

# Response Charging

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# Frequency Response

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- ◆ 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

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- ◆ 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

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- ◆ 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

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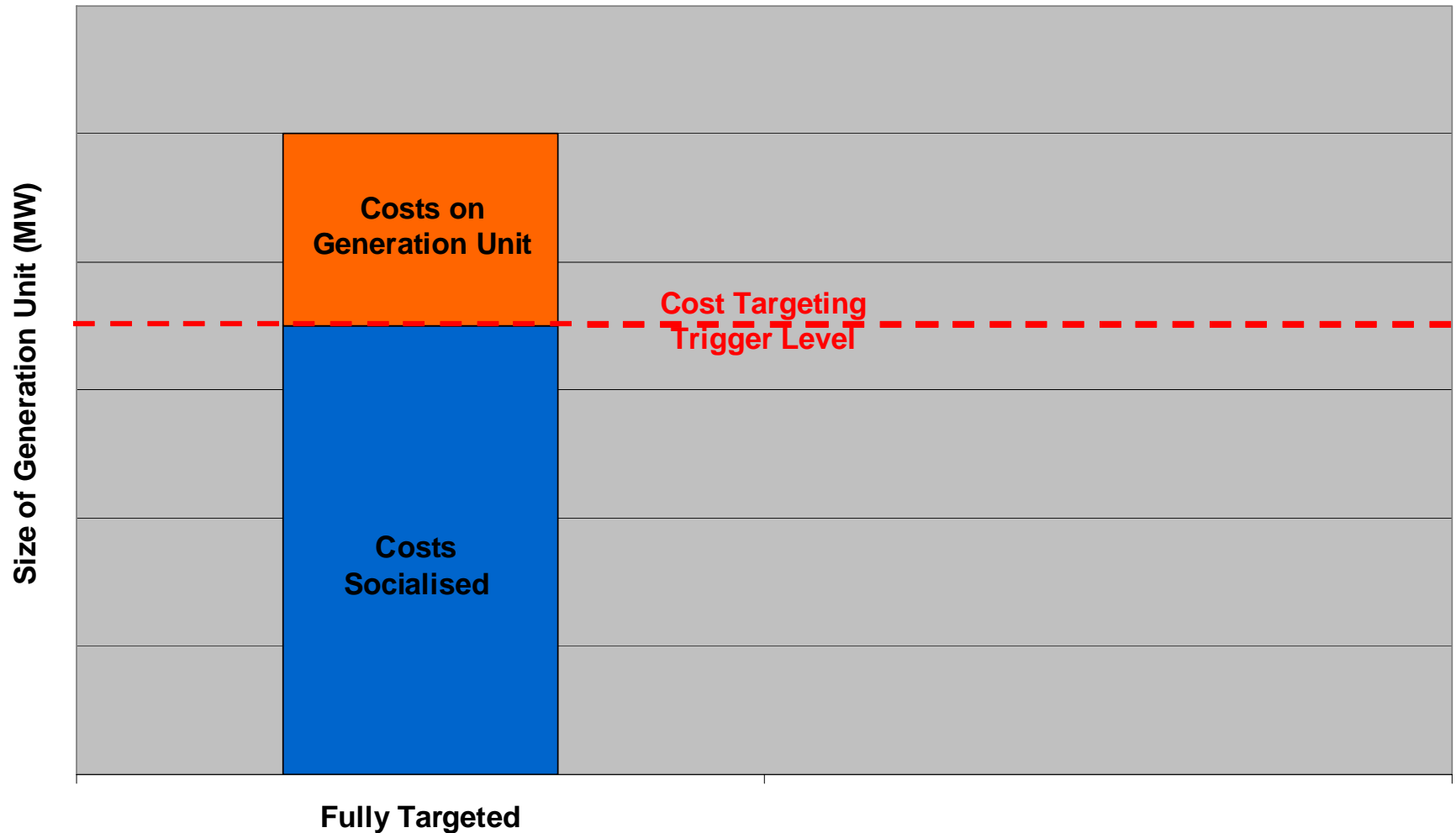
- ◆ New Loss Risks require additional primary and secondary Response holding
- ◆ Cost of Response could increase to cover the larger risks
- ◆ Is socialisation of all Response costs still appropriate?

# High Level Options

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- ◆ 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



## Option 2 – Interconnectors and Spurs

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- ◆ 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)

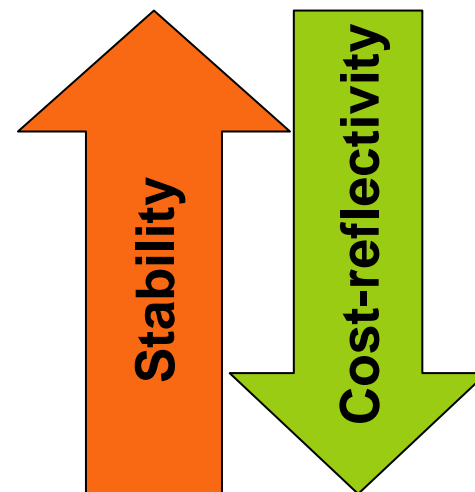
## Option 2 – Charging Volume

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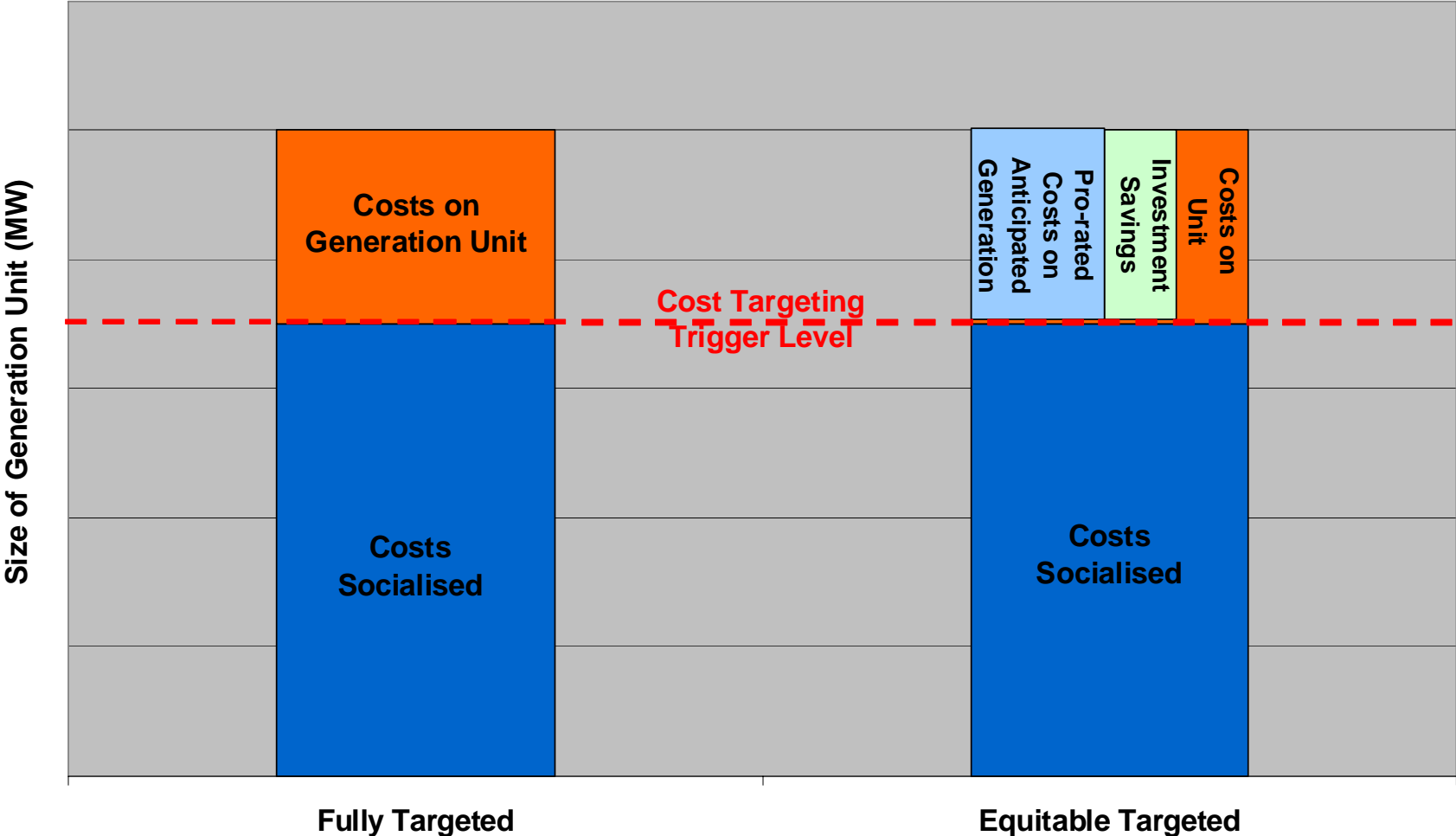
- ◆ The actual risk of infeed loss can be different from metered generation
- ◆ In-house unit loads are not included in metered data
- ◆ Should a cost-reflective charge include all risk, or is metered volume sufficient?

## 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?

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