



RIIO T2

23<sup>rd</sup> October 2018

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# **T1 Experience of Generation Connection Uncertainty Mechanisms**

# Sole Use Generation Connections

## Sole Use Infrastructure

Assets defined in the Connection Use of System Code (Section 14) “solely required to connect an individual User, which are not and would not normally be used by any other connected party

These works are covered under a Transmission Owner Connection Agreement (TOCA)

## T1 Experience

- Baseline output reflected government targets. Achievement depends on a few large scale generators
- Projects delivered (smaller wind farms & more remote) do not reflect what was included in the baseline.
- Actual projects delivered further away from existing infrastructure resulting in longer OHLs. Resulting in them being much more expensive
- Additional allowance only driven by MW output. Other factors not considered
- No funding in T1 for cross price control outputs (T1/T2)

Sole Use	
Output	2,503MW
Allowance <sup>1</sup>	£68.4m
Volume Driver	£43k/MW

$$\text{Additional Allowance} = \pm \Delta \text{ MW} \times \text{£43k} (\times \text{RPE})$$

**Example:** After achieving the initial baseline level of output a new 10MW Wind Farm has connected to the SPT Network. This would be funded at a rate of £43k/MW once the wind farm has been energised. The additional allowance given would therefore be £430k (adjusted for real price effects)

Conversely, if baseline output is not achieved then allowance reduced at the volume driver rate (plus RPEs).

# Shared Use Generation Connections

## Shared Use Infrastructure

Transmission Infrastructure works (network strengthening) associated with the connection of more than one new or additional generating station to the Transmission system

These works are covered under a Transmission Owner Regulatory Instruction (TORI)

## T1 Experience

- Specific technical solutions itemised and unit costs provided which reflected known projects
- Change in mix of connections (see previous slide) and greater volume of ‘embedded generation’<sup>2</sup> drove much wider range of TORIs
- Technical solutions not included in original submission were not permitted to be added later – yet all solutions are customer-driven.
- Where projects differ from baseline then increased risk solution is not an agreed unit cost allowance, hence, not funded.
- Prohibits innovation – no means to incorporate in mechanism (e.g. HTLS)

Shared Use	
Output	1,073 MVA
Allowance <sup>1</sup>	£112.2m
Volume Driver	Modular Building Blocks

**Additional Allowance = Quantity of works commissioned x Unit Cost Allowance (UCA) (x RPE)**

**Example:** A new 275kV/33kV feeder substation and associated incoming cable circuit is required as part of shared use infrastructure works. The additional allowance is calculated from the unit cost specified in Special Licence Condition 6F. Therefore the additional substation allowance will be 1 x £8m (adjusted for real price effects). However there is no unit cost allowance for cable works so no additional funding will be available for the associated cable circuit

Modular building blocks specified in Special Licence Condition 6F consist of Substation works, steel tower overhead lines and civil works (but exclude wood pole OHLs, underground cables and alternative substation designs)

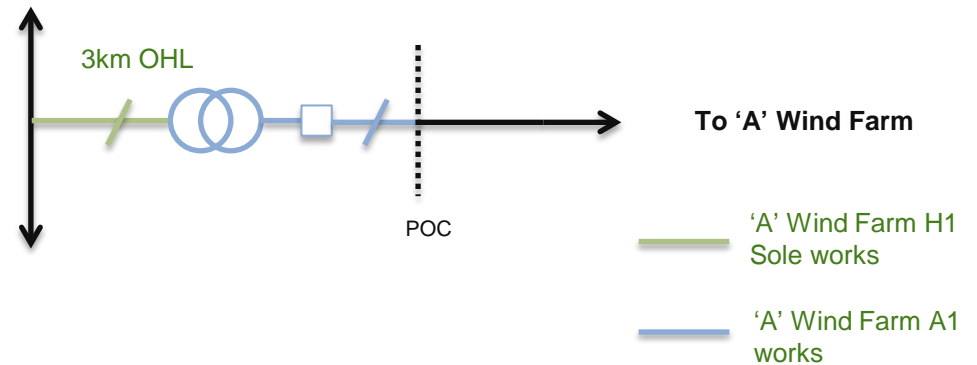
# Interaction between Sole Use and Shared Use Infrastructure

## Sole Use Example

Wind farm 'A' is seeking to connect to the Network. Access is provided via a 3km OHL tee into an existing OHL cct. A Substation with a Transformer will be installed and a 33kV metering circuit breaker will provide the statutory point of connection

The Transformer, circuit breaker and associated switchgear is classified as Sole Use customer assets and will be paid for by the customer (connection costs)

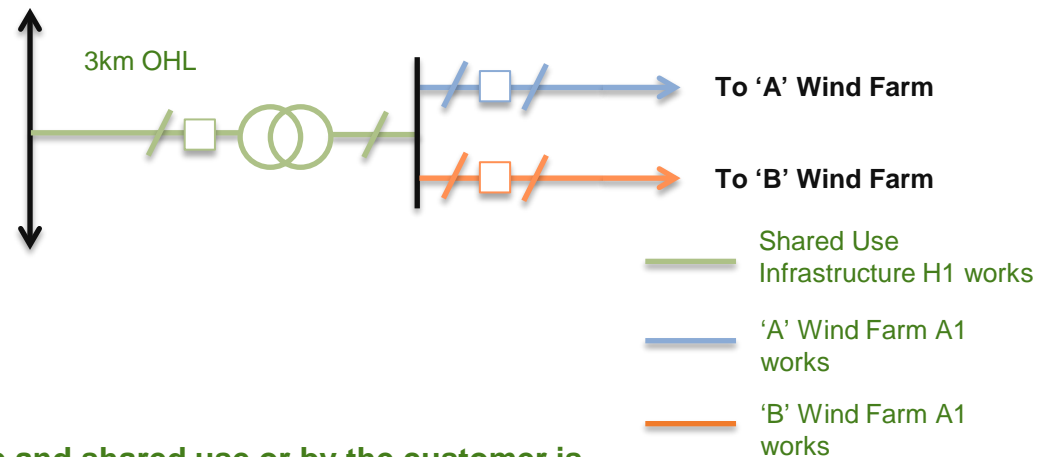
The overhead line potentially shareable therefore it is not classified as a Sole Use customer asset. This will be funded through Sole Use infrastructure arrangements



## Shared Use Example

Wind Farm 'B' is seeking to connect in a similar area. The Substation and the Transformer are now shared across two generators subsequently these are classified as Shared Use connection assets and are now funded by SPT (H1 Shared costs)

Both generators will provide their own circuit breakers and associated switchgear. These are used only by each Generator and classified as Sole Use customer assets. They are paid for by the customer (A1 costs)



**Similar infrastructure is built but whether it is funded under sole and shared use or by the customer is dependent on generators in the area and timing of their connection**

## Key Considerations for T2

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Based on T1 experiences and current analysis there are multiple areas that require investigation in to additional uncertainty mechanisms for T2

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- No Demand (Exit) Infrastructure works were included as part of the SPEN RIIO T1 submission and no uncertainty mechanism was written in to the Licence. Current forecasts include greater levels of Demand Infrastructure in T2. Several Demand Projects will form part of the baseline submission. A volume driver will be required to provide funding for the associated SPT works
- Pre-construction funding for wider works projects – particularly those open to Competition Assessment
- Projects receiving a “Proceed” from the NOA process require incremental funding based on the decision each year. A mechanism is required to ensure funding is available to continue works based on the NOA outcomes
- No provision for cross price control outputs. Example: A connection beginning at the end of T2 but with an output delivered in T2, risk of orphaned funding through current process. Mechanism required to accommodate projects that have expenditure in different price controls