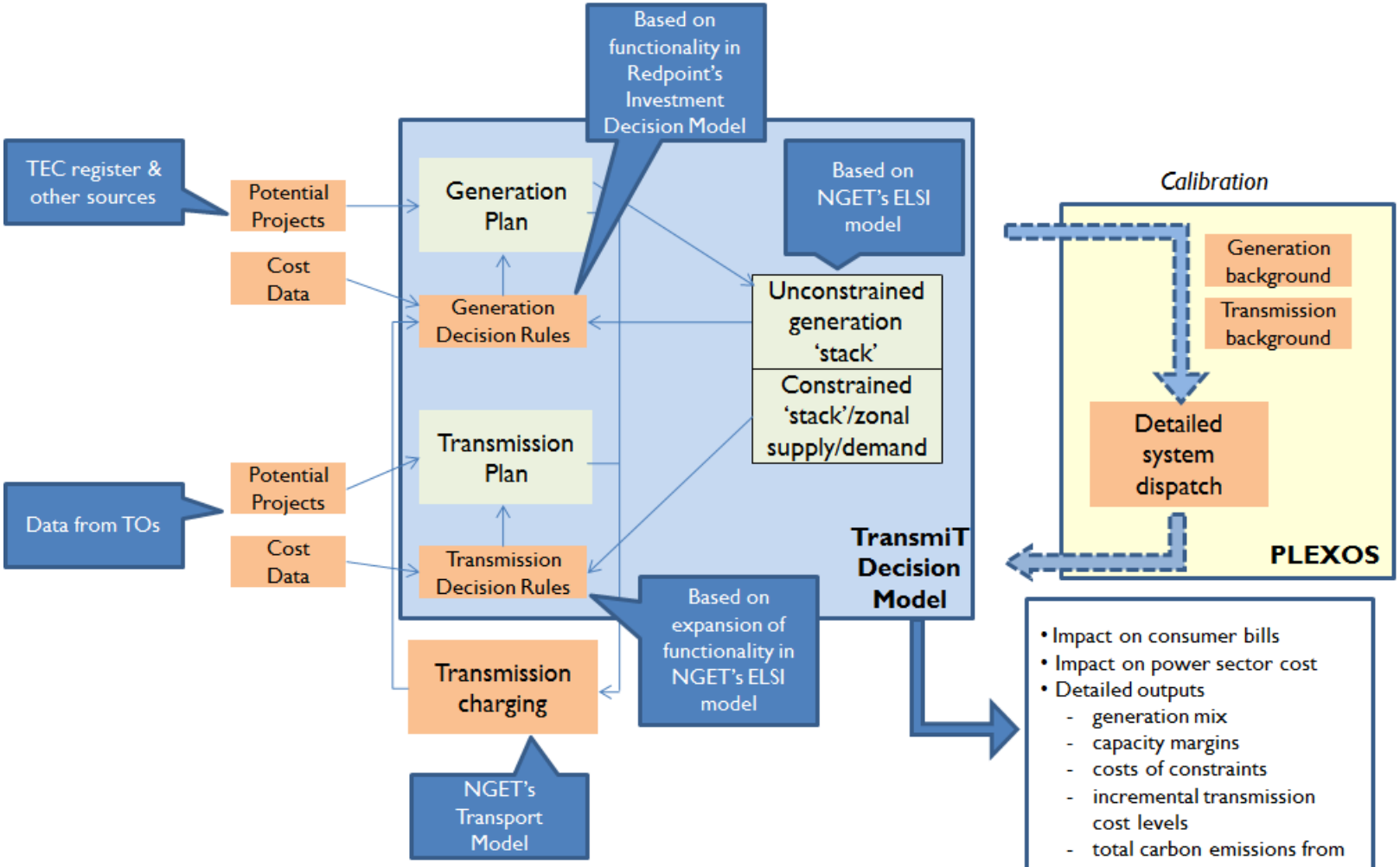
Overview

- Updates to assumptions appear appropriate
- Modelling enhancements have been implemented correctly and differences in results are consistent with the changes made
- Significant differences in results attributed to assumption changes – mainly greater availability of offshore wind and nuclear extensions
- Results of the CMP213 modelling provide a reliable basis for draft decision

Review scope

- Review scope covered:
  - Updated Status Quo
  - Original (equivalent to Improved ICRP option from original TransmiT modelling)
  - Diversity options:
    - Diversity 1 (WACM2 – draft decision)
    - Diversity 2
    - Diversity 3
  - 50% HVDC option on Original
- "Stage 2" modelling approach retained ie. low carbon support levels adjusted to maintain 2020 renewables and 2030 decarbonisation objectives under different transmission charging options

Recap on modelling framework

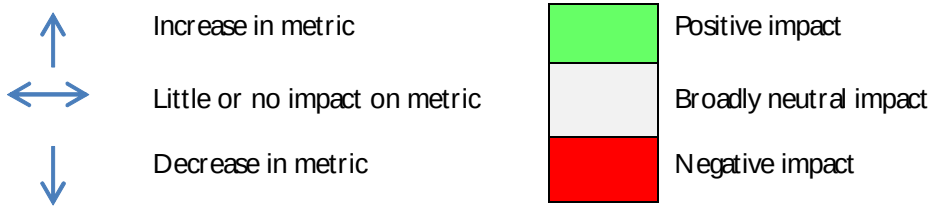


Key changes in assumptions and functionality since original TransmiT modelling

Change	Impact
Updated fuel price assumptions (DECC's 2012 Energy and Emissions projections)	Minimal
G:D split maintained at 27:73 rather than falling to 15:85 in 2015	Higher generation tariffs but minimal impact on relativities between charging options
Increase in available offshore wind capacity	Lower requirement for onshore wind capacity to meet targets and hence less requirement for onshore reinforcement and lower differences between charging options
Nuclear extensions and fixed 2030 nuclear capacity target	Less new investment required to meet targets and hence less variations between charging options
Updates to Capacity Mechanism modelling and start date	Lower capacity margins, but minimal impact on relativities between charging options
Different CfD strike price assumptions	Less renewables and more CCS after 2020
Others – demand, generation capital costs, transmission projects and costs	Minimal

Summary of results

	Original & Original 50%	Diversity 1	Diversity 2	Diversity 3
Impact on costs				
Generation costs	↓	↓	↔	↑
Transmission costs	↓	↓	↓	↓
Consumer bills	↓	↓	↓	↓
Impact on security of supply	↔	↔	↔	↔



Commentary on results

- CMP213 modelling has less onshore wind than original TransmiT modelling, replaced by more offshore wind to 2020, and more nuclear and CCS to 2030:
  - Lower constraint costs
  - Less requirement for transmission reinforcement
  - Less variation between the charging options as a result
- The charging options under the CMP213 modelling tend to result in more technology substitution, whereas the original TransmiT modelling had more similar technology mixes between options, but greater variations in locational build
- A significant proportion of the increase in benefit of the CMP213 Original when compared to the Improved ICRP is a function:
  - Displacement of more expensive offshore wind with less expensive onshore wind
  - Later deployment of renewables
  - Better utilisation of the Eastern HVDC Link #2
- Cost differences between the diversity options are also largely a function of the different technology mixes
  - Diversity 1 is closest to Original and hence shows similar power sector cost reductions
  - Diversity 3 is closest to Status Quo and hence shows the lowest reduction in power sector costs

Key factors when interpreting results

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Factor	Impact
Problem is heavily constrained by availability of sites for low carbon generation	Differences in transmission charges drive smaller locational variations than would be the case otherwise
Low carbon support levels much more material than transmission charges	Signals created through transmission charges can be dominated by changes in support levels
Lumpiness of transmission reinforcement	Policy options can show greater benefits where reinforcements are closer to optimal sizing for that generation background
Constraint costs may become increasingly polluted by low carbon support payments	Reinforcement decisions in the modelling are strongly influenced by avoiding compensating low carbon generators for curtailment