



Short Term Operating Reserve (STOR)

Tender Assessment Principles

Version 4.0, December 2013

For Further Information please contact:

Contracts & Settlements
National Grid House, Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

T: +44 (0)1926 654611

E: box.commercial.operation@nationalgrid.com

W: <http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/short-term-operating-reserve/>

About this Document

This document sets out the principles that National Grid considers in assessing tenders for Short Term Operating Reserve (STOR) and constitutes the tender assessment principles published by National Grid for the purposes of the STOR tender rules and Standard Contract Terms (SCTs).

CONTENTS

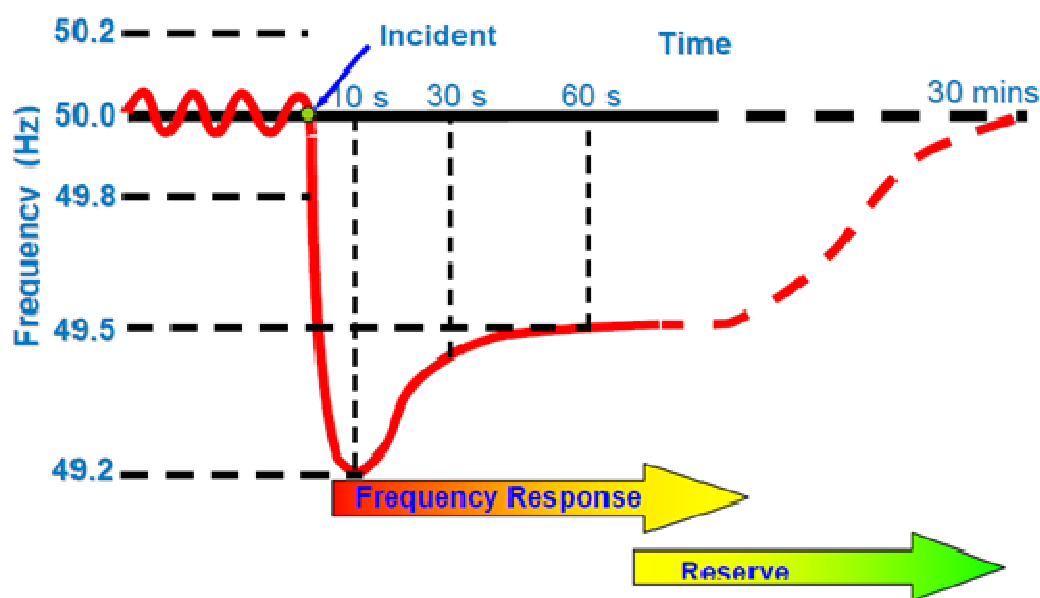
➤	BACKGROUND	1
	Reserve Requirement	
➤	MAIN ASSESSMENT	3
	Main Economic Assessment	
	STOR Tender Costs	
	Costs of Alternative Reserve Sources	
	Diagrammatical Summary of STOR Assessment	
➤	ADDITIONAL ASSESSMENT CONSIDERATIONS	5
	Additional Assessment Considerations	
	Historic Reliability	
	Geographical Location of STOR Unit or Site	
	Flexible Providers	
	Premium Flexible Providers	
	Further Assessment Principles	

BACKGROUND

Reserve Requirement

National Grid Electricity Transmission plc (National Grid), procures its reserve requirement through a number of balancing services to enable it to manage the security and quality of supply. The requirement comprises a number of different elements which cater for different events or circumstances that occur on the system that require the delivery of additional power (MW) in short timescales.

Typically, an incident will occur that will see a mismatch in the balance between supply and demand, which in turn sees the frequency drop when supply is insufficient to meet the required level of demand. To meet this mismatch, additional power needs to be made available either in the form of additional generation or demand reduction. Most commonly, this is provided initially at least, by a service known as Frequency Response. Frequency Response initiates automatically, however it is only sustainable for 30 minutes at most, meaning that replacement power in the form of 'Reserve' is brought onto the system in timescales of 2-30 minutes in order to replace it. This is shown diagrammatically below:



As noted above, Frequency Response has a maximum sustainability of approximately 30 minutes. In practice however, National Grid will seek to replace it as soon as possible, such that it can be reused in the event of any further system events. This places a practical requirement for the delivery of reserve energy in timescales of 20 minutes or less.

The STOR service permits providers that are able to deliver energy within 240 minutes to tender for the provision of STOR. In practice, this means that tenders are valued differently, depending on whether they meet the less than or equal to 20 minute response threshold or not. All STOR units can still be used for reserve purposes, but depending on which side of the 20 minute response time threshold they lie, they have different utilisation characteristics hence have to be considered separately for operational purposes.

Operationally, those units with a longer notice period (greater than 20min) cannot simply be utilised in response to an incident, as it is unlikely that they would be in place in time to allow them to "take over" from the automatic Frequency Response service. To manage this operationally, National Grid can synchronise longer notice STOR units, when they are more economic than alternative options (e.g. generation in the Balancing Mechanism), such that they are

generating throughout a period where National Grid anticipates that it may need to utilise reserve services. Then, as these units are generating surplus energy, the overall system surplus can be resolved by reducing output on other units. This effectively creates reserve energy on these other units, which can then be utilised within 20 minutes should an event occur.

Counter to this, units that are able to respond in less than or equal to 20 mins can simply be held in readiness for a system event and then utilised only when such an event occurs.

As a result of the above, the payment profile for units that can or cannot respond within 20 minutes is clearly different. The greater than 20 min notice units effectively have an implicit 'positioning fee' that occurs as National Grid has to run the unit in anticipation of, and not solely in reaction to, a system issue. The net result of this is that the utilisation fee of longer notice units becomes crucial.

MAIN ASSESSMENT

Main Economic Assessment

National Grid will look to secure a proportion of its reserve requirement via STOR tenders, in an economic and efficient manner. The accepted tenders will be selected such that the total costs of securing the Reserve and operating the system are lower than without the selection of those tenders.

STOR Tender Costs

The costs of the STOR Tender include:

- Expected availability fees = tendered availability price * tendered MW * expected hours of availability
 - Availability price as per tendered, expected hours available as forecast by National Grid and influenced by historic performance of provider.
- Utilisation payments of STOR = tendered utilisation price * forecast MWh of utilisation
 - A greater Minimum Non Zero Time (MNZT) / minimum utilisation period will increase the forecast MWh of utilisation, and hence may make the tender less attractive.

As noted above, should a service have a much longer notice period, National Grid will also have to consider how many occasions on which it will need to run the unit in anticipation of system issues, not merely the number of times it will need to run the unit in reaction to system issues.

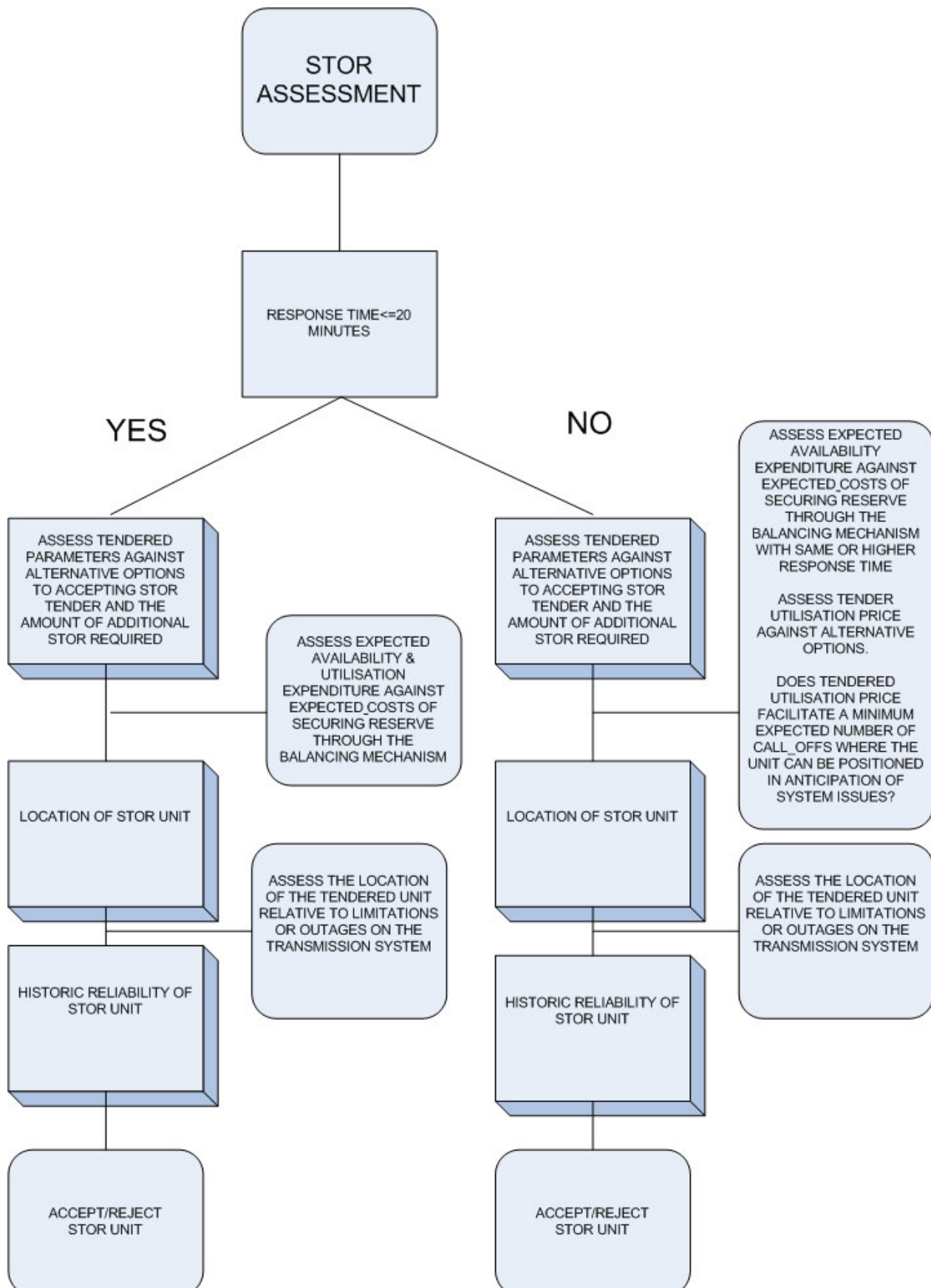
Costs of Alternative Reserve Sources

The costs of the Alternative sources of Reserve may include:

- Cost of securing Reserve through:
 - Offers within the Balancing Mechanism (BM) on unsynchronised generation
 - BM Start-Up services
 - Pre Gate closure Balancing Transactions (PGBTs)
 - Forward Trading
 - Market length (zero cost)
 - Market provided headroom (zero cost)
- Costs associated with energy balancing. Without a STOR provider for instance, an offer is accepted elsewhere at greater cost with a similar response time.

As part of the assessment, National Grid will assess the varying requirements to create reserve across each STOR season and window and also account for the varying level of utilisation of this Reserve within the same timeframes.

Diagrammatical Summary of STOR Assessment



ADDITIONAL ASSESSMENT CONSIDERATIONS

Additional Assessment Considerations

Historically, the greatest weighting in the assessment of STOR contracts has sat with the appraisal of its economic value against the alternative sources of Reserve. However, other factors are increasingly starting to play a more important role in the assessment process. Economic factors still make up the significant majority of the assessment decision, however where the economic decision is marginal, other factors can be given more weight. These include the following:

Historic Reliability

Additional costs are associated with provider unreliability. Non-delivery of providers will result in actions taken on services with quicker response times and potentially higher prices.

National Grid has devised a reliability measure, which is made up on two elements based on a rolling 12-month utilisation history:

- (1) Delivered MWs against contracted MW expectation
- (2) Delivery of MWs within contracted response times

Geographical Location of the STOR Unit or Site

As a greater volume of generation connects to the GB transmission system in advance of the necessary transmission reinforcement works, the network becomes ever more 'constrained'. In practical terms, this means that should additional reserve be required to meet a shortfall in one area of the country, there may not be sufficient capacity in the transmission lines between a STOR provider and that area of the country to allow that unit to be utilised. This can also be the case where restrictions on a local distribution system restrict the ability of National Grid to use a STOR unit to respond to certain system issues.

Flexible Providers

Under STOR, flexible providers will submit indicative availability for each window and season when tendering. These availabilities will be used to determine which tenders are economic to accept, given the underlying volatility that is expected in the alternative cost of actions. The flexibility of providers results in week-ahead availability being submitted to National Grid and using these submitted availabilities, National Grid will assess whether to accept or reject availability at the week-ahead stage. To confirm, this assessment is subject to all the other assessment principles described in this document.

As stated above, all flexible tenders are subject to an economic assessment and the total volume accepted, per tender round, is capped accordingly. During such flexible tender assessment consideration is also given to the minimum committed STOR requirement - proportional to the expected largest loss in generation on the transmission system at any one time and calculated on a per STOR season basis - which consequently directly influences the accepted flexible volumes.

Premium Flexible Providers

Service availability and consequential delivery is paramount to National Grid and the introduction of the 'premium' flexible service highlights our need to mitigate against the risk of accepting flexible tenders (which might deliver limited benefit over the contract term) by incentivising availability, during periods of most value to us i.e. the 'premium' windows.

This option, does however result in National Grid being exposed to greater risk – particularly with regard to over/under procurement and availability turnout and therefore necessitates a devaluation which will be applied to each tender opting for the 'premium' flexible product at the assessment stage.

The method for such devaluation will be based on assumptions associated with historic flexible and committed availability profiles whilst taking into account potential alternative actions – including both BM alternative actions and other alternative contracting options.

To confirm, this assessment is subject to all the other assessment principles described in this document.

Further Assessment Principles

In addition, National Grid will take into account other factors in the appraisal of compliant tenders. The order in which these factors are listed is not an indication of the relative importance of each to the others:

- Any health or safety issues relevant to tendered units or sites
- The interaction of any other balancing service provided by the tenderer to National Grid from the unit or site in question
- The speed, flexibility and reliability of interface arrangements between National Grid and the provider
- The financial position of the tenderer and its holding company (if any)
- The impact of agreed special conditions by the tenderer and National Grid
- Any other factors that, in National Grid's reasonable opinion, are relevant in appraising the viability of any STOR tender submitted.