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The Exit Capacity Substitution and Revision Methodology Statement

Effective from 1 April 2011

EXIT CAPACITY SUBSTITUTION AND REVISION METHODOLOGY STATEMENT

Document Revision History

Version/ Revision Number	Date of Issue	Notes
0.1	June 2010	First draft issued for informal consultation.
0.2	November 2010	Formal consultation; updated following informal consultation. Substitution to apply for capacity releases from Y+4 only (see para 19l) Capacity covered by a financial commitment excluded from Substitutable Capacity (see para 19k Recipient exit point order changed. Highest revenue driver selected first (see para 26). Additional flow diagrams added – Annex 1 Exchange rate collar removed. Clarification of process to set initial flows in substitution analysis (see paras 43 and 44). Partial substitution included subject to suitable revenue driver. Criteria clarified. National Grid discretion to override methodology in case of unsatisfactory outcomes removed. Clarification on availability of capacity whilst substitutions are being considered (see paras 19j and 70).

About this Document

This document describes the methodology that National Grid Gas plc ("National Grid") in its role as holder of the Gas Transporter Licence in respect of the NTS ("the Licence") will utilise to determine proposals for:

- the substitution of NTS baseline exit flat capacity[1] from one NTS Exit Point to another in response to the release of NTS incremental exit flat capacity; and/or
- the revision to NTS baseline exit flat capacities at NTS Exit Points in response to the release of incremental obligated entry capacity.

In particular, it defines:

- under what circumstances National Grid will consider such substitutions and revisions; and
- the process to be undertaken by National Grid to determine its proposals to substitute capacity and/or revise baselines.

This document is one of a suite of documents that describe the release of NTS capacity by National Grid and the methodologies behind them. The other documents are available on our website at:

http://www.nationalgrid.com/uk/Gas/Charges/statements/

This statement is effective from 1 April 2011.

This document has been published by National Grid in accordance with Special Condition C8E paragraphs 4(b) and 4(c) of the Licence. National Grid believes the content is consistent with its duties under the Gas Act and is consistent with the ~~Standard Conditions, Standard Special Conditions and Special Conditions of the~~ Licence.

This statement of the exit capacity substitution methodology applies in respect of NTS obligated incremental exit flat capacity released as a result of valid applications for Enduring Annual NTS Exit (Flat) Capacity made in accordance with the Uniform Network Code ("UNC") and the Exit Capacity Release ("ExCR") methodology statement. The timing of the release of any NTS obligated incremental exit flat capacity ~~made available as a result of exit capacity substitution~~ will be in accordance with the ExCR methodology statement. Where such NTS obligated incremental exit flat capacity is to be made available and is met via exit capacity substitution, capacity will be made available from a date consistent with this methodology statement.

This statement of the exit capacity revision methodology applies in respect of incremental obligated entry capacity released as a result of valid bids made in the auctions for Long Term System Entry Capacity (the "QSEC auctions"). The effective date for the release of any NTS exit flat capacity made available as a result of exit capacity revision will be in accordance with this methodology statement.

Due to the high degree of similarity between the exit capacity substitution and revision methodologies National Grid has prepared this single document to satisfy the Licence requirements outlined above.

It should be noted that this document does not provide the methodology by which, and from when, NTS exit capacity will be made available. The processes for ~~users~~Users to obtain,

[1] Both the Licence and UNC contain terms defining exit capacity and reference should be made to these documents for precise definitions. Simplified descriptions of defined capacity terms can be found in the Exit Capacity Release ("ExCR") methodology statement which can be found at http://www.nationalgrid.com/uk/Gas/Charges/statements/transportation/IExCR/

and for National Grid to release, exit capacity can be found in the UNC and the ExCR methodology statement.

In the event that the application of this methodology statement results in a proposal to revise NTS baseline exit flat capacities which is approved by the Authority, National Grid will publish such revisions in the NTS exit capacity baseline statement.

If you require further details about any of the information contained within this document or have comments on how this document might be improved please contact our NTS Gas Charging and Access Development team at:
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GENERAL INTRODUCTION

Background

1. National Grid is the owner and the operator of the gas National Transmission System (NTS) in Great Britain.

2. The NTS plays an important role in facilitating the competitive gas market and helping to provide the UK with a secure gas supply. It is a network of pipelines, presently operated at pressures of up to 94 barg, which transports gas safely and efficiently from coastal terminals and storage facilities to exit points from the system. Exit points are predominantly connections to Distribution Networks (DNs), but also include storage sites, and direct connections to large industrial consumers, power stations, and other systems, such as interconnectors to other countries.

3. These operations are carried out to meet the needs of the companies that supply gas to domestic, commercial and industrial consumers and to power stations. In 2008/09 1062 TWh of gas was transported to these consumers.

4. This publication sets out the methodology that applies for the substitution of NTS baseline exit flat capacity from one or more NTS Exit Points to meet demand for incremental exit flat capacity (i.e. capacity to be made available above the prevailing level of NTS baseline exit flat capacity) at other NTS Exit Points thereby reducing the need for investment to meet that incremental demand for exit capacity. The methodology is only applicable in respect of the allocation of Enduring Annual NTS Exit (Flat) Capacity in the long term, i.e. beyond investment lead times, in response to signals received from Users through processes described in the UNC.

5. This publication also sets out the methodology that applies for the revision to NTS baseline exit flat capacity where the release of incremental obligated entry capacity (i.e. capacity above the prevailing level of obligated entry capacity), in accordance with the Incremental Entry Capacity Release ("IECR") methodology statement, creates additional NTS exit capability.

6. Details of National Grid and its activities can be found on its internet site at www.nationalgrid.com. An electronic version of this publication, along with other related statements can be found on the following web page: "http://www.nationalgrid.com/uk/Gas/Charges/statements/".

National Grid's Licence Obligations

7. New and existing Users of the NTS are able to request to purchase NTS exit capacity products defined in the UNC for any NTS Exit Point defined in the Licence. Such capacity requests will be considered against the provisions of National Grid's statutory and Licence obligations and in accordance with its published methodologies.

8. Overriding obligations applicable to this statement are set out in the Gas Act and the Licence.

9. Specific obligations in respect of the release of NTS exit capacity and relevant to this statement are set out in Special Condition C18 of the Licence. Under this condition, National Grid must prepare the Exit Capacity Release methodology statement setting out the methodology by which National Grid will determine whether to make

exit capacity available for sale. The current ExCR methodology statement can be found on National Grid's website.

10. The specific obligation applicable to this statement set out in the Licence in respect of the substitution of NTS exit capacity is:

- *Special Condition C8E paragraph 3(c)(i) - To use reasonable endeavours to substitute unsold NTS baseline exit flat capacity between NTS exit points in accordance with [this] methodology statement such that the level of NTS obligated incremental exit flat capacity is minimised.*

11. The specific obligation applicable to this statement set out in the Licence in respect of the revision of NTS baseline exit flat capacity is:

- *Special Condition C8E paragraph 3(c)(ii) - To use reasonable endeavours to revise the level of NTS baseline exit flat capacity in accordance with [this] methodology statement in the event that the release of incremental obligated entry capacity changes the availability of NTS exit capacity.*

12. Special Condition C8E paragraphs 4(b)(iii) and 4(c)(iii) set out the exit capacity substitution and revision objectives that the methodologies should seek to meet. These objectives are:

- Ensuring that exit capacity substitution / revision is effected in a manner which is compatible with the physical capability of the NTS;
- Avoiding material increases in the costs (including NTS exit capacity constraint management costs in respect of NTS exit capacity previously allocated) that are reasonably expected to be incurred by National Grid as a result of substituting NTS exit capacity or revising the level of NTS baseline exit capacity; and
- In so far as is consistent with the above objectives, facilitating effective competition between relevant shippers.

CHAPTER 1: PRINCIPLES

Purpose of the Methodology Statement

NOTE: For the purpose of this draft only, the methodology statement has been prepared to include certain elements that may not be included in National Grid's final proposal and may be inconsistent with National Grid current thinking. Where practical the alternatives have been included in [square brackets]. These elements have been included to aid understanding as to how, if they are to be proposed, they would be included in the methodology statement. No inference should be made as to National Grid's intent to include any aspect of this consultation draft in the final proposals.

13. This methodology is intended to promote the economic and efficient development of the NTS. For the purposes of this methodology this objective is achieved by seeking to minimise the amount of investment that is required to satisfy incremental demand for NTS exit flat capacity. Specifically, the methodology describes:

- how capacity could be identified as suitable for substitution from locations where there is no long term demand for capacity (as defined by the absence of capacityNTS Exit (Flat) Capacity allocations) to other locations where NTS incremental exit flat capacity would otherwise be required as a result of accepted applications for Enduring Annual NTS Exit (Flat) Capacity. Subject to the further provisions of this methodology statement, any NTS baseline exit flat capacity that is not allocated will be deemed available for substitution; and
- how additional NTS exit flat capacity is to be made available at locations on the NTS as a result of the release of incremental obligated entry capacity.

14. This Exit Capacity Substitution and Revision methodology statement has been produced to meet the requirements of Special Condition C8E paragraphs 4(b) and 4(c) of the Licence in respect of the preparation of statements setting out the methodology by which National Grid will determine its proposals for the substitution & revision of NTS baseline exit flat capacities pursuant to the obligations in paragraphs 3(a)(iii) and 3(a)(iv) of the above stated condition. National Grid believes the content is consistent with its duties under the Gas Act and is consistent with the Licence. National Grid will, through exit capacity substitution:

- make additional exit flat capacity available at the recipient NTS Exit Point, and
- reduce the quantity of exit flat capacity available at the donor NTS Exit Point,

in quantities determined in accordance with this methodology. The Licence stipulates that the obligation to provide NTS baseline exit flat capacity at the donor NTS Exit Point is reduced by the quantity determined and such substituted capacity will not be available for sale in future at the donor NTS Exit Point.

15. The methodology described seeks to ensure that the NTS is efficiently sized by avoiding or minimising investments where possible, and to reduce the risk of sterilisation of capacity, by the development of proposals for consideration by the Authority to substitute or revise NTS baseline exit flat capacity levels. This may occur under the following circumstances:

- where Users at an NTS Exit Point have requested additional Enduring Annual NTS Exit (Flat) Capacity in accordance with UNC processes that in aggregate exceed the existing NTS baseline exit flat capacity level, National Grid will consider whether it would be efficient and economic to seek to release the

additional exit flat capacity required at that NTS Exit Point by the **substitution** of unsold NTS baseline exit flat capacity from other NTS Exit Points. This is described in Chapter 2;

- where the release of incremental obligated entry capacity (in accordance with the IECR methodology statement) increases the exit capability of the NTS, National Grid will consider whether it would be efficient and economic to seek to increase the availability of NTS exit capacity by the **revision** of the NTS baseline exit flat capacity level at one or more NTS Exit Points. This is described in Chapter 33.

16. Consistent with the Licence and UNC, NTS Exit Capacity is a commercial right that may be offered on a daily basis or multiples thereof: it does not reflect a commitment or obligation upon National Grid to undertake any investment on its network, including, but not limited to the provision of a physical connection to the NTS.

CHAPTER 2: SUBSTITUTION OF NTS BASELINE EXIT FLAT CAPACITY

Introduction

17. This section explains the step by step approach that National Grid will undertake in order to develop proposals for submission to, and approval by, the Authority to reduce the level of NTS baseline exit flat capacity at one or more NTS Exit Points to facilitate an increase to the level of NTS baseline exit flat capacity elsewhere so as to avoid the need to release NTS incremental exit flat capacity and hence to minimise the need for investment in the NTS, i.e. to minimise the release of NTS obligated incremental exit flat capacity.

18. Before application of the exit capacity substitution methodology demand for NTS incremental exit flat capacity must be established. This will occur where Users apply for Enduring Annual NTS Exit (Flat) Capacity in excess of the NTS baseline exit flat capacity[2] in accordance with UNC processes and the ExCR methodology statement.

19. In applying the exit capacity substitution methodology the following rules will be applied to determine the quantity of exit capacity that will be made available for substitution, the "Substitutable Capacity". Under no circumstances will capacity be substituted from an NTS Exit Point in quantities greater than the Substitutable Capacity. Subject to the following rules, Substitutable Capacity at an NTS Exit Point shall be equal to the unsold quantity of NTS baseline exit flat capacity (as defined in the Licence).

    a. Capacity currently allocated (see i) as Enduring Annual NTS Exit (Flat) Capacity will not be available for substitution, i.e. sold capacity will not be Substitutable Capacity.
    b. Capacity currently reserved (see i) under the terms of an Advanced Reservation of Capacity Agreement ("ARCA") will not be Substitutable Capacity.
    c. Capacity currently allocated (see i) as Annual NTS Exit (Flat) Capacity for any Day after the proposed date of release of the relevant NTS incremental exit flat capacity will not be Substitutable Capacity.
    d. Capacity that has previously been substituted to an NTS Exit Point will be Substitutable Capacity where future quantities of that capacity are unsold at that recipient NTS Exit Point.
    e. Because substitution of capacity is indefinite, capacity that has already been substituted from an NTS Exit Point will not be available as Substitutable Capacity in respect of the donor NTS Exit Point on subsequent occasions.
    f. Any unsold NTS incremental exit flat capacity released as a result of long term signals received in accordance with UNC and the ExCR methodology statement will not be Substitutable Capacity until that incremental capacity is re-classed, for the purposes of the Licence, as NTS baseline exit flat capacity.
    g. For each NTS Exit Point the quantity of Substitutable Capacity will be the lowest value, determined in accordance with this paragraph, for any Day following the proposed date for the substitution to be effective, i.e. the date of release of the relevant NTS incremental exit flat capacity.
    h. Any exit flat capacity at a notional exit point created as a result of exit capacity revision (see Chapter 3) shall be Substitutable Capacity.

[2] Plus any previously released NTS incremental exit flat capacity.

i. Where there are outstanding valid[3] applications for capacity (including ad-hoc and ARCA applications)received in the same application period as the application(s) for which capacity substitution is being considered any NTS baseline exit flat capacity identified as being required to be allocated to Users to satisfy those applications shall not be Substitutable Capacity. This ensures that any capacity requested, but not allocated at the time of the substitution analysis, is not considered as Substitutable Capacity if it is required at that NTS Exit Point.

j. Consistent with paragraph 70, and subject to paragraph 19i, where valid ad-hoc and ARCA applications are received, any NTS baseline exit flat capacity required to satisfy the application shall, except where paragraph 19k applies, be Substitutable Capacity until identified as not being required for substitution. This ensures that capacity required for substitution can not be sterilised by an ad-hoc or ARCA application unless backed up by a financial commitment as detailed in paragraph 19k.

k. j. [Any NTS exit capacity at the following NTS Exit Points, whether NTS baseline exit flat capacity or NTS incremental exit flat capacity,NTS Exit Points in respect of which a User or Reservation Party has made a financial commitment shall not be Substitutable Capacity:. The financial commitment must be in respect of works to provide incremental capacity or a new exit connection and the works must be on-going at the time of the substitution analysis.

- NTS Exit Points that are interconnectors; being points on the NTS where gas can be physically offtaken for the sole purpose of connecting the national gas transmission systems of Member States (of the European Union).]

l. Except in respect of sub-paragraph h, any capacity available for use before 1st October Y+4 will not be Substitutable Capacity.

20. Following each application for NTS Exit Capacity, demand for NTS obligated incremental exit flat capacity will be identified. If NTS obligated incremental exit flat capacity is not required then no further action need be taken by National Grid.

21. If, in accordance with the ExCR methodology statement, National Grid considers that it is necessary to release NTS obligated incremental exit flat capacity then this methodology shall apply to see whether the quantity of NTS obligated incremental exit flat capacity required to be released can be reduced through exit capacity substitution. For the avoidance of doubt, the User Commitment (as defined in the ExCR methodology statement) shall apply to all capacity increases (except as specified in the ExCR methodology statement) irrespective of whether the increase is satisfied through investment, substitution and/or existing capability.

22. In respect of any application, capacity will only be considered available for substitution after all applications for unsold NTS baseline exit flat capacity have been satisfied, i.e. capacity will be allocated at the NTS Exit Point where applications are received before being substituted to another NTS Exit Point.

23. National Grid will consider information received and will determine whether additional exit capacity requests can be satisfied by the substitution of Substitutable Capacity from other NTS Exit Points. The overriding factor in such consideration will be to minimise the investment required, without increasing the assessed risk of incurring other costs, e.g. operational costs or capacity buy-back costs, to meet National

[3] i.e. for an application from a User, in accordance with UNC and the ExCR methodology statement, and for an application from a Reservation Party, following receipt by National Grid of a completed ARCA application form.

Grid's capacity obligations in respect of other NTS Exit Points and of NTS Entry Points.

Process

User Applications

24. In accordance with the UNC and the ExCR methodology statement, Users can apply for additional Enduring Annual NTS Exit (Flat) Capacity at the Annual Application Window (July) or via an ad-hoc application. Reservation Parties can reserve capacity via an ARCA. In addition, Users are able to apply for a reduction in its registered Enduring Annual NTS Exit (Flat) Capacity either during the Annual Application Window or in response to an ad-hoc reduction invitation from National Grid.

25. If Users request (or Reservation Parties reserve) additional Enduring Annual NTS Exit (Flat) Capacity at any NTS Exit Point that in aggregate exceeds the existing level of NTS baseline exit flat capacity, considering any valid reduction requests, National Grid will undertake the following process for each such NTS Exit Point. Where there is more than one such NTS Exit Point these may be grouped according to their location on the NTS in order to minimise substitution analysis requirements, i.e. NTS Exit Points generating the requirement for similar investment projects can be grouped together. For each group or individual NTS Exit Point the process described below under "Substitution Analysis" will be repeated by iteration to identify the optimum NTS baseline exit flat capacity decreases to maximise the reduction in required investment. The objective is, therefore, to reduce investment, not to reduce exchange rates (ratio of NTS baseline exit flat capacity decrease to NTS obligated incremental exit flat capacity release avoided).

Recipient NTS Exit Point Order

26. Subject to paragraph 25, where exit capacity applications result in a requirement for National Grid to release NTS obligated incremental exit flat capacity at more than one NTS Exit Point, analysis of substitution opportunities will commence by considering recipient NTS Exit Points with no Revenue Driver ("RD"), as defined in Special Condition C8E paragraph 1(d) of the Licence, followed by the NTS Exit Point with the ~~lowest~~highest RD.

27. Notwithstanding the objective stated in paragraph 25, NTS Exit Points which have no RD[4] will be considered before those with a RD because only incremental exit flat capacity requests satisfied through release of NTS obligated incremental exit flat capacity (i.e. where investment is needed) receive additional funding. Hence the process minimises the quantity of NTS obligated incremental exit flat capacity at NTS Exit Points without an agreed level of funding by maximising the substitution of NTS baseline exit flat capacity at these NTS Exit Points. Continuing the process by selecting the NTS Exit Point with the ~~lowest~~highest RD, i.e. the NTS Exit Point expected to require the ~~least~~most investment, will ~~minimise the number of incremental capacity requests that cannot be satisfied~~maximise the avoided investment that can be achieved through the first substitution~~. Any~~ opportunities considered. However, any residual investment will be in respect of ~~fewer~~a greater

[4] In accordance with the ExCR methodology statement National Grid may reject an application for capacity at an NTS Exit Point for which a revenue driver has not been included in the Licence.

number of smaller NTS Exit Points and is, therefore, likely to be more efficient to undertake.

Donor NTS Exit Point Order

28. Substitution from notional exit points created as a result of exit capacity revision shall be considered before substitution from NTS Exit Points.

29. Substitutions from individual donor NTS Exit Points will commence by reducing the capacity at the most favourable NTS Exit Point that has Substitutable Capacity. The most favourable NTS Exit Point will be the furthest downstream NTS Exit Point from the recipient NTS Exit Point as measured by pipeline distance. The furthest downstream is selected as it is assumed to provide the lowest exchange rate so should result in the most efficient outcome.

30. Due to the complexity of the NTS it may not always be apparent:

- which NTS Exit Point is the furthest downstream. In order to simplify analysis, potential donor NTS Exit Points on the same pipeline as the recipient NTS Exit Point will be considered before those on adjacent connected pipelines; or
- whether NTS Exit Points are downstream or upstream of the recipient NTS Exit Point. This will be determined by network analysis at each stage of the substitution process, e.g. an NTS Exit Point may move from being upstream to downstream as a result of substitution of capacity at a previous donor NTS Exit Point.

To provide an indication of the relative position of NTS Exit Points diagramthe diagrams in Annex 1 hashave been produced. These show the direction of gas flow in the NTS for each LDZ under typical high demand conditions, i.e. the supply / demand scenario used to determine NTS Transmission Transportation Charges. This scenario is not necessarily representative of the supply / demand scenario that will be used for substitution analysis.

31. Potential donor NTS Exit Points shall be ignored where they are too far downstream (or upstream) to provide a benefit to the recipient NTS Exit Point. [This will be determined by the application of the exchange rate cap (see paragraph 36).]

32. In the event of two or more potential donor NTS Exit Points being an equal distance from the recipient NTS Exit Point then the donor NTS Exit Point providing the lowest calculated exchange rate will be selected. In the event that exchange rates are equal, capacity shall be reduced at each relevant donor NTS Exit Point, in proportion to the available Substitutable Capacity at each of these donor NTS Exit Points.

33. Where there is insufficient capacity at the first donor NTS Exit Point to fully satisfy the incremental exit flat capacity required at the recipient NTS Exit Point the quantity of capacity that can be substituted will be substituted and further donor NTS Exit Points will be considered:

- in accordance with paragraphs 28 to 32; then
- upstream of the recipient NTS Exit Point, starting with the nearest and extending upstream until either a compressor or beach ASEP is reached.

34. Upstream donor NTS Exit Points will be selected on the same basis of, pipeline, pipeline distance, exchange rate, then pro-rating, as for downstream donor NTS Exit Points.

35. When considering the second, and subsequent, donor NTS Exit Points consideration shall be given to possible changes in gas flow direction as a result of substitutions already identified. This may change the sequence of potential donor NTS Exit Points.

36. The exchange rate[5] for each donor / recipient NTS Exit Point pairing shall be determined. Where this:

36. • The exchange rate for each donor / recipient NTS Exit Point pairing shall be determined. Where this exceeds 3:1 the substitution, or part thereof, shall not be permitted. Substitution at 3:1 and below will be made to the extent[65] that this is possible. As subsequent donor NTS Exit Points, for that recipient NTS Exit Point, are unlikely to be possible at less than or equal to 3:1 further analysis will not be necessary except to verify that this is the case. This limit (and the possible application of an exchange rate collar) will be reconsidered following initial application of the methodology and may be amended or removed during the annual review of the methodology.

• is less than 1:1 the substitution shall only be permitted following further adjustment of the NTS baseline exit flat capacity at the donor and/or recipient NTS Exit Point to give an exchange rate of 1:1. This may, in some circumstances require consideration of additional donor NTS Exit Points.

These limits will be reconsidered following initial application of the methodology and may be amended or removed during the annual review of the methodology.

37. Subject to the above criteria and the objective to reduce necessary investment, donor NTS Exit Points shall be selected in the sequence:

- Notional exit points;
- Downstream NTS Exit Points on the same feeder;
- Downstream NTS Exit Points on adjacent connected feeders;
- Upstream NTS Exit Points on the same feeder;
- Upstream NTS Exit Points on adjacent connected feeders.

Investment Analysis

38. National Grid will carry out network analysis with the network modelled to meet existing obligations. Substitution and investment proposals to satisfy requests for incremental exit flat capacity shall be incremental to this base network.

39. For any NTS Exit Point at which all incremental exit flat capacity requests can be met without undertaking NTS investment[76] (and/or giving rise to increased operational costs), i.e. with existing "spare" capability, National Grid will propose the release of NTS obligated incremental exit flat capacity consistent with the new aggregate level of capacity allocations. Where such requests cannot be met without investment (and/or giving rise to increased operational costs), National Grid will investigate exit capacity substitution opportunities.

40. Potential capacity substitutions shall be validated through network analysis. The objective shall be to avoid incremental increase in risk. Hence National Grid will not propose capacity substitution where this would result, under planning scenarios, in the capability of the NTS to meet existing obligations being reduced.

[5] This paragraph assumes application of an exchange rate cap and collar.

[65] Assuming partial substitution is allowed.

[76] Or contractual alternative.

41. The exit capacity substitution objective is to minimise investment that would otherwise be required to satisfy demand for incremental exit flat capacity. Substitution opportunities shall be assessed against criteria defined within the Transmission Planning Code which is the basis for National Grid's investment decisions. This shall include existing commitments, including NTS Exit (Flat) Capacity, NTS Exit (Flexibility) Capacity and Assured Offtake Pressures, on the network. Substitutions shall not be accepted if this reduces National Grid's ability to deliver its existing commitments. These commitments will be taken from regulatory and commercial agreements and statutory instruments and are additional to the conditions set out in the National Grid annual planning procedures.

42. The supply and demand scenarios used for the analysis will be consistent with the Transmission Planning Code a copy of which can be found on the National Grid website at: http://www.nationalgrid.com/uk/Gas/TYS/TPC/.

43. The analysis shall primarily be undertaken at high demand levels. FlowsIdeally the flow at all NTS Exit Points should be set at the obligated level. However, this would be impracticable because to do so would result in total exit flow being much greater than previously experienced peak demand and available entry supplies. Hence, normally flows at NTS Exit Points shall be set:

- for NTS Exit Points in the vicinity[8] of the recipientthat have a reasonable probability of being donor NTS Exit Point,Points,[7] at the obligated level, i.e. equal to the NTS baseline exit flat capacity plus any previously released NTS obligated incremental capacity; and
- for all other NTS Exit Points, to the appropriate level for the demand condition, but no lower than the sold capacity level.

44. Where the process outlined in paragraph 43 is inconsistent with the scenario being assessed, e.g:
- at off-peak demand levels; and
- in consideration of NTS Exit Points, such as storage sites, not normally off-taking gas at peak demand levels,

flows shall be adjusted consistent with analysis for the determination of revenue drivers, and, where appropriate, off-peak load behaviour. Any adjustment shall be consistent with the substitution objectives stated in paragraph 12.

Substitution Analysis

45. 44. The substitution analysis will be assessed in accordance with the physical capability of the NTS including that of the recipient NTS Exit Point local infrastructure. For example, where physical limits exist on the maximum flows that may be achieved at an NTS Exit Point, no substitution that could take flows above this physical maximum will be allowed.

46. 45. Where an application is received for capacity at an NTS Exit Point that would take the total NTS Exit (Flat) Capacity allocated, to all Users in aggregate, no higher than the quantity of the NTS baseline exit flat capacity at that NTS Exit Point, this application will be satisfied by utilising existing system capability determined after consideration of any accepted reduction requests. Capacity substitution and/or

[8] The "vicinity" refers to NTS Exit Points that have a high degree of interactivity with the recipient NTS Exit Point and hence, is determined on a point by point basis.

[7] This would include NTS Exit Points that have a high degree of interactivity with, and those located downstream of, the recipient NTS Exit Point. Hence, in order to ensure a supply / demand match, these points will be determined individually for each recipient NTS Exit Point.

funded investment will not be considered as a means to satisfying existing NTS baseline exit flat capacity obligations.

47. 46. Where an application is received that requires the release of capacity in excess of the NTS baseline exit flat capacity, i.e. NTS obligated incremental exit flat capacity, analysis is undertaken to determine what capacity exchange rate would be required to satisfy the incremental exit flat capacity requirement without the need for investment. Capacity substitution will be determined by assessing the flow patterns that can be accommodated by the NTS; i.e. without increasing the risk of capacity constraint management actions being required.

48. 47. Substitution analysis will commence by increasing the flow (in the assessment scenario) at the recipient NTS Exit Point to the level of the prevailing NTS baseline exit flat capacity plus any previously released NTS obligated incremental exit flat capacity. This shall be repeated for all NTS Exit Points in the vicinity of the recipient NTS Exit Point, i.e. at those NTS Exit Points that have a high level of interactivity with the recipient NTS Exit Point.as identified in paragraph 43.

49. 48. Flow will be increased at the least interactive ASEP to maintain a supply / demand balance.

50. 49. Substitution analysis will continue by increasing the flow (in the assessment scenario) at the recipient NTS Exit Point by the level of the required NTS obligated incremental exit flat capacity.

51. 50. The NTS baseline exit flat capacity will be reduced at the donor NTS Exit Point, starting with a reduction quantity. Where this impacts on flow, rebalancing will be undertaken as in paragraph 49.

[of zero][9]

[equal to the flow increase in paragraph 49. Where the Substitutable Capacity at the donor NTS Exit Point is less than the flow increase in paragraph 49 additional donor NTS Exit Points shall be considered such that the aggregate reduction at all donor NTS Exit Points (at this stage of the process) equals the quantity required][10].

Where this impacts on flow, rebalancing will be undertaken as in paragraph 48.

52. 51. The NTS baseline exit flat capacity at the donor NTS Exit Point will progressively be reduced until either:

- the NTS obligated incremental exit flat capacity requirement is satisfied; or
- all Substitutable Capacity has been substituted; or
- further capacity cannot be substituted without exceeding an exchange rate of 3:1.

53. 52. After all Substitutable Capacity has been used, any unsatisfied NTS obligated incremental exit flat capacity will be considered with the next donor NTS Exit Point. Donor NTS Exit Points will be considered in accordance with paragraphs 28 to 37. Further donor NTS Exit Points will be considered until the criteria in paragraph 5152 is satisfied at which point the next recipient NTS Exit Point shall be considered.

[9] This starting point applies in the absence of an exchange rate collar.

[10] This alternative starting point facilitate the application of an exchange rate collar set at 1:1.

54. 53. The reduction step sizes in paragraphparagraphs 51 and 52 will be determined by the individual analyst bearing in mind the need to minimise the number of analysis steps and to identify the optimum reduction quantity to satisfy the incremental request, e.g. in respect of a large increment, all the Substitutable Capacity at one or more donor NTS Exit Points may be reduced in one step.

55. 54. At each stage of the process, e.g. when moving to an additional donor NTS Exit Point the individual donor NTS Exit Point to recipient NTS Exit Point exchange rate will be determined to ensure compliance with the criteria in paragraph 36.

56. 55. Hence all substitutions shall be subject to a limit on the minimum and maximum permitted exchange rate of 1:1 and 3:1 respectively. The initial reduction quantity specified in paragraph 50 ensures that the collar is maintained and the3:1. The limit specified in paragraph 5152 ensures that the cap is maintained. However, to the extent that some capacity can be substituted from a donor NTS Exit Point at, or lower than, 3:1, substitution will be permitted for that quantity of capacity.

57. 56. To validate results, National Grid may, at its sole discretion, consider further donor NTS Exit Points. As donor NTS Exit Points are considered in order of potential benefit to the recipient NTS Exit Point it is unlikely that any subsequent donor NTS Exit Points will satisfy the exchange rate limits.

58. 57. The revised NTS baseline exit flat capacities and remaining NTS obligated incremental exit flat capacity (and hence flows) for all potential capacity substitutions shall be verified by network analysis. Where such analysis is deemed to result in a "failed" network, the flow at the donor NTS Exit Point(s) (and hence the quantity of capacity substituted from the donor NTS Exit Point(s)) shall be adjusted until the network does not fail or there is no more Substitutable Capacity available. In this event the residual investment[11][8] shall be identified.

59. 58. Where residual investment is identified and the associated cost of this investment is not, in National Grid's sole estimation, adequately covered by the return on such investment, potential capacity substitutions will be adjusted. The most economic solution will be proposed taking into account minimum economic investment and substitution quantities.

60. 59. Scenarios where National Grid may regard the return on investment to be inadequate will include, but not be limited to, where the residual investment:

- is for a small quantity requiring investment below economic pipeline sizes;
- is for a quantity requiring investment at non-standard pipeline/infrastructure sizes or to unsatisfactory connection points to the existing NTS.

61. 60. Where paragraph 5859 applies potential substitutions shall be disregarded to the extent necessary to avoid sub-optimal investment[and/or partial substitution] where a satisfactory revenue driver has not been approved by the Authority and included in the Licence for the residual investment.

62. 61. The appropriate level and combinations of substitution and investment (considering all potential NTS obligated incremental exit flat capacity releases) will be confirmed by network analysis. This will be achieved by updating the network model for the revised, post-substitution, NTS baseline exit flat capacity and NTS obligated incremental exit flat capacity levels and residual investment. The final step

[11][8] Residual investment is the investment remaining (if any) after all substitution opportunities have been exhausted in accordance with exit capacity substitution. National Grid may consider alternatives to investment.

in the substitution analysis that was undertaken with an exchange rate of greater than 1:1 shall be reversed, by 3GWh/d, (i.e. by increasing the NTS baseline exit flat capacity at the relevant donor NTS Exit Point and where this impacts on flow, rebalancing will be undertaken) and this shall be validated through network analysis.

- If the network fails, e.g. network pressures or plant operating conditions cannot be maintained then the proposed substitutions are deemed to be appropriate.
- If the network passes further 3 GWh/d increments shall be added to the donor NTS Exit Point flow until the network fails and the cut-off point is identified. Substitutions shall be proposed consistent with the last network model that did not fail.

Partial Substitution

63. 62. The process detailed above can result in the requirement for residual investment. This residual investment will be necessary in respect of the release of NTS obligated incremental exit flat capacity at one of more NTS Exit Points.

64. 63. National Grid will expect to be funded in respect of the release of NTS obligated incremental exit flat capacity and this will normally be achieved through the application of revenue drivers.

65. 64. Where the residual investment relates, in part or whole, to less than the whole quantity of NTS obligated incremental exit flat capacity required at an NTS Exit Point [and a satisfactory revenue driver has not been approved by the Authority and included in the Licence[9] prior to the relevant capacity application][12] then the final step(s) of the substitution analysis shall be reversed. This reversal of substitution proposals shall extend until the level of residual investment is sufficient to meet the whole quantity of NTS obligated incremental exit flat capacity required at one or more NTS Exit Points. This means that substitution will not be permitted where the whole quantity of NTS obligated incremental exit flat capacity required at an NTS Exit Point cannot be met fully by substitution, i.e. partial substitution / partial investment for a single NTS Exit Point will not be permittedonly be permitted where a revenue driver has been agreed and is stated in the Licence for that NTS Exit Point for the incremental capacity required to be met through partial investment.

66. 65. For the avoidance of doubt, where residual investment relates to the whole quantity of NTS obligated incremental exit flat capacity required at an NTS Exit Point and a satisfactory revenue driver has not been approved by the Authority and included in the Licence prior to the relevant capacity application National Grid reserves the right (in accordance with Part B paragraph 37 of the ExCR methodology statement version 6.0) to reject that application.

Analysis Output

67. 66. On completion of the above analysis the effects of the exit capacity applications and accepted exit capacity substitutions will be reviewed. Where National Grid considers that an accepted substitution is inappropriate, e.g. the proposed reduction in NTS baseline exit flat capacity at an NTS Exit Point would create difficulties for the downstream operator to meet their statutory and / or regulatory obligations, National Grid will discuss with Ofgem whether:

[9] An agreed (between National Grid and the Authority) methodology for the determination of partial revenue drivers will constitute "a satisfactory revenue driver".

[12] This section prohibits partial substitution / partial investment. However, the bracketed part limits the prohibition only to situations where a partial revenue driver has not been agreed.

- [discuss with Ofgem whether such accepted substitutions should be reversed (notwithstanding that they were determined by following the approved methodology), the level of residual investment increased (consistent with paragraph 58) accordingly, and the accepted substitution excluded from National Grid's proposals.];

[at its sole discretion, reverse the substitution proposals (notwithstanding that they were determined by following the approved methodology) and increase the level of residual investment (consistent with paragraph 58) accordingly.]

- the level of residual investment increased (consistent with the other provisions of this chapter) accordingly; and
- the accepted substitution excluded from National Grid's proposals.

68. 67. On completion of the above analysis [(and any adjustments pursuant to paragraph 66]67) the effects of the exit capacity applications and accepted exit capacity substitutions will be recorded and proposed to the Authority. Specifically National Grid shall submit:

- A statement of NTS obligated incremental exit flat capacity released detailing:
  - the NTS Exit Points where NTS obligated incremental exit flat capacity is to be released;
  - The quantity of NTS obligated incremental exit flat capacity; and
  - The effective date for when the capacity is first made available for use.

- A statement of any proposed exit capacity substitution detailing:
  - The NTS Exit Points (which for the purpose of this paragraph shall include notional exit points) to which exit capacity substitution proposals relate;
  - The level of NTS baseline exit flat capacity at each recipient and donor NTS Exit Point;
  - The proposed quantities by which National Grid is proposing the NTS baseline exit flat capacity shall be increased or decreased as a result of exit capacity substitution; and
  - The effective date(s).

69. 68. The proposed adjustments to NTS baseline exit flat capacities as a result of exit capacity substitution will be implemented subject to the Authority not vetoing the proposal in accordance with Special Condition C8E of the Licence. In the event that the proposal is vetoed National Grid will not revise the NTS baseline exit flat capacities and will undertake such investment as National Grid deems, at its sole discretion, appropriate.

70. 69. In the period following allocation of capacity to Users, and before substitution proposals are approved or vetoed, there will be uncertainty as to the quantity of unsold exit flat capacity available to Users and Reservation Parties via the ad-hoc and ARCA application processes. During this period National Grid will determine such quantities to be unavailable for applicants until a decision has been made by the Authority on National Grid's substitution proposals. The quantity unavailable shall be equal to the quantity proposed to be substituted away from donor NTS Exit Points or likely, in National Grid's opinion, to be included in National Grid's substitution proposals. Except where paragraph 19k applies, ad-hoc and ARCA capacity applications received during this period shall be considered only after capacity at the relevant NTS Exit Point has been confirmed (by National Grid's substitution analysis or by Authority veto of National Grid's substitution proposals) as not being required for substitution.

Diagram 1: Indicative NTS Gas Flow Direction.

Note: The direction of gas flow in the NTS for these diagrams is determined from the gas charging model based on 2013/14 network. Substitution analysis may be undertaken for a range of supply/demand scenarios which could result in different flow patterns. The following diagrams are not definitive and should be used for indicative guidance only.

Diagram 1A: WM LDZ. NB Other LDZ diagrams to be provided.

CHAPTER 3: REVISION OF NTS BASELINE EXIT FLAT CAPACITY.

Introduction

71. 70. This section explains the approach that National Grid will undertake in order to develop proposals to revise the NTS baseline exit flat capacity at NTS Exit Points due to investments undertaken on the NTS as a result of the release of incremental obligated entry capacity.

72. 71. Before application of the exit capacity revision methodology, demand for incremental obligated entry capacity must be established. This will occur where Users obtain NTS Entry Capacity in excess of the prevailing level of obligated entry capacity through the QSEC auction in accordance with UNC processes and the IECR methodology statement.

73. 72. As exit capability is dependent upon entry gas flows, and not entry capacity bookings, exit capacity revision will be driven by confidence over gas flows rather than release of entry capacity and/or commissioning of related infrastructure. Dependent upon the nature of the connected operations at an ASEP, it is unlikely that sufficient confidence can be obtained until gas has flowed against the incremental capacity signalled for two years.

74. 73. Where the release of incremental obligated entry capacity is satisfied through substitution of entry capacity from one ASEP to another ASEP (see Entry Capacity Substitution methodology statement) National Grid will not apply this exit capacity revision methodology and NTS baseline exit flat capacities will not be revised, i.e. NTS exit capacity revision will only apply in respect of the release of funded incremental obligated entry capacity.

75. 74. In addition, where the release of incremental obligated entry capacity is satisfied through the release of funded incremental obligated entry capacity and National Grid pursues alternatives to investment in new infrastructure, National Grid will not apply this exit capacity revision methodology and NTS baseline exit flat capacities will not be revised, i.e. NTS exit capacity revision will only apply in respect of the release of funded incremental obligated entry capacity where investment in new infrastructure occurs.

76. 75. Following the process described below, National Grid will determine whether, considering its statutory and other obligations, a revision to any of the NTS baseline exit flat capacities can be justified to the Authority. National Grid will after completion of the process provide to the Authority its proposals to modify the NTS exit capacity baseline statement detailing its proposed exit capacity revisions.

Process

User Applications

77. 76. In accordance with the UNC and the IECR methodology statement, Users can apply for additional NTS Entry Capacity at the Long Term System Entry Capacity Auction (QSEC auction).

78. 77. If Users request additional NTS Entry Capacity at any ASEP that in aggregate exceeds the existing obligated entry capacity level, and these applications satisfy the user commitment (NPV) test detailed in the IECR methodology statement, National Grid will undertake the following process for each such ASEP. Where there is more than one such ASEP these may be grouped according to their location on the NTS in order to minimise exit capacity revision analysis requirements.

79. 78. For each group or individual ASEP the process described below under "Revision Analysis" will be repeated to identify the exit flat capacity increases that can be accommodated as a result of the release of incremental entry capacity. The objective is, therefore, to minimise exit driven investment.

Recipient NTS Exit Point

80. 79. National Grid shall create a notional exit point near to the relevant ASEP which shall be the only recipient NTS Exit Point.

81. 80. Where there is an existing NTS Exit Point at an ASEP, the notional exit point shall not be an existing NTS Exit Point.

82. 81. A notional exit point shall be an exit point solely for the purpose of NTS exit capacity revision in accordance with this methodology.

83. 82. Any NTS exit flat capacity placed at a notional exit point shall be available for exit capacity substitution in respect of future NTS incremental exit flat capacity requirements. Substitution from the notional exit point may occur in the same analysis period as capacity is placed at the notional exit point.

Investment Analysis

84. 83. Potential exit capacity revisions shall be validated through network analysis. The objective shall be to reduce investment that would otherwise be required to satisfy demand for incremental exit flat capacity whilst avoiding incremental increase in risk.

85. 84. Revision opportunities shall be assessed against criteria defined within the Transmission Planning Code which is the basis for National Grid's investment decisions. This shall include existing commitments, including NTS Exit (Flat) Capacity, NTS Exit (Flexibility) Capacity and Assured Offtake Pressures, on the network. Revisions shall not be accepted if this puts at risk National Grid's ability to deliver its existing commitments plus those commitments created as a result of exit capacity revision. These commitments will be taken from regulatory and commercial agreements and statutory instruments and are additional to the conditions set out in the National Grid annual planning procedures.

86. 85. The supply and demand scenarios used for the analysis will be consistent with the Transmission Planning Code. Of primary importance will be the establishment of entry gas flows. A key factor in the establishment of supply / demand scenarios is identification of the range of realistic and reliable gas supply flow rates. In regard to new ASEPs or incremental capacity at existing ASEPs future flows will not be known at the time that the incremental entry capacity is released.

87. 86. The analysis shall primarily be undertaken at high demand levels. Flows shall be set:

- for NTS Exit Points in the vicinity of the relevant ASEP[10], at the obligated level, i.e. equal to the NTS baseline exit flat capacity plus any previously released NTS obligated incremental capacity; and
- for all other NTS Exit Points, to the appropriate level for the demand condition;
- for the relevant ASEP, at the level demonstrated consistently on days of high demand.

Revision Analysis

88. 87. Where funded incremental obligated entry capacity has been released (and in accordance with paragraph 7475) analysis is undertaken to determine how much additional exit capacity can be released as a result. This means that at an existing ASEP, exit capacity revision will only be applied when consistent flows are established in excess of the obligated entry capacity level before the relevant incremental obligated entry capacity release. Capacity revision will be determined by assessing the flow patterns that can be accommodated by the NTS; i.e. without increasing the risk of capacity constraint management actions being required.

89. 88. Revision analysis will commence by increasing the flow (in the assessment scenario) at the relevant ASEP to that which National Grid is confident will, in normal circumstances, be delivered on high demand days.

90. 89. Flow will be increased (in the assessment scenario) at all NTS Exit Points that have a high level of interactivity with the relevant ASEP to the level of the prevailing NTS baseline exit flat capacity plus any previously released NTS obligated incremental exit flat capacity.

91. 90. Revision analysis will continue by increasing the flow at the notional NTS exit point by the level of increase as was made at the ASEP (step 8889).

92. 91. Where the above steps impact on flow, rebalancing will be undertaken at the least interactive ASEP.

93. 92. Revision analysis in respect of each release of funded incremental obligated entry capacity shall be undertaken annually following the July annual application window for exit capacity.

94. 93. In respect of a specific release of funded incremental obligated entry capacity, the first exit capacity revision analysis shall be undertaken two winters after the commissioning of relevant infrastructure built to support the release of the funded incremental obligated entry capacity. This should ensure that certainty of entry flows has been established. However, in the event that consistent flows have not been established the increase in flow in paragraph 8889 may be zero (in which case no further analysis is required for that year).

[10] i.e. where there is a high degree of interaction between the NTS Exit Point and ASEP.

95. 94. In respect of a specific release of funded incremental obligated entry capacity, exit capacity revision analysis shall be undertaken annually until the earlier of:

- Demonstration of consistent flows at the obligated entry capacity level and all capacity placed at the notional exit point has been substituted to an NTS Exit Point; or
- Two years after the initial revision analysis, i.e. three years in total.

96. 95. Where NTS incremental obligated entry capacity has been signalled for release in phases, paragraph 9495 shall apply in respect of each phase.

97. 96. In respect of revision analysis undertaken in accordance with paragraph 94,95, the adjustment in flow at the notional exit point, in accordance with paragraph 9091 may be an increase, where consistency of flows is progressively increasing, or a decrease if consistency of flows has declined.

Analysis Output

98. 97. On completion of the above analysis the effects of the exit capacity applications and accepted exit capacity revisions will be recorded and proposed to the Authority. Specifically National Grid shall submit:

- A statement of NTS obligated incremental exit flat capacity released[1311] detailing:
  - the NTS Exit Points where NTS obligated incremental exit flat capacity is to be released;
  - The quantity of NTS obligated incremental exit flat capacity; and
  - The effective date for when the capacity is first made available for use.

- A statement of any proposed exit capacity revision detailing:
  - The notional exit points and ASEPs to which exit capacity revision proposals relate;
  - The proposed quantities by which National Grid is proposing the exit flat capacity shall be adjusted at notional exit point(s)[1412] as a result of exit capacity revision; and
  - The effective date(s).

99. 98. Any proposed adjustments to NTS baseline exit flat capacities as a result of exit capacity substitution from notional exit points (i.e. as a result of exit capacity revision) will be implemented subject to the Authority not vetoing the proposal in accordance with Special Condition C8E of the Licence. In the event that the proposal is vetoed National Grid will not revise the NTS baseline exit flat capacities (nor place exit flat capacity at notional exit points) and will undertake such investment as National Grid deems, at its sole discretion, appropriate.

100. 99. In the period following allocation of capacity to Users and before revision proposals are approved or vetoed there will be uncertainty as to the quantity of unsold exit flat capacity available to Users and Reservation Parties via the ad-hoc and ARCA application processes. During this period National Grid will determine such quantities to be withheld from applicants until a decision has been made by the

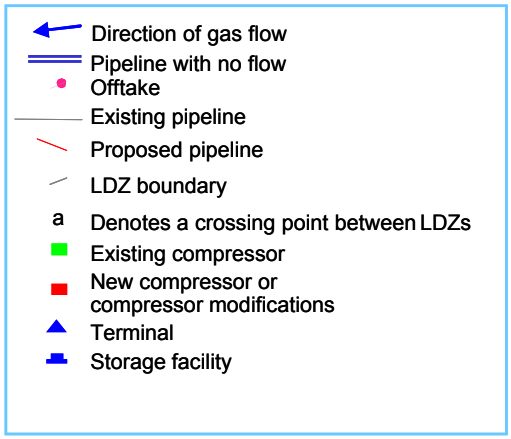
[1311] This statement will be the same as the statement issued pursuant to exit capacity substitution.
[1412] Where exit capacity revision leads to increases in the NTS baseline exit capacity at actual NTS Exit Points, this will be included in the statement made pursuant to paragraph 57.68.

Authority on National Grid's revision proposals. The quantity withheld shall be equal to the proposed substitution quantities, if known, at recipient NTS Exit Points.

Annex 1: Indicative Gas Flow Direction in the NTS for each LDZ.

Note: The direction of gas flow in the NTS for these diagrams was determined from the gas charging model based on 2013/14 network. Substitution analysis may be undertaken for a range of supply/demand scenarios which could result in different flow patterns. The following diagrams are not definitive and should be used for indicative guidance only.

Key.



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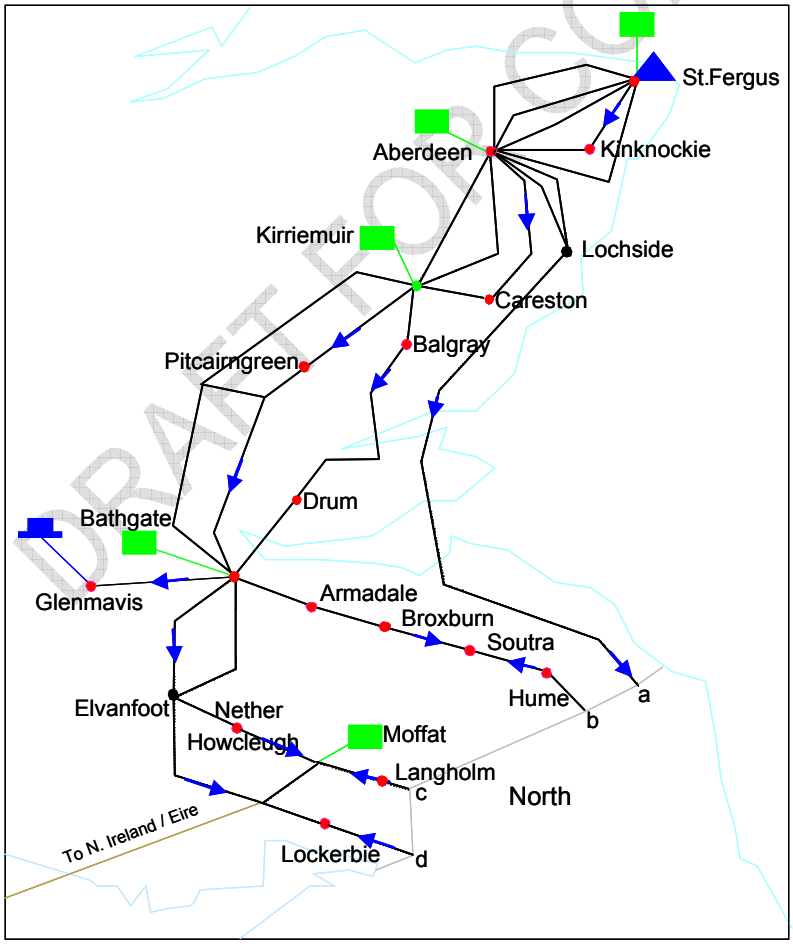

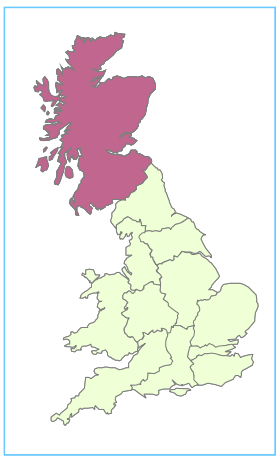

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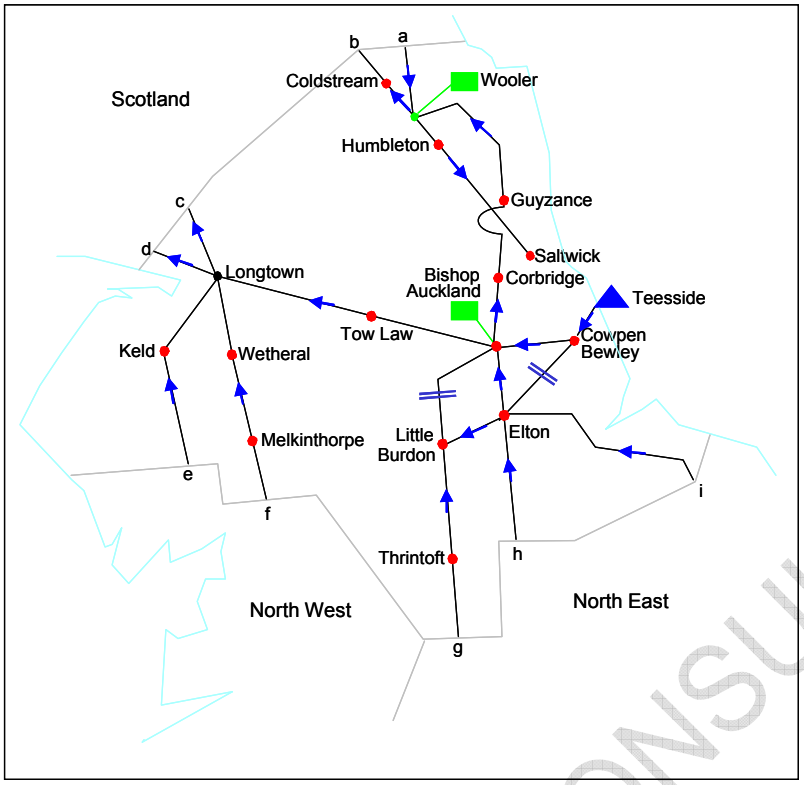

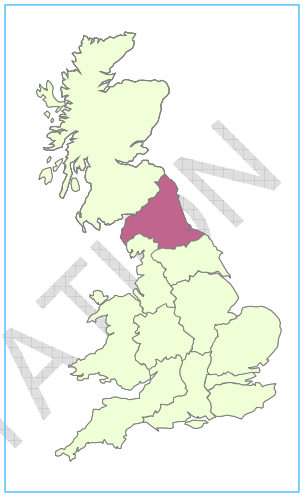

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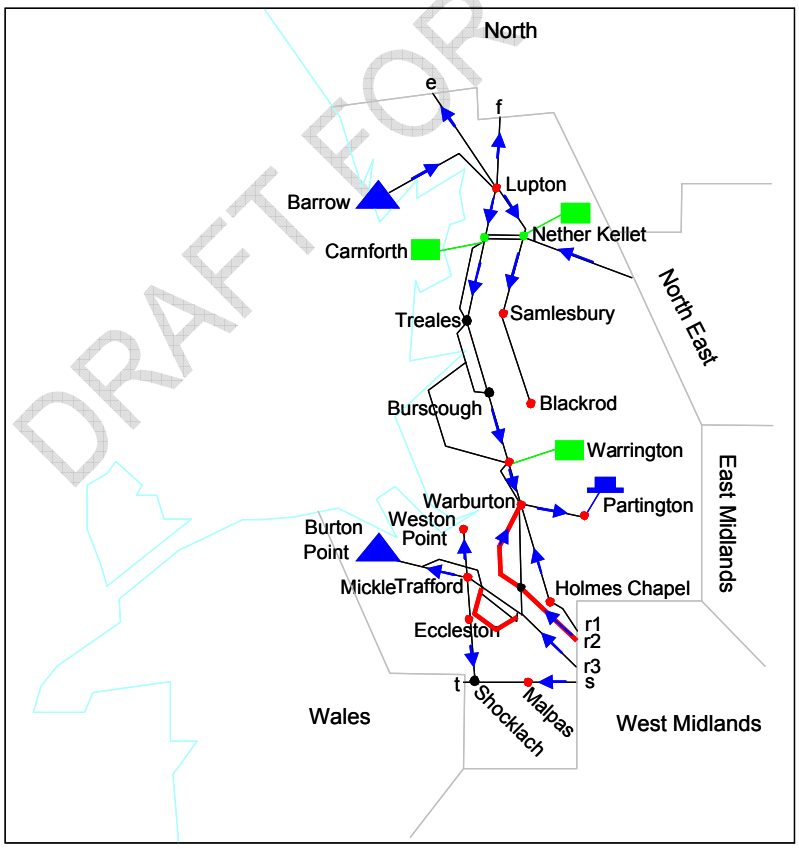

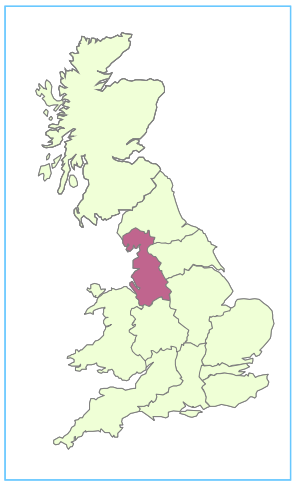

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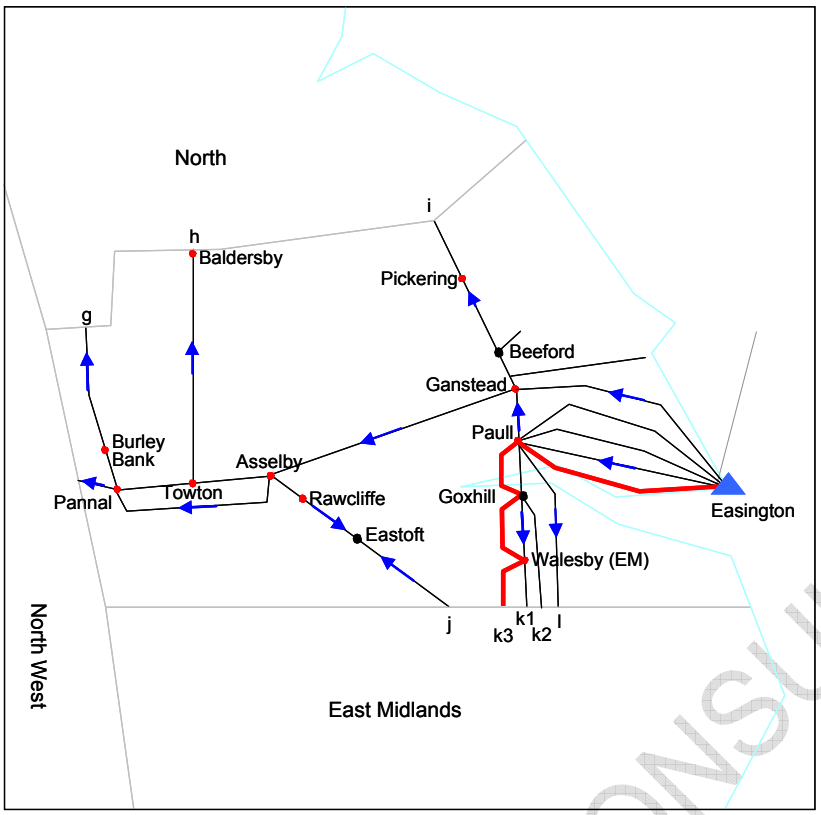

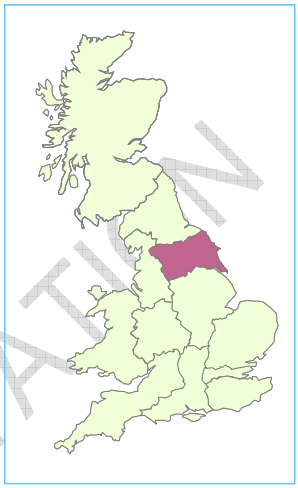

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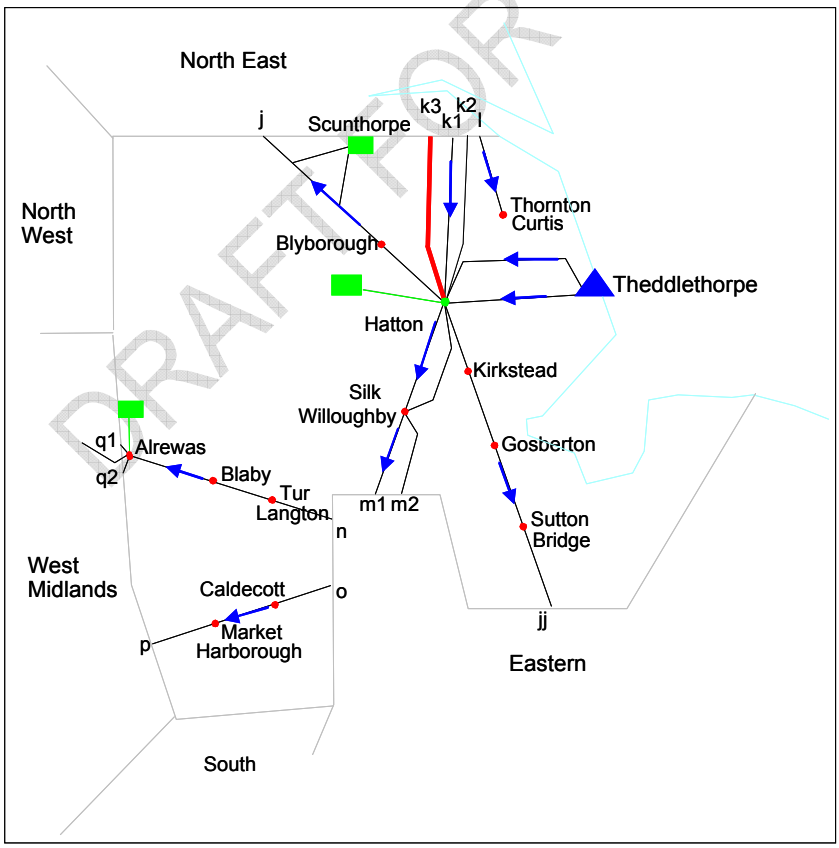

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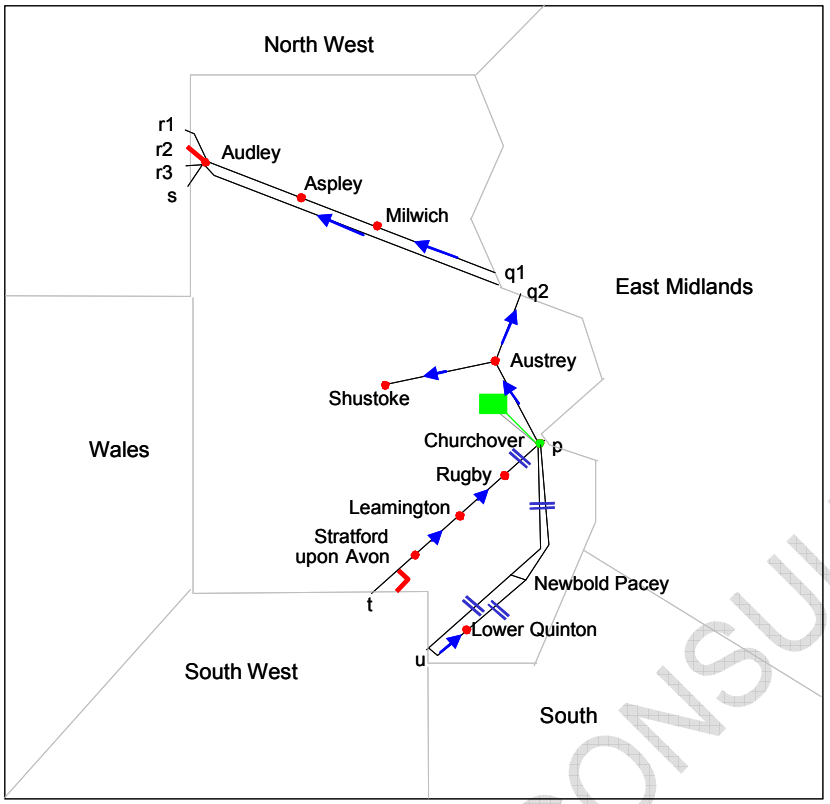

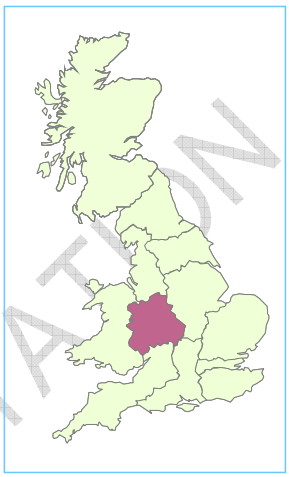

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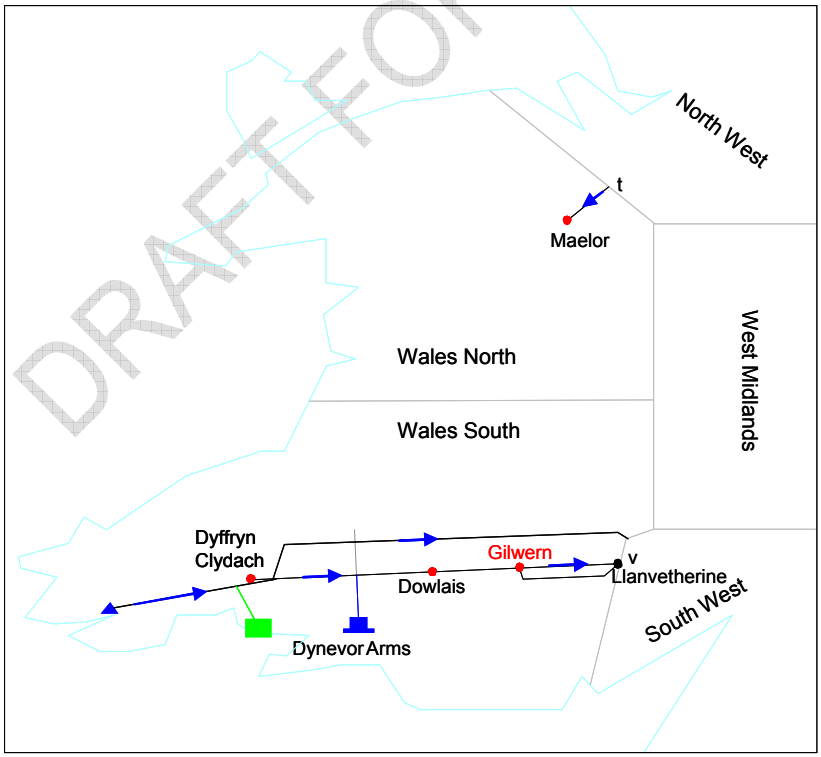

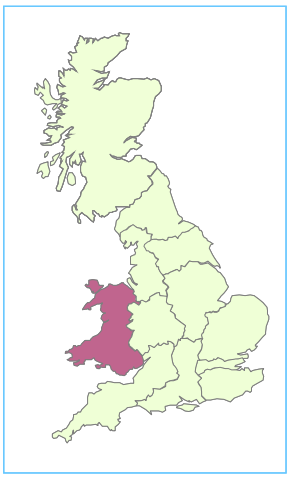

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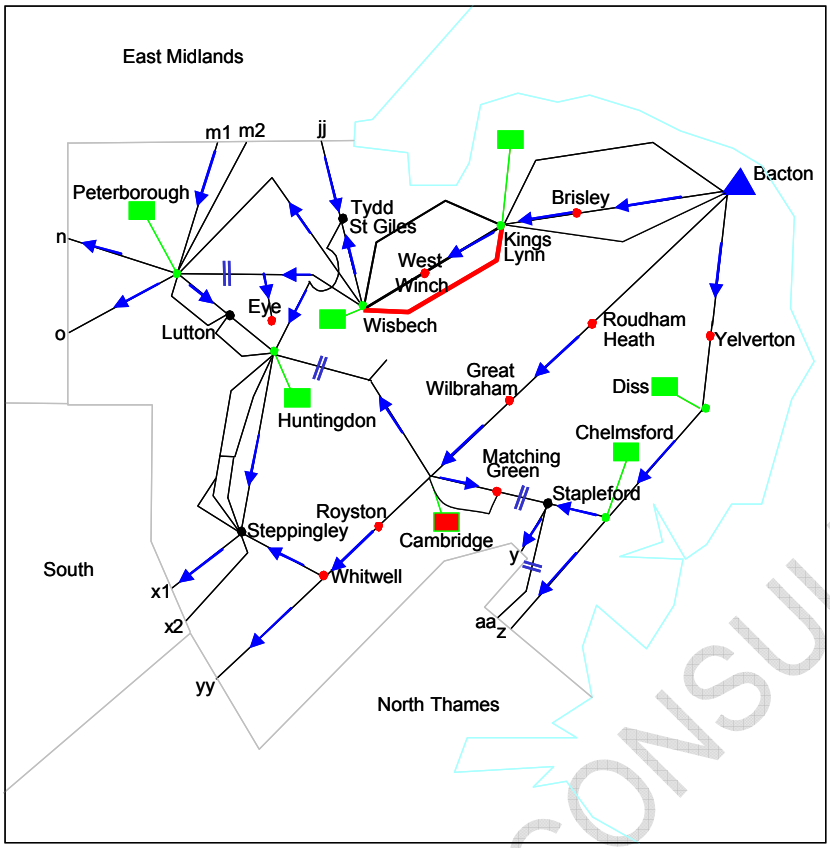

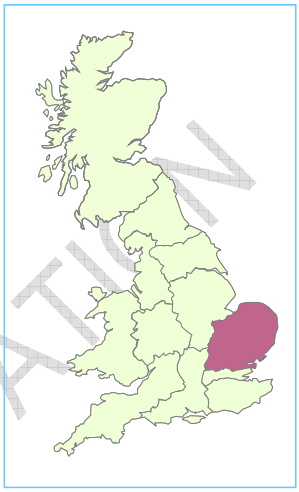

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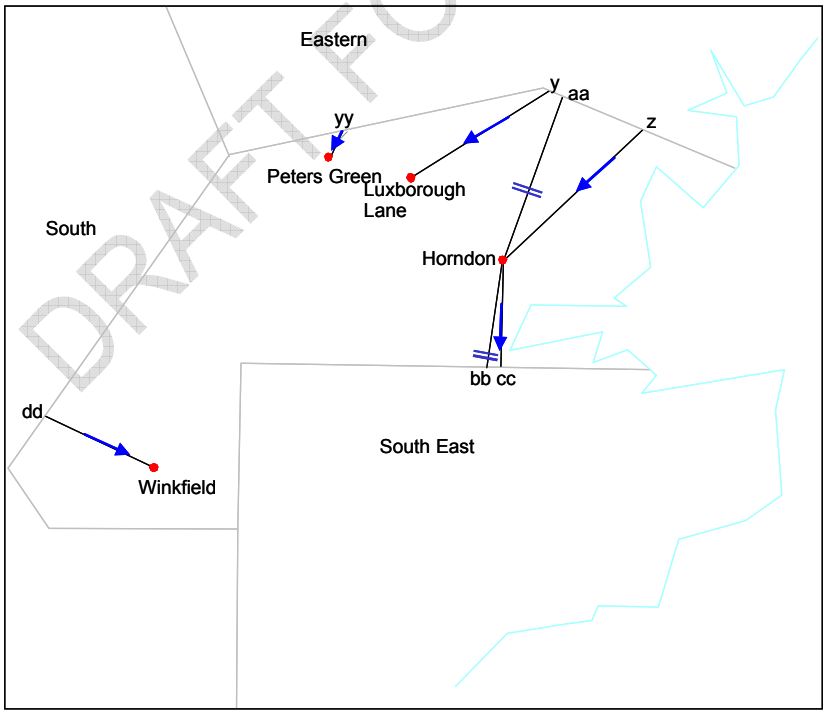

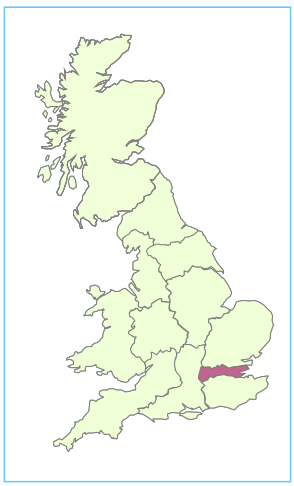

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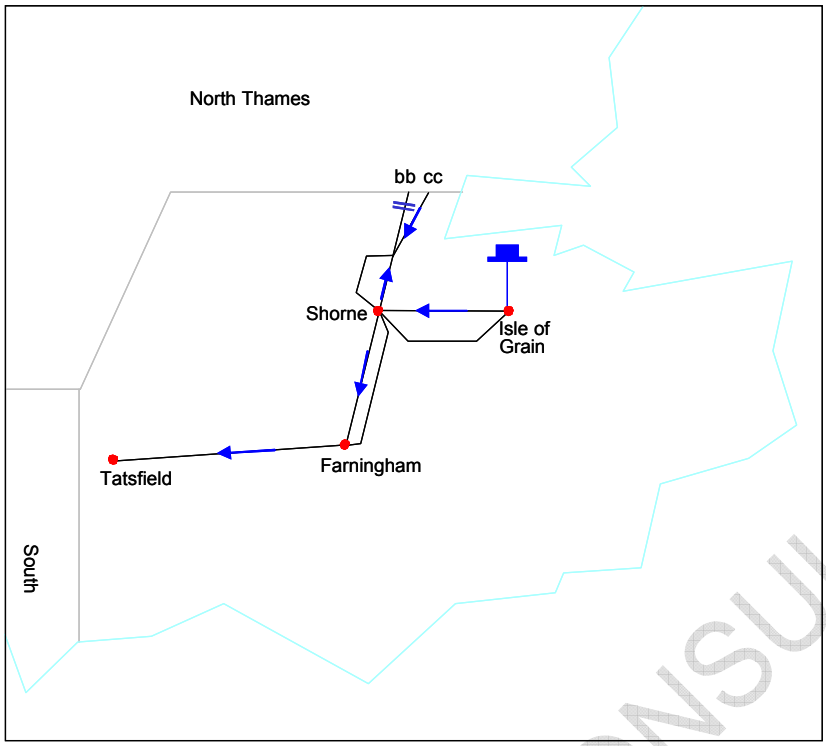

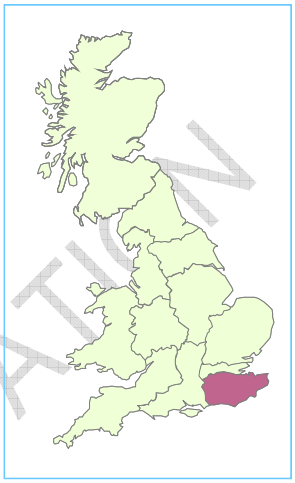

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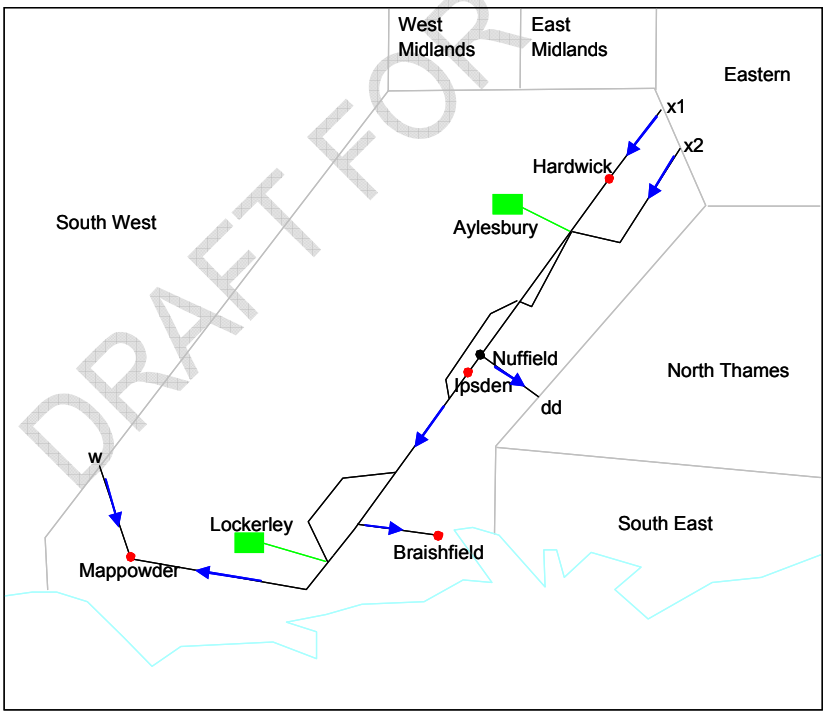

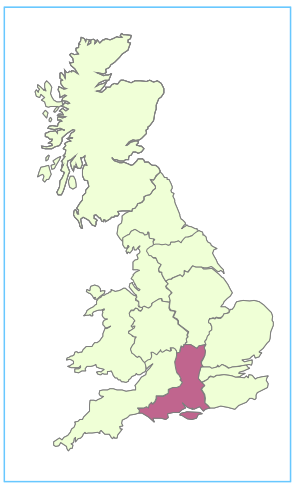

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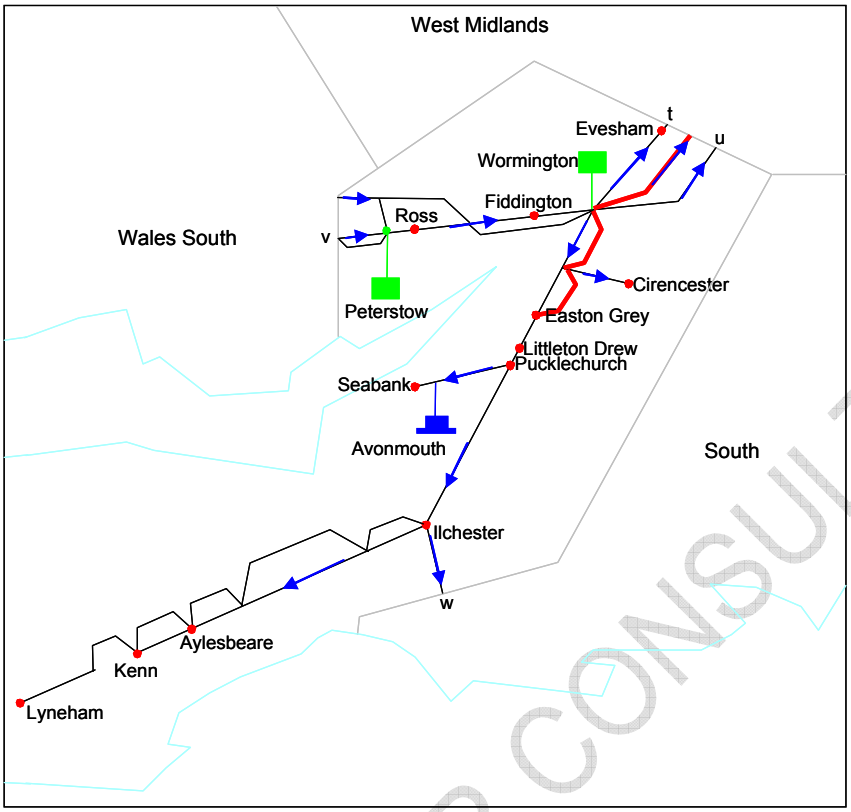

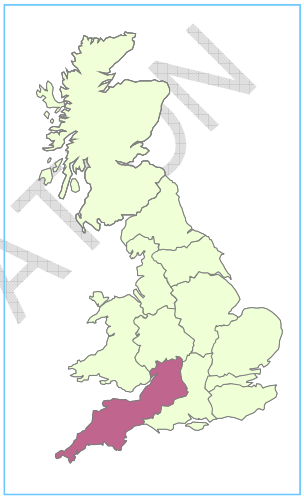

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