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Calculation of the Generator TNUoS Adjustment Tariff for the purposes of the Limiting Regulation

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NESO
National Energy System Operator

Contents

Purpose of Document

- Commission Regulation (EU) No. 838/2010 (which is in this respect EU retained law and referred to in CUSC as the Limiting Regulation) sets out that the annual average transmission charges paid by producers in Great Britain must fall within €0-2.50/MWh (the Permitted Range) subject to some exclusions.
- The focus of this document is on the construction of the "Connection Exclusion" and its application in setting TNUoS (Transmission Network Use of System) Tariffs.
- There have been a number of code modifications to update the CUSC in relation to this regulation.
- In the context of the Connection Exclusion, on 17 December 2020, Ofgem approved the original version of CUSC Modification Proposals CMP317/327 "*Identification and exclusion of Assets Required for Connection when setting Generator Transmission Network Use of System (TNUoS) charges"* and CMP339 "Consequential changes for CMP317/327 (TCR)" that were raised by NESO. CMP327 was raised following the conclusion of Ofgem's Targeted Charging Review Significant Code Review, with CMPs 317/327 and 339 being amalgamated and dealt with by the same working group. One purpose of these code modifications was to identify the transmission charges that fell within the Connection Exclusion, although the approval acknowledged that the solution did not incorporate the correct definition, as none of the options put forward under CMPs 317/327/339 contained the correct definition.
- Ofgem's decision to approve CMP317/327 has been the subject of various appeals by SSE Generation firstly to the Competition and Markets Authority (CMA). This appeal was rejected, with the CMA decision then subject to a Judicial Review and latterly a Court of Appeal judgment.
- NESO offered to produce[1] a guidance note[2] on the calculation of generator TNUoS Charges for the purposes of the Limiting Regulation (838/2010) in order to ensure transparency.
- Prior to NESO publishing a guidance note (and to Ofgem approving CMP391) SSE Generation raised CMP392 *"Transparency and legal certainty as to the calculation of TNUoS in conformance with the Limiting Regulation"* in May 2022.]

[1] Ofgem raised CMP391 *'Definition of 'Charges for Physical Assets Required for Connection'* and approved it in May 2022 to incorporate the correct definition of the Connection Exclusion into CUSC.

[2] neso.energy/document/265441/download

What is the Limiting Regulation?

EU Regulation 838/2010[3] (the "Limiting Regulation") sets out that the average annual transmission charges paid by generators, in aggregate, must be within a range of €0-2.50/MWh in GB. The regulation states that "transmission charges paid by producers for physical assets required for connection to the system or the upgrade of the connection" should be excluded from the calculation of the range. This is referred to as the "Connection Exclusion". This is reflected in CUSC as a requirement for NESO to remove charges for Physical Assets Required for Connection ("PARC") when it undertakes its calculation to set TNUoS tariffs in compliance with the Limiting Regulation and when assessing compliance following the conclusion of the charging year.

TNUoS Charges

For a TNUoS-liable generator, its TNUoS charge consists of the following elements:

- Wider charges: these are the zonal, locational charges (the tariffs vary by zones, to send investment signals) reflecting the relative costs of the Main Interconnected Transmission System (MITS) in different regions of GB.
- Local charges: onshore/offshore local substation charges and onshore/offshore local circuit charges. Local charges are designed to reflect the costs of local infrastructure works needed to connect the generator to the closest MITS node. Some of these Local charges fall within the Connection Exclusion, i.e. are not required to be considered when assessing compliance with the Permitted Range.
- An Adjustment Tariff: where the forecast of annual average transmission charges indicates that relevant charges will fall outside of the Permitted Range, generators will pay or receive as a credit a non-locational 'adjustment' charge to bring charges within the Permitted Range.

All TNUoS-liable generators will pay the wider charges but only those generators using specific local assets will pay local charges.

What does a generator connected to the distribution network pay for TNUoS?

Generators connected to the distribution network with TEC >=100 MW pay for the wider charges only.

Generators connected to the distribution network with TEC <100 MW do not pay TNUoS charges but may receive credits under the Embedded Export Tariffs (EETs), depending on their location.

[3] eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:250:0005:0011:EN:PDF

Physical Assets Required for Connection (PARC)

CUSC modifications CMP317/327 and CMP339[4] (as approved) introduced the concept of PARC to the CUSC. These modifications included a broad interpretation that all Local Charges should be considered PARC. Following the CMA appeal and Judicial Review the definition of Charges for PARC was updated by Ofgem through CMP391 to:

> ***1. "Charges for Physical Assets Required for Connection" shall mean charges paid by producers for physical assets required for connection to the system or the upgrade of the connection.***

Although this modification transposes the exact definition from the limiting Regulation into the CUSC it does not explain how NESO will apply this definition in practice.

Through this guidance note NESO will identify the principles applied to assess the extent to which particular onshore and offshore local substation and local circuit assets ("local assets") are considered physical assets required for connection to the system or the upgrade of the connection. This will determine whether the associated local charges fall within (or out) the Connection Exclusion. These principles will be applied on a case-by-case basis[5].

As only charges for assets required for connection are excluded, NESO will need to consider to what extent local assets (and the local charges associated with these) are required for connection or were "pre-existing" at the point the generator sought to connect to the transmission system. Any charges relating to pre-existing local assets (PEA) should be included in the assessment of whether charges fall within the Permitted Range, as the assets to which those charges relate were not required for the generator to connect.

Principles for assessing which charges fall within the connection exclusion

What will be the process for identifying PARC?

NESO will use the rationale described below on a case-by-case basis to assess what generator charges fall out with the Connection Exclusion and will be included when calculating charges and assessing compliance with the Permitted Range.

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[4] neso.energy/industry-information/codes/cusc/modifications/cmp317-cmp327-removing-generator-residual-and-excluding-assets-required-connection

[5] We note the High Court's reflection that the application of the Connection Exclusion 'will self-evidently depend on the facts of any specific case. Attempts at generic definition are necessary and useful, but only up to a point. The possibility will always remain that any generic definition might need to yield in the face of the circumstances of the case in hand.'

We consider that any principles in relation to how the Connection Exclusion will be applied should take account of this.

TNUoS Charging Element	Rationale	Outcome
Generator has wider TNUoS charges only	Wider charges are levied in relation to the use of the wider network (not specific to a user) and therefore were not required for connection	Wider charges fall outside of the connection exclusion and are therefore included in the assessment of compliance with the Permitted Range
Generator has wider TNUoS charges and a local charge that relates solely to PARC	Local assets are built or upgraded specifically for the generator to connect. Wider charges are part of the existing network and therefore were not required for connection of the generator	All local charges relate to PARC and fall within the Connection Exclusion. Wider charges fall outside of the connection exclusion and are therefore included in the assessment of compliance with the range.
Generator has wider TNUoS charges and a local charge that relates to PARC and PEA	Some local assets are built or upgraded specifically for the generator to connect so are classed as PARC whereas others were pre-existing and not required for connection of the generator Wider charges are part of the existing network and therefore were not required for connection of the generator	All local charges associated with the PARC fall within the Connection Exclusion. Wider charges and local charges for PEA fall outside of the connection exclusion and are therefore included in the assessment of compliance with the range.

PARC can be local substation assets or local circuit assets.

Local substation assets

For local onshore substations if the Transmission Owner (TO) has to build or upgrade a substation asset for a generator to connect to an existing substation, or to a new substation, these are PARC and the local charges paid by this generator for the substation is excluded when assessing whether charges fall within the Permitted Range.

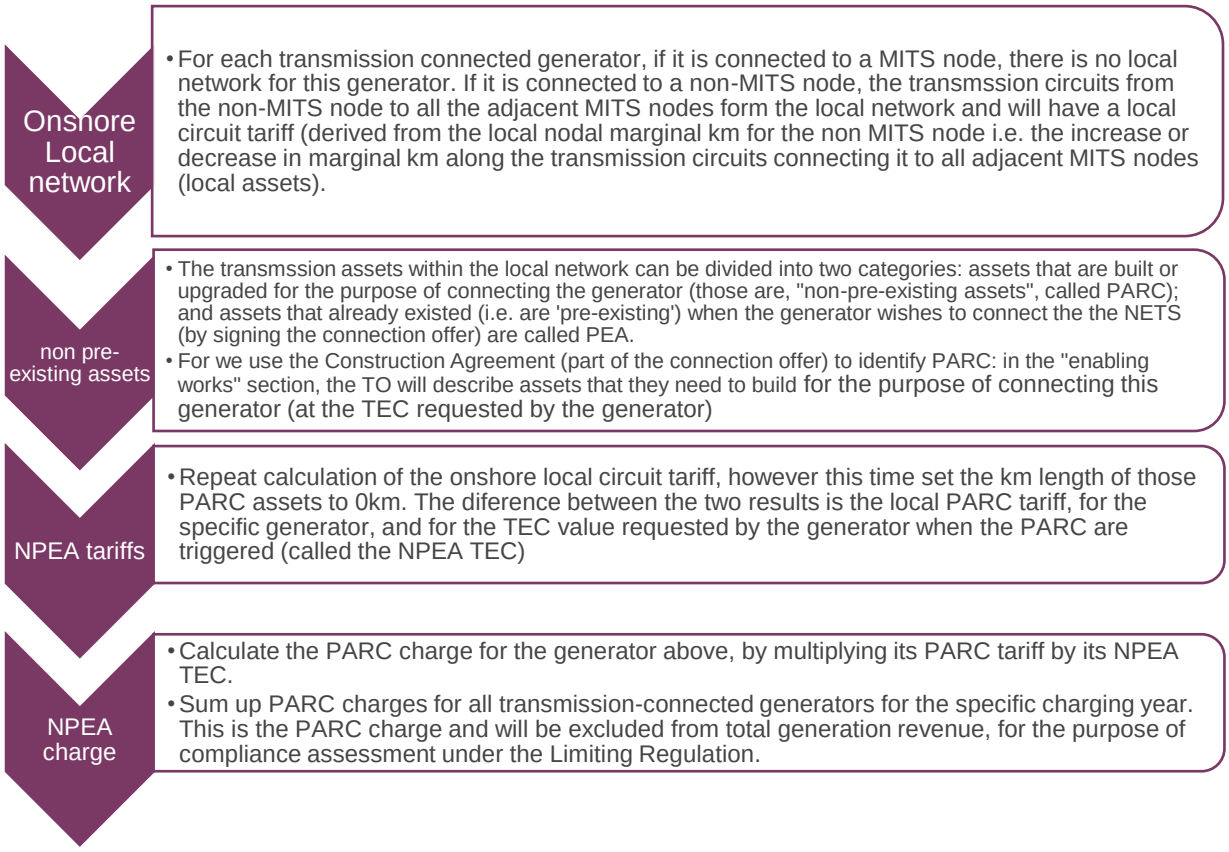
If, when the generator wishes to connect to the National Electricity Transmission System (NETS), there is already an existing generator bay for it to connect to, those local assets are PEA and the local substation charge paid by this generator is a charge for PEA, and therefore is included when assessing whether the charges fall within the Permitted Range.

Please see Annex 2, where the process is illustrated in full.

For all existing local offshore substations these assets will be considered PARC and the charges paid by generators for these therefore excluded when assessing whether the charges fall within the Permitted Range. If in future further offshore generators connect to these local offshore substations, whether these are PEA assets will be considered, however this is beyond the scope of this guidance note (for charging year 2024/25).

Local circuit assets

The following diagram shows how we derive local charges associated with onshore local circuits that are PARC.



Having followed the steps above and having identified and removed charges for PARC we have the charges against which we assess compliance with the Limiting Regulation. If they do not fall within the Permitted Range, charges will be adjusted.

A full list of Local assets and their classification as PARC/NonPARC as well as the associated revenue and tariffs is published in the tables file that accompanies our Draft and Final tariff publications[6]

[6] neso.energy/industry-information/charging/tnuos-charges

For all existing local offshore circuits these assets will be considered PARC and the charges paid by generators for these therefore excluded when assessing whether the charges fall within the Permitted Range. If in future further offshore generators connect to these local offshore circuits, whether these are PEA assets will be considered, however this is beyond the scope of this guidance note (for charging year 2024/25).

When assessing the Limiting Regulation compliance, the calculation identifies and excludes charges for PARC. The charges are then checked to see if they fall within range of the limiting regulation. If they do not, charges will be adjusted in line with CUSC Section 14.

How will Ex-Post compliance checks be performed?

The three values required to determine compliance, for charging year Y, are as follows and detailed more below:

- Total eligible TNUoS Generation revenue (eligible means being included for calculation)
- Total eligible export volume
- Average £/€ exchange rate

Total eligible TNUoS Generation revenue – Gcharge (Actual) as in CUSC 14.17.37

- Total out-turn **TNUoS Generation revenue** recovered from all generators, for any complete charging year Y, can only be calculated once the reconciliation of Generation charges has been completed.
- That reconciliation process includes charges for any liability that could not be billed during the monthly billing process (for instance, due to late increase in Transmission Entry Capacity), as well as reconciliation of any manifest error identified during the charging year.
- The reconciliation is completed by the end of April Y+1 (invoices are issued 30 April). The elements of the TNUoS Generation revenue calculated at the reconciliation that is considered 'eligible' for inclusion in the total revenue used in the compliance check are:
    - revenue from Wider tariffs, including the adjustment tariff, for all transmission connected generators
    - revenue from PEA local tariffs
    - revenue from LDTEC or STTEC rates

Total actual Generation Output - GOA as in CUSC 14.17.37

- Total actual Generation Output is calculated based on export volumes from all eligible generators using Elexon settlement metering.
- The settlement metering provides a MWh volume for each Balancing Mechanism Unit (BMU) for each settlement period, and which can have a positive, negative or zero value.

- Settlement metering for each settlement date is updated several times, each issue having a run type for example II, SF, R1, and so on.

For any complete charging year Y, total actual Generation Output can only be determined from April Y+1, when the required settlement data (for all days in charging year Y) becomes available.

The reconciliation of TNUoS Generation charges requires the use of settlement data for all generators liable for TNUoS. The same settlement data used for the reconciliation is used to calculate the total actual Generation Output and is not updated using subsequent run types. The total actual Generation Output, MWh, is calculated as follows:

- Sum the export volume for each settlement period for each day of the charging year for each BMU associated with each transmission-connected generator.
- Any settlement period that has an import volume is excluded.

Average £/€ exchange rate

An average spot exchange rate 'Euro into Sterling' (published on the Bank of England website) is calculated using rates for each day in the charging year.

Out-turn €/MWh TNUoS Generation Revenue Value

To determine whether TNUoS Generation charges were compliant within the Permitted Range, the following calculation is performed:

'***Total eligible TNUoS Generation revenue, £***' / '***Total actual Generation Output, MWh***'

The above amount is then converted to € by applying the '***Average £/€ exchange rate***'.

Where the resulting €/MWh rate falls within the Permitted Range, no action is taken.

Where the resulting €/MWh rate falls outside the Permitted Range, calculate the £/kW adjustment that is required to bring charges within the Permitted Range.

Annex 1 - Illustrative examples

Example 1 – two generators connecting in a similar area at different times

This example was given by Ofgem in their CMP317/327 decision[7]. For the first generator ('Generator One') to connect, a Local Circuit and Local Substation are installed (these are the "enabling Works" for Generator One). Generator One pays Local Circuit and Local Substation TNUoS Charges in respect of these 'Local Assets', based on its Transmission Entry Capacity (TEC). As these local assets were required to connect Generator One to the NETS at the time Generator One wished to connect (meaning when the connection offer from NESO was signed by the user), those are PARC and the local charges are charges for PARC.

A second generator ('Generator Two') subsequently wishes to connect at a location close to Generator One. It may utilise the Local Assets used by Generator One, which now form part of the NETS, instead of requiring a new Local Substation and/or Local Circuit. See Figure 1 for the illustration.

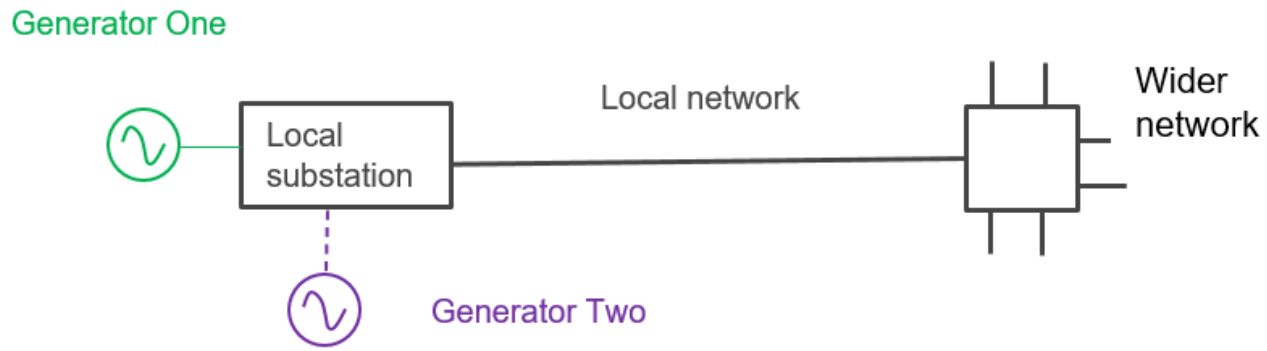


Figure 1 two generators connecting in a similar area at different times

Assuming that the Local Assets did not require to be upgraded to facilitate Generator Two's connection (e.g. no additional switchgears/bays at the local substation, and no additional circuits/thermal uprating to the local circuits), the Local Assets in this example were required for Generator One to connect to the NETS, but not for Generator Two to connect to the NETS (since the Local Assets already existed at the time Generator Two wished to connect and were therefore part of the NETS). Local Charges will be payable by both generators based on their respective Transmission Entry Capacities. Local Charges paid by Generator One will fall within the charge for PARC (both before and after the connection of Generator Two), but the Local Charges paid by Generator Two will not (since the Local Charges paid by Generator Two do not relate to assets required to connect Generator Two to the NETS as it existed at the time Generator Two wished to connect).

[7] ofgem.gov.uk/sites/default/files/docs/2020/12/cmp317327_decision_171220.pdf

Example 2 - Two offshore generators and the related OFTO network

In Figure 2, the two undersea cables, the onshore substation and the offshore substation are offshore TO (OFTO)'s assets (local assets). The OFTO have two generators sited at the end of the undersea spur. The two-generator arrangement was planned from the outset of the project, and the assets installed were built specifically for the connection of the two Generators.

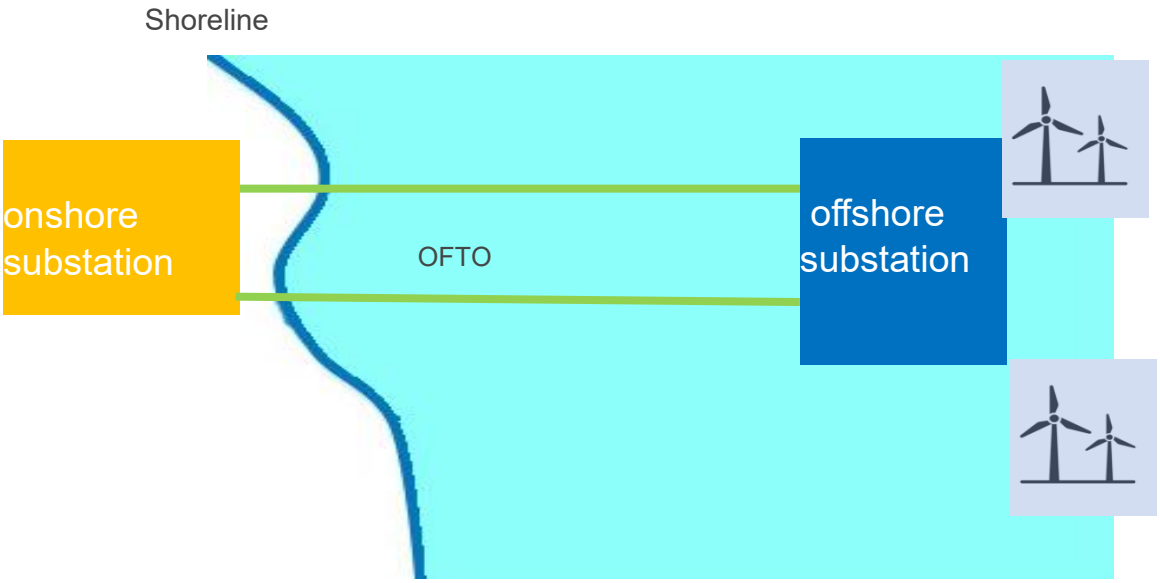


Figure 2 Two offshore generators and the related OFTO network

TNUoS local charges associated with the OFTO's assets in this example, are "physical assets required for connection to the system"[8]. Therefore, these assets are PARC for both generators and offshore local charges paid by the two generators are part of the charge for PARC.

[8] assets.publishing.service.gov.uk/media/5a95295de5274a5b849d3ad0/EDF-SEE-decision-and-order.pdf

Example three – pre-existing assets and the associated local charges

Figure 3 shows an example[9] of assets (in red) that constitute local assets required in order to connect a generator to the MITS. Typically, these infrastructure assets are triggered by the generator (G) wishing to connect to the NETS. In this example, these assets (in red) do not exist when the generator signs the connection agreement. The assets in red are built for the purpose of connecting generator G to the NETS. TNUoS local charges associated with the assets in red (local substation and local circuit charges) are therefore part of charge for PARC.

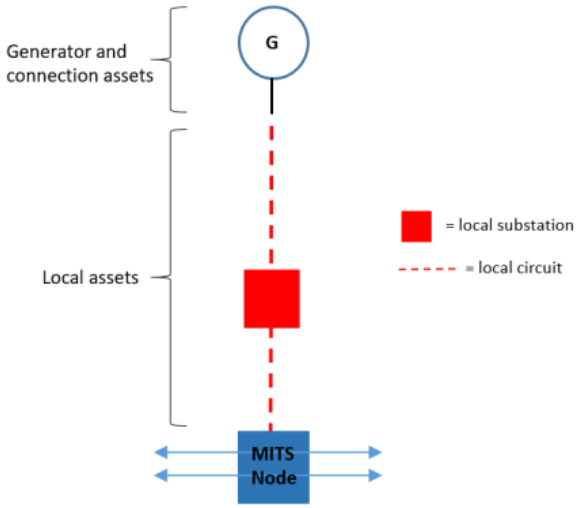


Figure 3 Local assets required to connect a generator to the MITS

[9] ofgem.gov.uk/sites/default/files/docs/2017/11/cmp261_decision.pdf

Figure 4 shows the same network configuration. The local network consists of the same local assets as in Figure 3; however, some assets (in green) were already existing when generator G wishes to connect to the NETS. These are PEA

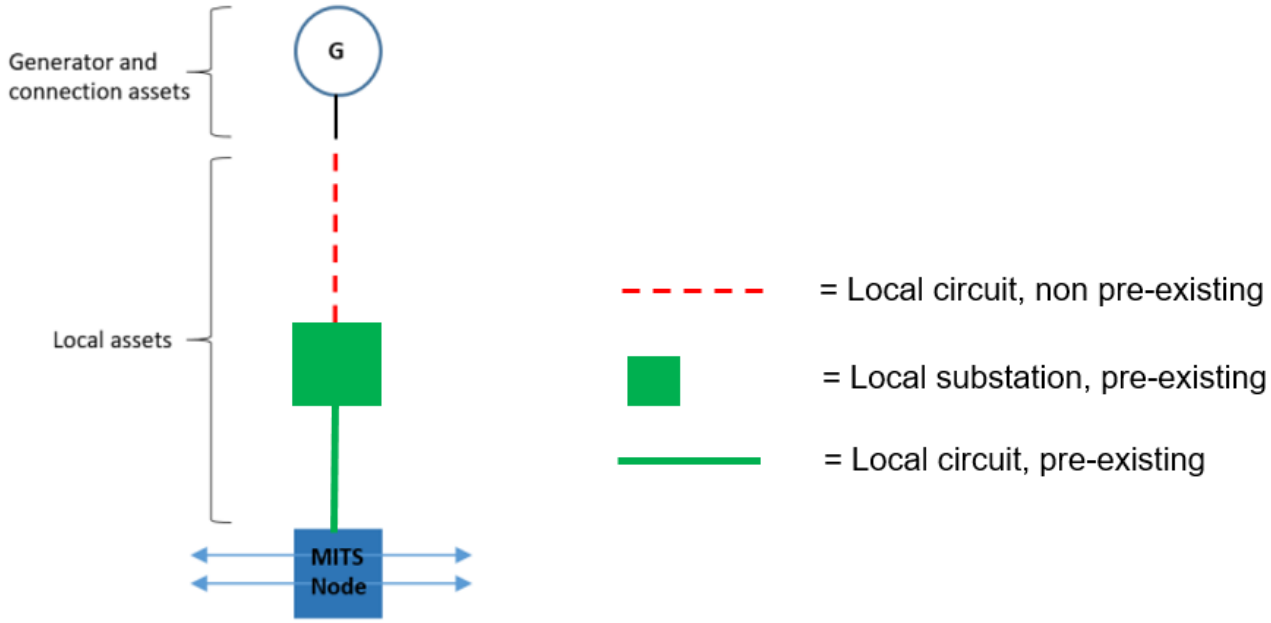


Figure 4 Local assets with pre-existing assets

The local charges that generator G pays, will remain unchanged from Figure 3, assuming the charging parameters (capacity, length, unit cost etc) are unchanged. However, in Figure 4, part of the local charges (including the local substation charge, and part of the local circuit charge relevant to the circuit section in green) are associated with pre-existing assets and are thus not part of charge for PARC. The local circuit charge relevant to the circuit section in red is non pre-existing and is part of charge for PARC.

Annex 2 Calculating the Adjustment Tariff (if applicable) in tariff forecasting