

# Weather Station Substitution Methodology

## Technical Requirements

### Introduction

This document represents the third and final draft of the Demand Estimation Sub-Committee's ("DESC's") technical requirements which will be used as the central reference point before entering the tender phase for the Weather Station Substitution Methodology. This document should be as clear and detailed as possible to ensure the final Methodology is likely to be accepted by DESC.

The document is split into two main sections (i) requirements for the methodology itself and (ii) requirements for the historic dataset which is also seen as a key deliverable from this work.

This should represent all of the latest discussions up to and including the DESC meeting on April 4th 2012. The draft requirements will be published for final review by DESC members. These requirements must be accepted by DESC before the formal procurement activity can commence. It is expected that this acceptance will be provided via email by all DESC members, rather than at a formal DESC meeting.

### Development of Weather Station Substitution Methodology

- The Service Provider will be required to develop a "Weather Station Substitution Methodology" ("the Methodology") as described in Uniform Network Code (Section H1.4.4 and Transition Document IIC 11.5.3). This Methodology will be applied by the GB Gas Industry in future whenever a Weather Station currently used in Demand Estimation closes and is replaced by another station, to adjust the data from the first (closed) weather station in order to create a seamless and consistent dataset.
- The Service Provider must deliver a written Methodology to be applied in the event of a weather station closure, which includes a description of the required variables for the calculation, the sources of those variables and formula/method to be applied in such circumstances. The Methodology should be applicable and practicable for all GB weather stations.
- The Methodology must describe the decision-making process to be applied when substituting Weather Stations and the outputs from the substitution.
- The Methodology must include a definitive set of rules for filling in any gaps in the data history for either the closed or replacement weather station(s).
- The Service Provider must provide documentary evidence to support the chosen methodology, including details of any other potential approaches which have been considered but disregarded.
- The Methodology must be replicable by any UNC signatory using weather data which is licensed for disclosure by Xoserve to all UNC parties and the results must be reproducible
- The Methodology delivered by the Service Provider to Xoserve must then be approved by the Demand Estimation Sub-Committee prior to its use by the GB Gas Industry.

### Revised Historic Dataset

- The Service Provider will be required to provide a revised historic dataset of GB weather data, to which the Methodology and the gap filling rules (described above) have been applied.

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- Content of dataset:
  - For each current GB weather station listed below:
    - Hourly data, wherever available, for all data items
    - History for all data items from 1 January 1960
    - Data up to end of previous complete gas year (a “gas year” runs from 1 October to 30 September each year)
  - List of data items required, if available
    - Temperature in °C
    - Wind speed in meters per second
    - Wind direction in ° (from 0 to 359°, specifying which compass point is represented by 0)
    - Cloud cover (rating 0 to 9)
    - Solar radiation in joules per cm<sup>2</sup> (or other specified measure)
    - Relative humidity in %
    - Precipitation in millimetres
  - The nature of each individual measurement should be indicated, as one of the following:
    - Observed
    - Substituted (using the “Weather Station Substitution Methodology”)
    - Filled in (using the gap filling rules described above)
    - Not available
- Disclosure of dataset:
  - The dataset must be licensed for disclosure by Xoserve to all UNC parties on request (Gas Shippers and Transporters)
- List of required current GB Weather stations
  - Aberdeen 03091
  - Aberporth 03502
  - Albemarle 03238
  - Aviemore 03063
  - Benson 03658
  - Bristol 03628
  - Charlwood 03769
  - Church Fenton 03355
  - Coleshill 03535
  - Edgbaston 99028
  - Edinburgh 03166
  - Glasgow 03134
  - Heathrow 03772

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- Linton-on-Ouse 03266
- Manchester 99029
- Marham 03482
- Plymouth 03827
- Rhyl 03313
- Southampton 99079
- St Athan 03716
- Watnall 03354
- Wattisham 03591
- Woodford 03348
- Yeovilton 03853
- Potential additional weather stations – depending on incremental cost
  - Lerwick 03005
  - Stornoway 03026