

CMP368/369:

**‘Updating Charges for the Physical Assets
Required for Connection, Generation Output and
Generator charges for the purpose of
maintaining compliance with the Limiting
Regulation’**

**‘Consequential changes to Section 14 of the
CUSC’**

ESO Business rules – Terms and Questions

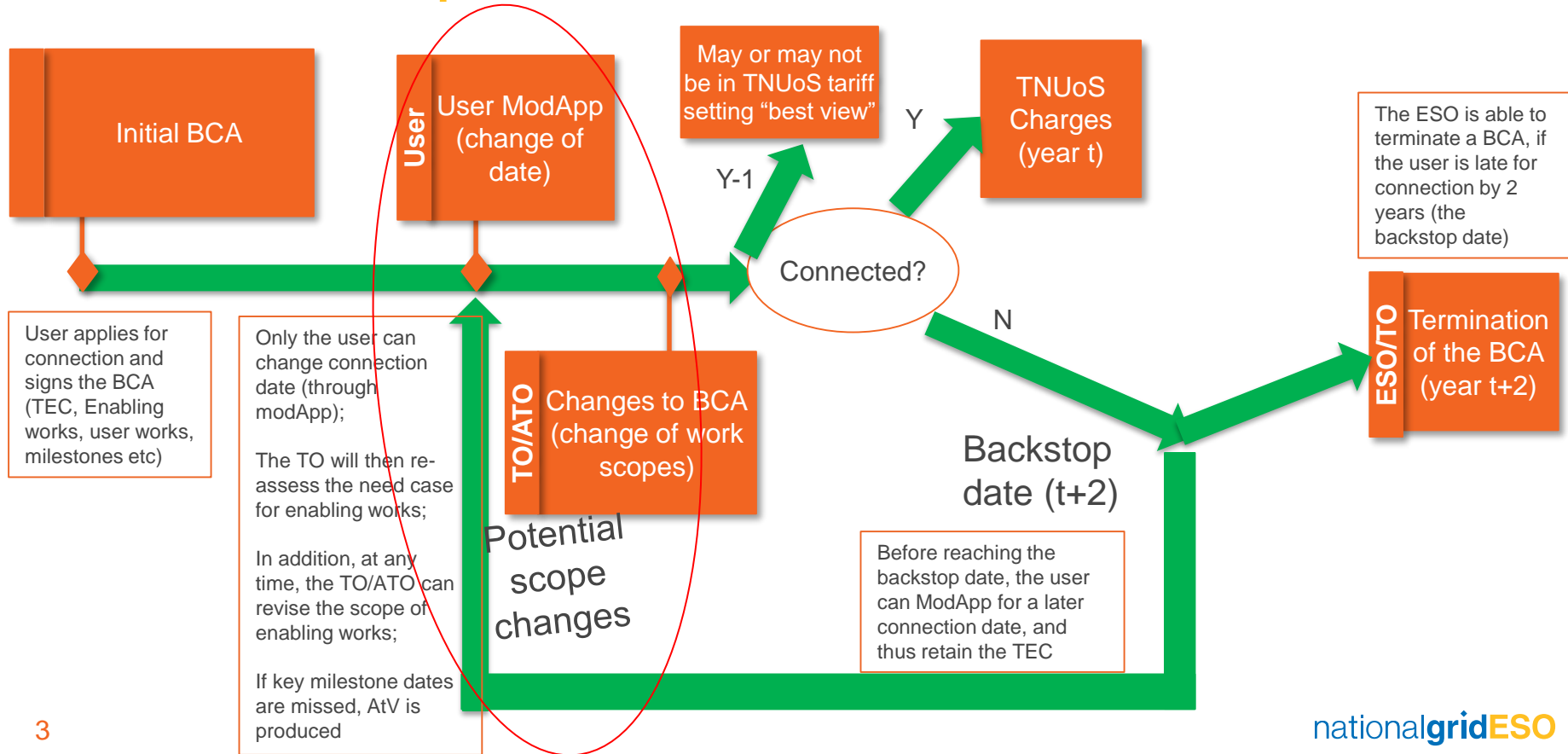
- **Classification**

- Non Pre-Existing Assets (NPEA). Assets that are required for a generator to connect and are therefore excluded from the calculation of compliance with the Limiting Regulation
- Pre-Existing Assets (PEA). Assets that were already in place at the time a generator wished to connect and are therefore included in the calculation of compliance with the Limiting Regulation.

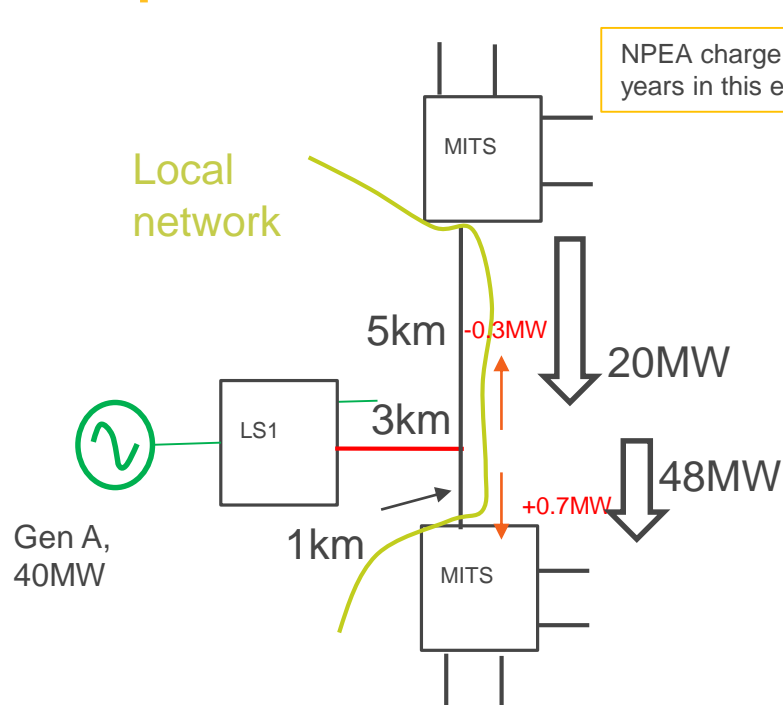
- **Areas to consider:**

- Date that assessment of NPEA/PEA should start.
 - 2007 (Date local charges applied in GB)
 - 2010 (Date the regulation entered into force)
 - Other option?
- Prior to effective date should assets be treated as NPEA/PEA?
- Changes to the BCA should not automatically result in reclassification of assets:
 - Change to legal entity pre-connection?
 - Change to legal entity post-connection?
 - Modification application?

Connection process and BCA

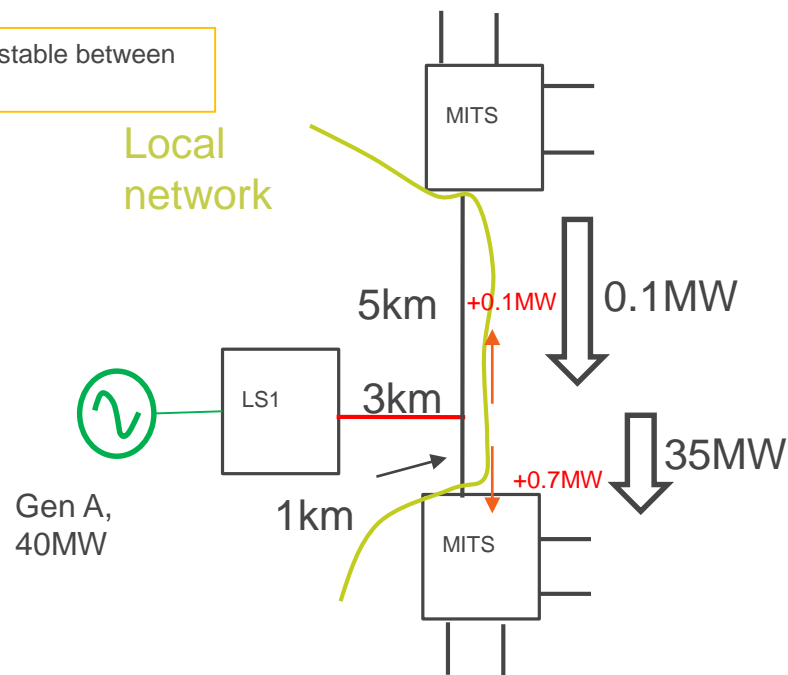


Recap: various additional scenarios



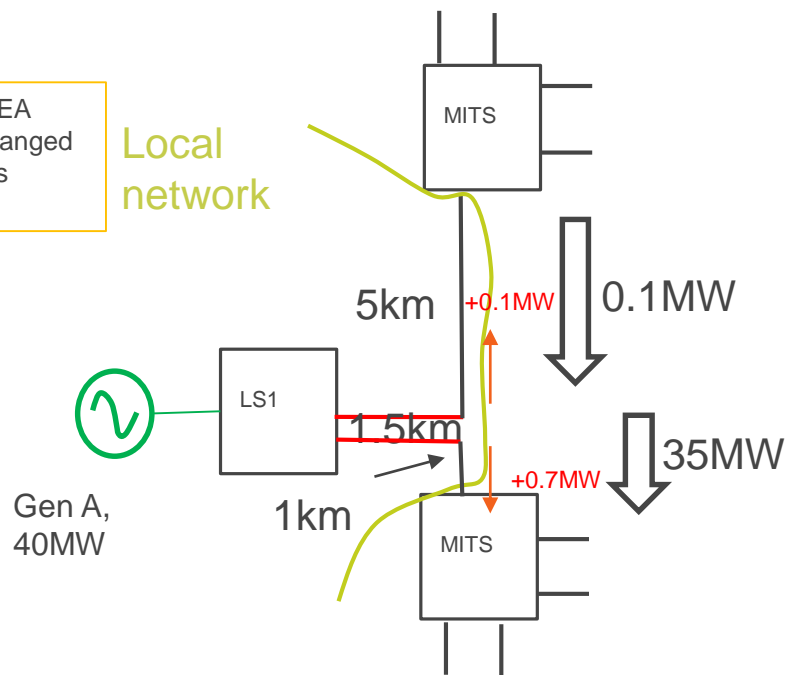
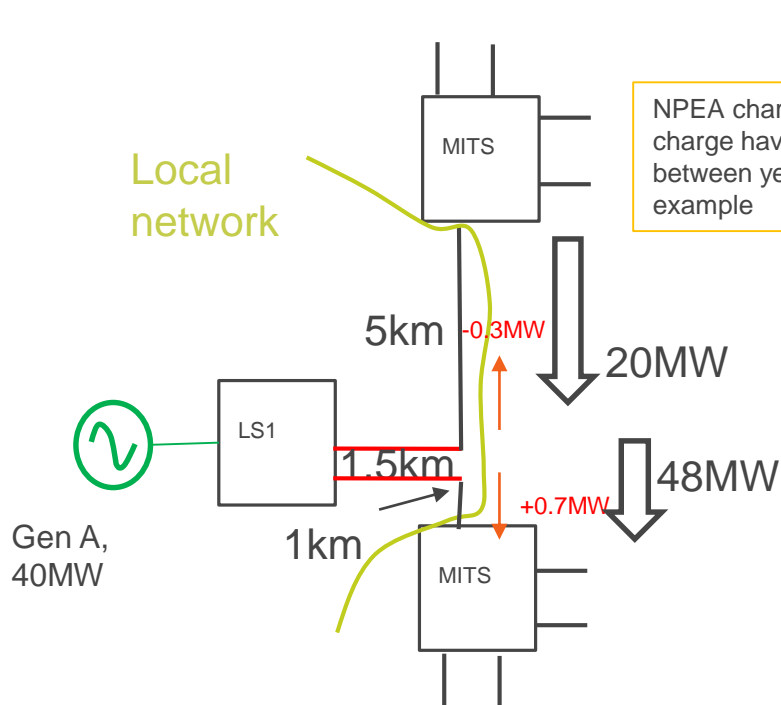
- Gen A is teed into an existing circuit.
- Its local circuit tariff reflects the combined effect on the “local network”.
- Calculating the local cct tariff: $5\text{km} * (-0.3\text{MW}) + 1\text{km} * 0.7\text{MW} + 3\text{km} * 1\text{MW} = 2.2\text{MWkm}$
- Within the 2.2MWkm, 3km*1MW is associated NPEA. Therefore PEA element is -0.8MWkm

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- In the next year, due to wider scenario changes, the background flow in the base case has changed
- Calculating the local cct tariff: $5\text{km} * (+0.1\text{MW}) + 1\text{km} * 0.7\text{MW} + 3\text{km} * 1\text{MW} = 4.2\text{MWkm}$
- Within the 4.2MWkm, 3km*1MW is associated with NPEA. Therefore the pre-existing element is 1.2MWkm

Various additional scenarios



- Gen A is looped into an existing circuit → breaking it up into two ccts.
- Its local circuit tariff reflects the combined effect on the “local network.”
- Calculating the local cct tariff: $5\text{km} * (-0.3\text{MW}) + 1.5\text{km} * (-0.3\text{MW}) + 1.5\text{km} * 0.7\text{MW} + 1\text{km} * 0.7\text{MW} = -0.2\text{MWkm}$
- Within the -0.2MWkm , $1.5\text{km} * (-0.3\text{MW} + 0.7\text{MW}) = 0.6\text{MWkm}$ is associated with NPEA. Therefore PEA element is -0.8MWkm

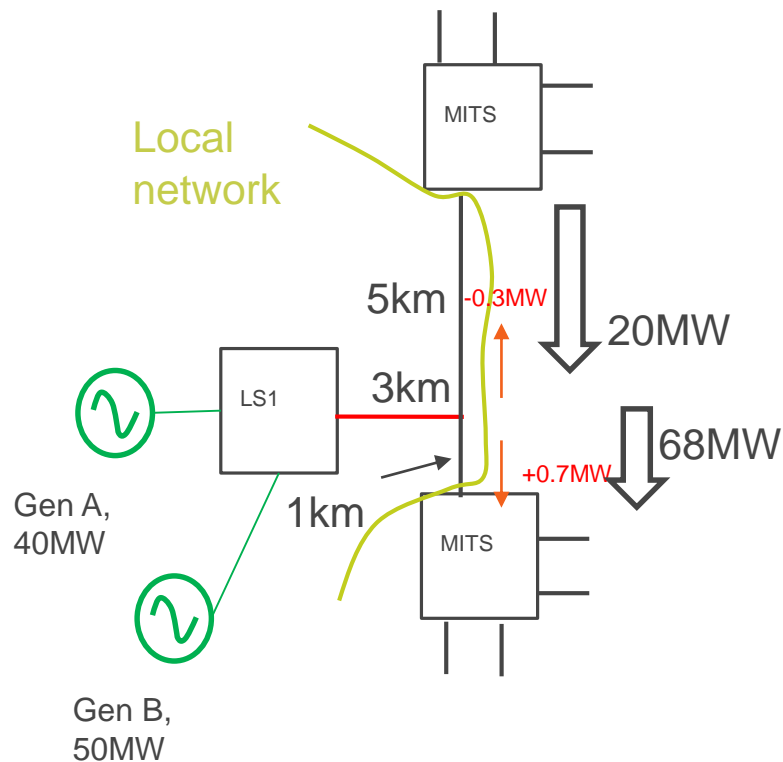
In the next year, due to wider scenario changes, the background flow in the base case has changed

Calculating the local cct tariff:

$5\text{km} * (+0.1\text{MW}) + 1.5\text{km} * 0.1\text{MW} + 1.5\text{km} * 0.7\text{MW} + 1\text{km} * 0.7\text{MW} = 2.4\text{MWkm}$

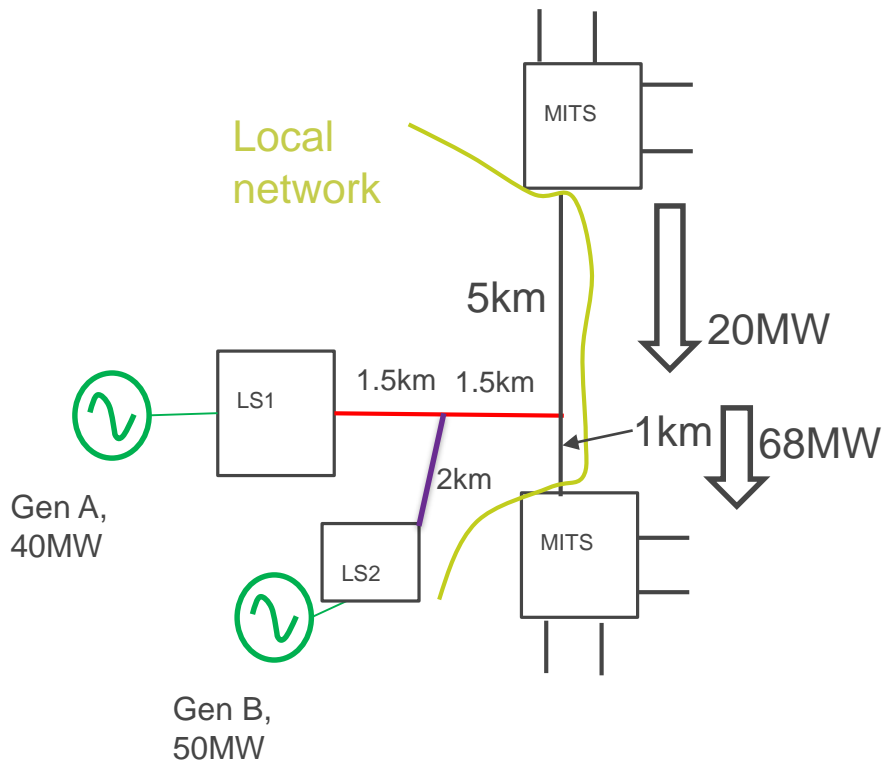
Within the 2.4MWkm , $1.5\text{km} * (0.1\text{MW} + 0.7\text{MW}) = 1.2\text{MWkm}$ is associated with NPEA. Therefore the PEA element is 1.2MWkm

Recap: various additional scenarios



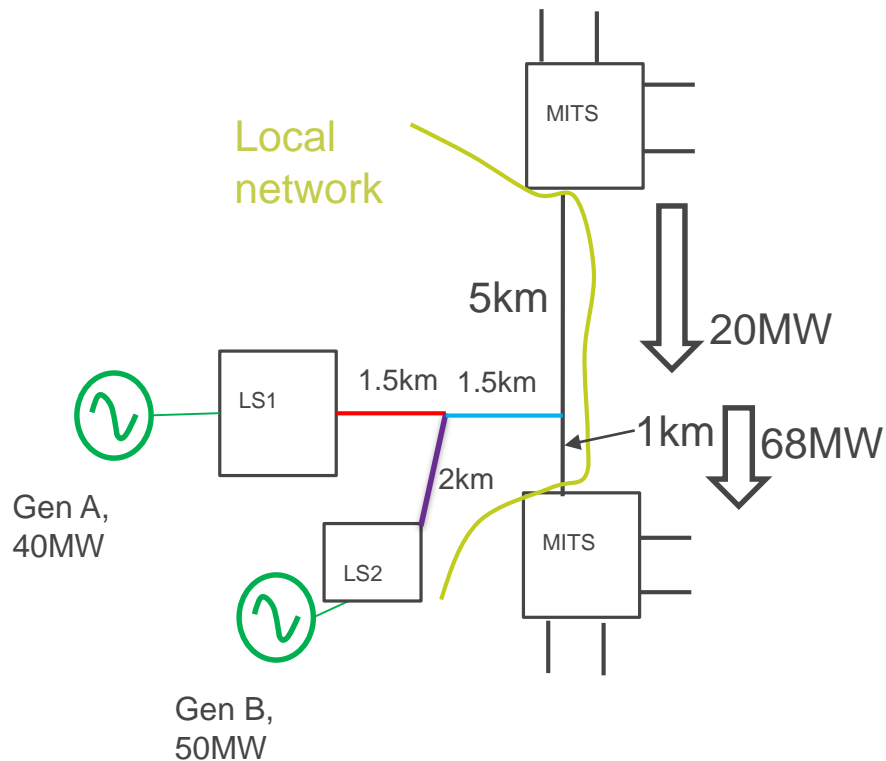
- After Gen A is built, Gen B applies for connection. No new cct is triggered by gen B.
- Of the 90MW of TEC at LS1, only 40MW was the trigger for the new asset (3km of circuit), and the remaining 50MW utilises existing assets
- Therefore the TEC associated with NPEA is 40MW (Gen A);
(TEC associated with PEA is $90 - 40 = 50$ MW)
- local circuit tariff is 2.2MWkm for both Gen A & B
- The NPEA tariff is 3MWkm (for 3km of new asset), and for Gen A only
- Total local charge is $90\text{MW} \times 2.2\text{MWkm}$ for Gen A & B combined
- Where local charge associated with NPEA is $40\text{MW} \times 3\text{MWkm}$
- The rest of the local charge ($90 \times 2.2 - 40 \times 3$) is PEA charge

Recap: various additional scenarios



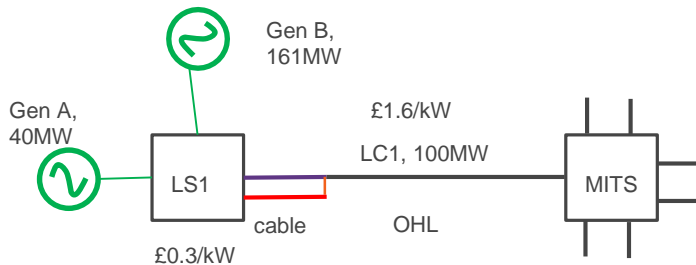
- Gen B triggered a new OHL of 2km
- Its associated NPEA tariff is the result of:
 $(2\text{km} * 1\text{MW})2\text{MWkm}$.
- This NPEA tariff is only relevant to LS2 where Gen B (50MW) books its TEC.
- The previous 3km of new OHL triggered by Gen A, is only relevant to Gen A (40MW).
- local charge associated with NPEA is the total of :
 - $40\text{MW} * 3\text{MWkm}$ (i.e. NPEA tariff at LS1), +
 - $50\text{MW} * 2\text{MWkm}$ (i.e NPEA tariff at LS2)

Recap: various additional scenarios



- Gen A triggered the red line (1.5km) – sole secured enabling work for A
- Gen B triggered the purple line (2km) – sole secured enabling work for B
- Gen A & B collectively triggered the blue line (1.5km) (shared secured enabling work for A & B)
- The NPEA tariff for Gen A is $(1.5\text{km} + 1.5\text{km}) * 1\text{MW} = 3\text{MWkm}$.
- NPEA tariff for Gen B is $(2\text{km} + 1.5\text{km}) * 1\text{MW} = 3.5\text{MWkm}$
- local charge associated with NPEA is the total of :
 $40\text{MW} * 3\text{MWkm}$, +
 $50\text{MW} * 3.5\text{MWkm}$

Additional modelling challenge



Local circuit charge (£k) under (1): $\text{Gen A} = 40 \times 1.6 = 64$

(1) LC1 was built to connect Gen A (LC1 is the “enabling work” in the BCA with Gen A). Thus the local circuit charge associated with LC1, for Gen A, is NPEA charge. LC tariff of £1.6/kW is dependent on the thermal rating of the 132kV circuit (<200MVA)

(2) After Gen A (and LC1) are energised, the TO offers a connection solution to Gen B, and doubled up the cable section to accommodate the increased TEC. The thermal rating of the circuit (from LS1 to MITS) is now >200MVA. Gen A faces lower local charges

The new cable (in red) is asset required for Gen B to connect

However the current methodology (and definition of circuit) does not allow to explicitly extract this piece of asset and work out associated tariffs

Local circuit charge (£k) under (2): $\text{Gen A} = 40 \times 1.3 = 52$ (NPEA)

$\text{Gen B} = 161 \times 1.3 = 209.3$ (PEA?)

Potential Option to consider

- **RIO-2 Price Control Financial Models**

- Contain a dataset referring to “Generation Connections Volume Driver”
- This seems to indicate investments the TO’s are making with regard to Generation connections.
- Could be a proxy for NPEA for onshore circuits where PEA/NPEA is not clear as indicates where TO investment is being made for the purpose of connecting a generator.
- Would require some assumptions to be made in its development
- Would be significantly less of a process challenge in many circumstances – more proportionate?

<https://www.ofgem.gov.uk/publications-and-updates/decision-proposed-modifications-rio-2-transmission-gas-distribution-and-electricity-system-operator-licences>

- **Questions**

- Is this a viable option?
- Should it be used for all onshore generic local charge calculations?
- Would the WG support further analysis ahead of next week to determine if it should be taken forward?