CMP405

DEMAND CREDITS

SSE

POTENTIAL SOLUTION

Constrained ALF

- SSE, The Proposer feels that a Constrained ALF (or versions of this) which by definition takes into account the correlation of Imports from Storage with maximum Exports from Generation in the Year Round Scenario, better aligns the Demand Credit with the benefit that Storage provides to the System, thus producing an overall TNUoS charge which better reflects Storage's impact on the Transmission System and required reinforcement (which is the crucial argument)
  - Imports at times other than maximum Exports do not provide the same system benefit as Imports at times when renewables for example are operating,

However;

- There is a balance to be made between the 'optimum' solution and a solution which is implementable, transparent and clearly and obviously doesn't provide an Operational Signal

CONSTRAINED ALFS

Constrained ALF

- Problems:

- **Defining a constraint and linking to a Generator or Zone**

    - Is it only a constraint when the System Operator is required to take actions to resolve the constraint?
    - Is it also a constraint if without Imports from Storage (irrespective of a BM action or not) a constraint would have happened?
        - Based on the above how do you then calculate the length of particular constraints with a mix of generation volumes and Storage actions or FPN's etc
    - Could linking to an actual constraint be construed as an Operational Signal and calculating an ALF relating to an Operational
    - Some zones with negative tariffs are south of a constraint boundary

DEFINE BENEFIT

Constrained ALF

- By linking to an actual constraint it creates the thinking that the benefit of Storage is solely around resolving a constraint or lessening the costs of constraints.
- A constraint is the result of insufficient capacity to accommodate all flows at a particular moment in time, but due to long term decision over network planning
- Potentially a better way of looking at it is that Storage creates spare capacity which can then be utlilised by other Users or negates the need for further investment. Being South of a constraint but in a negative zone therefore should not prevent a Generator from receiving a credit as by importing they are creating spare capacity. However a Constrained ALF does create this issue

- One thing to always bear in mind. Constraints are not always a bad thing, if the cost of those constraints over time is less than the expected cost of new network build (and loss of low carbon to the system). That is the purpose of the economy background. To reduce Total System Costs. Constraints can therefore be economic

SOLUTION

USE IMPORT ALF

- This solution is far easier for the ESO to implement and therefore charge
- It’s can easily be adopted by other future changes to Demand Users
- Less concern that it is an Operational Signal
- Works for all zones
- Link to creation of capacity
- Mirrors Generation

Does ALF over reward?

- Constrained ALFs are higher than ALF’s. This solution therefore under rewards compared to the optimal solution but IS better than the current baseline
- TNUoS is meant to be a reasonable Proxy

OTHER THINGS TO CONSIDER

- Should Storage Imports be classed as a Generation Charge as they are a Use of System Charge levied on Generators
  - If so, this keeps the impact within the Generation Charge and does not affect the Demand Residual

- There is a need to alter the TNUoS Model to reflect the actual impact Storage has on flows
  - Model TEC as 0MW’s
  - Model Imports
  - Different scaling factors

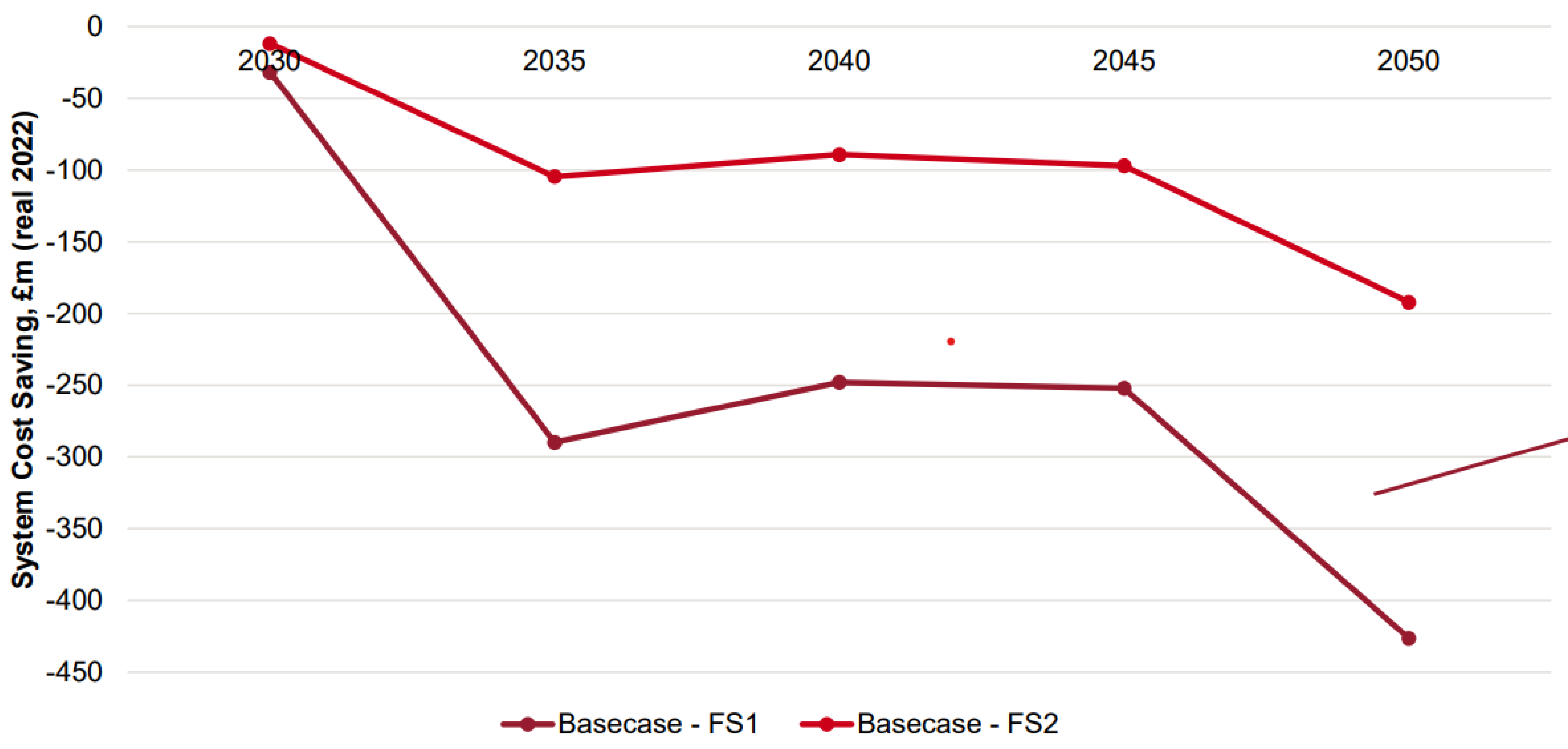
- Consider how to better calculate the correlation with Imports and Renewables for Investment
  - Generic Scaling Factors for Imports

OFGEM QUESTION

SHOW TOTAL SYSTEM BENEFITS

- The System Cost relates to costs in relieving or preventing a constraint
- This underplays the benefits as it doesn't take into account benefits of preventing future constraints where a current constraint does not now exist

System cost saving (Base Case), Factual scenarios vs Counterfactual

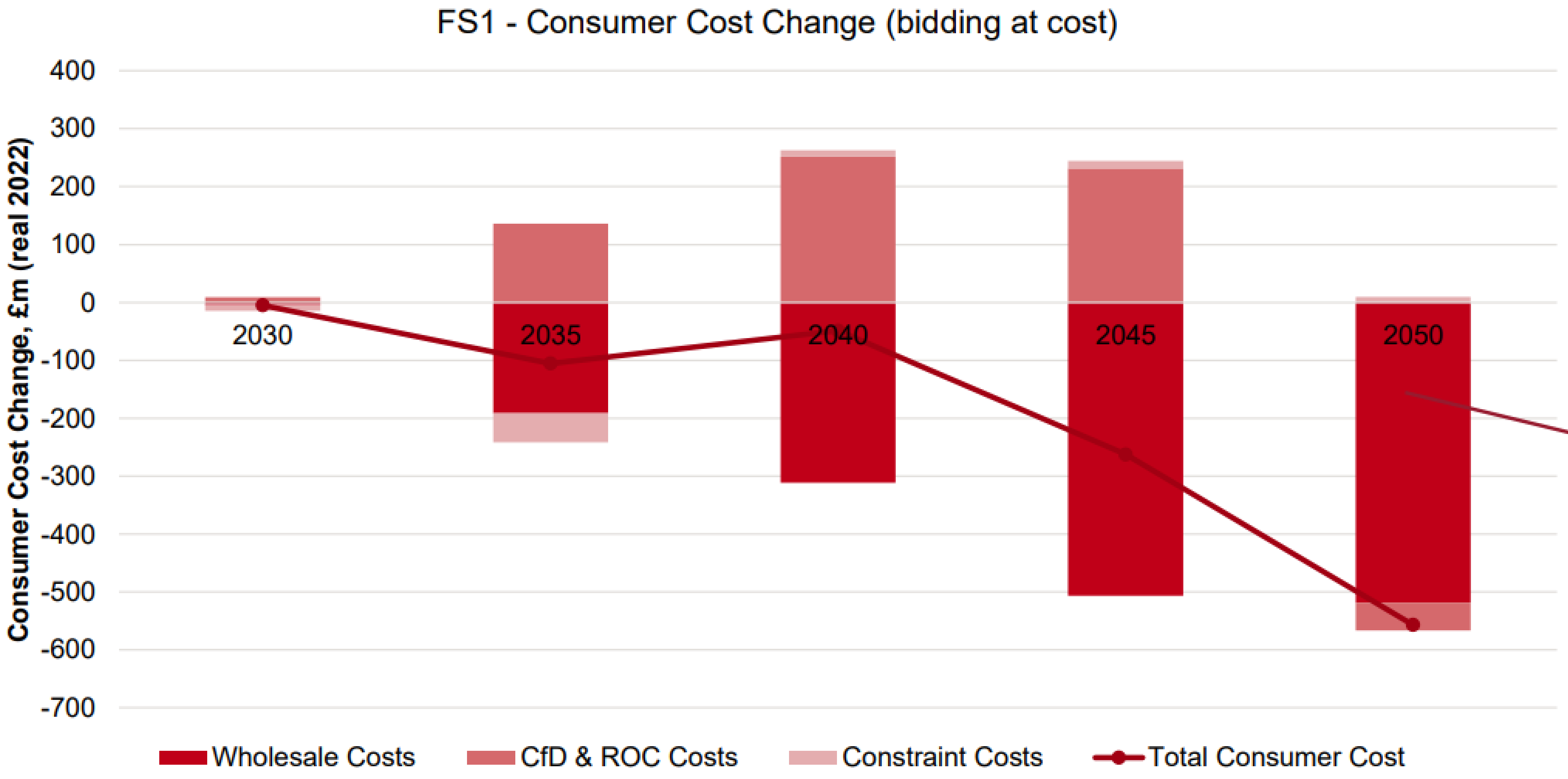


The modelling shows system cost savings of between £250 m to £430 m per year between 2035 and 2050 in the long duration storage scenario, and between £90 m to $190 m per year in the shorter duration factual scenario

SHOW TOTAL SYSTEM BENEFITS

In the long-run we expect a more efficient system to feed through into aggregate customer cost savings

IN THE SHORT AND MEDIUM RUN, THE IMPACTS ON CONSUMER COSTS CAN BE MORE UNCERTAIN AND DEPENDENT ON MARKET STRUCTURE. OUR MODELLING SHOWS THAT IMPROVED OPERATIONAL EFFICIENCY FEEDS THROUGH INTO A SAVING IN CONSUMER COSTS IN THE FS1 VS COUNTERFACTUAL (BASE CASE). NOT ALL CONSUMER COSTS WERE MODELLED



- The consumer cost modelled here includes the wholesale cost, policy costs, and constraint costs. The impact of costs not modelled could be expected to increase or reduce customer savings.
- Policy costs include those from CfDs and ROCs
- The additional storage saves consumer costs in all years. Wholesale costs are reduced significantly, but policy costs increase as there is additional wind generation.

TOTAL COST OF THE DEMAND CREDIT

- If the Demand Credit was deemed able to remain within the Generation Cap then the Demand Credit would be a redistribution of Gen Revenue and a reduction in the current Negative demand Residual

- We are currently working out the impact on the Demand Residual.
- Question is the benefits greater than the increase in the Demand Residual?