

Response Charging

Adam Sims, TCMF 30th September 2009



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Frequency Response

- ◆ Required to maintain stable system
 - ◆ Tolerance of $\pm 0.5\text{Hz}$ around 50Hz system frequency
- ◆ All plant must be able to provide a minimum of 10% capacity as frequency response
- ◆ Daily amount calculated to cover the largest credible loss of generation / demand
- ◆ Plant selected to provide response dependant on market price
- ◆ Costs of obtaining response socialised

Background to Review

- ◆ New large generating units are under development
 - ◆ Nuclear
 - ◆ Offshore Wind Farms
 - ◆ Coal with CCS
- ◆ Cost of Response could increase to cover the larger risks
- ◆ Security & Quality of Supply Standards (SQSS) Review Group have considered impact on system

Background to Review

- ◆ SQSS Review GSR007 concluded that:
 - ◆ Normal Infeed Loss Risk should increase to 1320MW
 - ◆ Infrequent Infeed Loss Risk should increase to 1800MW
- ◆ These changes will facilitate the connection of generating units posing a loss of power infeed risk of up to 1800MW
- ◆ Reduce the number of circuit breakers required in substation design
- ◆ Support the use of larger cable sizes in the design of offshore transmission systems
- ◆ Facilitate the connection of larger External Interconnections

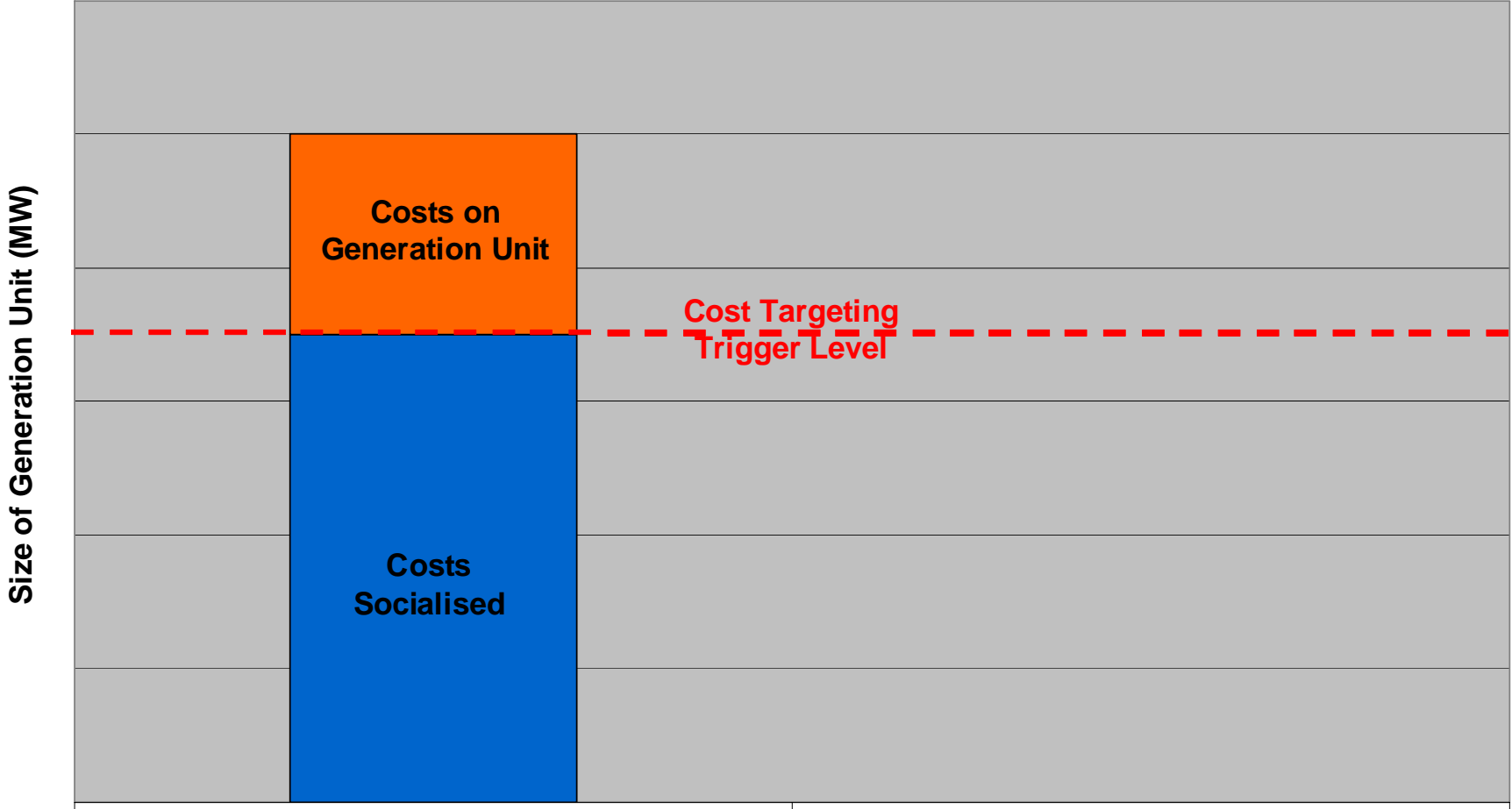
Review of Response Charging

- ◆ New Loss Risks require additional primary and secondary Response holding
- ◆ Cost of Response could increase to cover the larger risks
- ◆ Is socialisation of all Response costs still appropriate?

High Level Options

- ◆ Socialised costs
 - ◆ No change to existing arrangements
 - ◆ Costs for covering larger units socialised amongst all
- ◆ Targeted costs
 - ◆ Maintain socialisation for smaller units
 - ◆ Target costs for larger risks at units that create them
 - ◆ What is trigger level for cost-targeting and how is it identified?
- ◆ New Approach
 - ◆ Are there specific costs of connecting different bands of generation?

Option 2 – Trigger Level



Fully Targeted

Option 2 – Interconnectors and Spurs

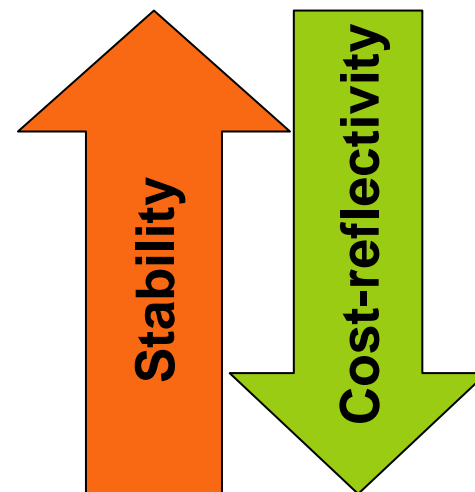
- ◆ Target response costs on TO
 - ◆ Could mitigate costs through investment
 - ◆ Regulated business – no incentive
- ◆ Target costs on generators/users
 - ◆ Individual parties likely to be under trigger level
 - ◆ Cannot mitigate costs through investment
- ◆ Instantaneous trip rates
 - ◆ Interconnectors have similar risk (0.5 to 2 per year)
 - ◆ Spurs have far lower trip rate (0.01 to 0.1 per year)

Option 2 – Charging Volume

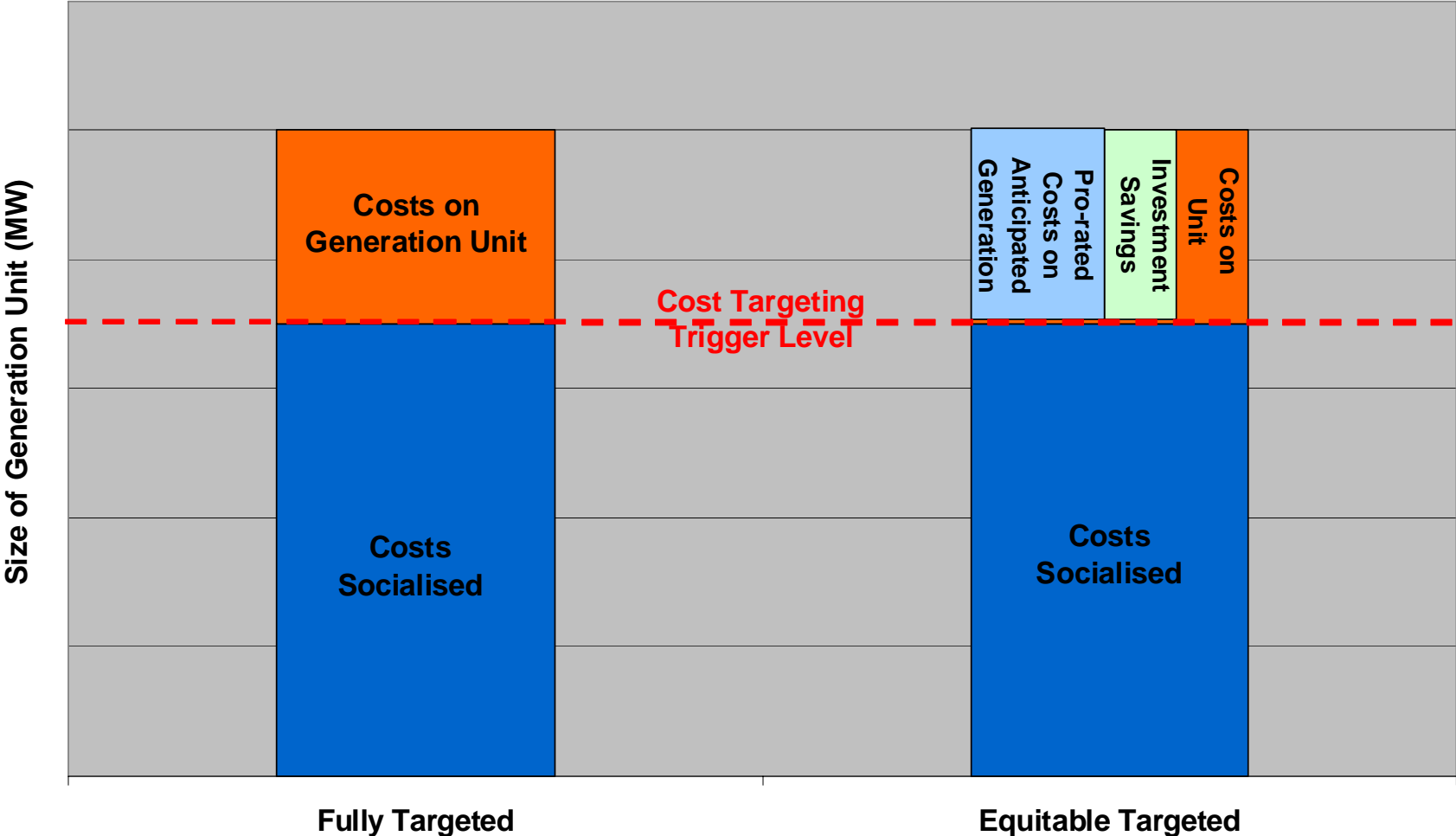
- ◆ The actual risk of infeed loss can be different from metered generation
- ◆ In-house unit loads are not included in metered data
- ◆ Should a cost-reflective charge include all risk, or is metered volume sufficient?

Option 2 – Charging Price

- ◆ Calculation of the targeted price:
 - ◆ Ex Ante Price
 - ◆ Ex Ante Price with Reconciliation
 - ◆ Ex Post Price
- ◆ Transparency of National Grid's costs
- ◆ Usefulness of the signal to the industry



Option 2 – Pro-rating



Questions?

