

**UNIFORM NETWORK CODE – OFFTAKE ARRANGEMENTS DOCUMENT**

**SECTION E**

**TELEMETRY, ETC**

**1 General**

**1.1 Introduction**

1.1.1 This Section E sets out:

- (a) National Grid NTS' requirements for telemetry in relation to NTS/LDZ Offtakes;
- (b) the upstream DNO's requirements for provision of daily reads in relation to LDZ/LDZ Offtakes.

1.1.2 In relation to a Bi-directional LDZ/LDZ Offtake, references in this Section E to the downstream Party and upstream DNO shall be construed in accordance with the relevant Supplemental Agreement.

**1.2 Telemetry Facilities**

1.2.1 In this Section E:

- (a) "**NTS Telemetry Facilities**" means
  - (i) in relation to an Offtake, telecommunications and other equipment to be installed at the Offtake for the purposes of receiving (as telemetry signals) measured data from Measurement Equipment and sending such data to National Grid NTS and for the purpose of National Grid NTS sending and receiving signals to and/or from equipment forming part of the National Grid NTS Connection Facilities ("**NTS Physical Telemetry Facilities**"); and/or
  - (ii) an electronic link, such as a SCADA (Supervisory Control and Data Acquisition) link, between the DNO's gas control system and National Grid NTS's gas control system for the purposes of sending measured data from the Measurement Equipment to National Grid NTS (via the DNO's gas control system) and for the purposes of National Grid NTS sending and receiving (via the DNO's gas control system) signals to and/or from equipment forming part of the National Grid NTS Connection Facilities ("**NTS Electronic Telemetry Facilities**").
- (b) "**Telemetry Connection Facilities**" means the telemetry connection facilities to be provided by the DNO pursuant to paragraph 2.1; and where the DNO has installed telemetry facilities as provided in paragraph 2.2.2, includes such telemetry facilities;
- (c) "**telemetry boundary**" means the point up to which the DNO is responsible for providing telemetry signals, being (subject to any contrary provision of the Supplemental Agreement) the boundary of the area on which (as provided in Section B5.2) the NTS Telemetry Facilities are located, as further described in Annex E-1 and specified in the Supplemental Agreement;
- (d) "**point of telemetry**" means the particular feature or characteristic of an Individual Offtake Point, the Connection Facilities at an Offtake and the state, configuration or operation of such Connection Facilities, or the gas flowing or of flow of gas at an Offtake, which is to be subject to telemetry pursuant to this Section E; and
- (e) references to an Offtake are to a NTS/LDZ Offtake, except in paragraph 4 where such references are to an LDZ/LDZ Offtake at which Measurement Equipment is installed.

- 1.2.2 Subject to any contrary provision of the Supplemental Agreement, at each Offtake, the points of telemetry shall be as specified in Annex E-1 (as applicable to such Offtake).
- 1.2.3 Any variations (from what is provided in Annex E-1) in the points of telemetry in relation to an Offtake are set out in Appendix F to the relevant Supplemental Agreement.

## **2 Telemetry Facilities**

### **2.1 DNO obligation to connect to NTS Telemetry Facilities**

- 2.1.1 The Measurement Equipment installed or to be installed by the DNO pursuant to Section D shall be designed, installed, operated and maintained so as to provide telemetry signals in respect of the points of telemetry in accordance with this paragraph 2.
- 2.1.2 The DNO shall provide (and operate and maintain) such connection facilities (including cables, lines, ducts and other equipment) from the Measurement Equipment to the NTS Telemetry Facilities as are required to connect such facilities so as to enable the continuous and uninterrupted transmission of telemetry signals between them.
- 2.1.3 The DNO shall be responsible for providing such Telemetry Connection Facilities up to the telemetry boundary; and National Grid NTS shall be responsible for making the final connection to the NTS Telemetry Facilities.
- 2.1.4 The Telemetry Connection Facilities shall comply with the resilience requirements specified in Annex E-2.
- 2.1.5 The DNO shall provide (by means of the Measurement Equipment and the connection facilities referred to in paragraph 2.1.2 to National Grid NTS (at the telemetry boundary) telemetry signals on a continuous and uninterrupted basis in respect of the points of telemetry referred to in paragraph 1.2.2.
- 2.1.6 The Measurement Equipment and the Telemetry Connection Facilities shall be installed, maintained and operated in compliance with (and shall provide telemetry signals conforming to) the protocols, standards and other requirements set out in Annex E-3.

### **2.2 DNO entitlement to use telemetry facilities**

- 2.2.1 Without prejudice to the requirements in Section B where the DNO is not the Site Owner, nothing in this Section E shall prevent the DNO from:
- (a) installing measurement equipment at an Offtake for points of telemetry in addition to those required pursuant to this Section E; and
  - (b) arranging and installing telemetry facilities for the transmission or other availability to itself (at its control room or otherwise) or any other person of telemetry signals from the Measurement Equipment;

provided that this does not interfere with the operation (as contemplated by this Section E) of the Measurement Equipment and NTS Telemetry Facilities or the transmission of telemetry signals between such equipment and facilities.

- 2.2.2 In particular (subject to the proviso in paragraph 2.2.1) the connection (to be provided by the DNO pursuant to paragraph 2.1.2) from the Measurement Equipment to the NTS Telemetry Facilities may be provided via telemetry facilities installed by the DNO.

### **2.3 Installation of NTS Telemetry Facilities**

- 2.3.1 National Grid NTS shall be entitled, at its expense, to install, operate and maintain at the Offtake the NTS Telemetry Facilities and to connect such facilities (via the Telemetry Connection Facilities) to the Measurement Equipment.
- 2.3.2 The DNO shall cooperate with National Grid NTS in the commissioning and testing of the NTS Telemetry Facilities and the connection to the Telemetry Connection Facilities, and shall meet and discuss in good faith with National Grid NTS and use all reasonable endeavours to agree matters pertaining to such installation and commissioning as National Grid NTS may reasonably request.
- 2.3.3 National Grid NTS shall be entitled to operate and use the NTS Telemetry Facilities for the purposes of transmitting telemetry signals between the Measurement Equipment and National Grid NTS (at its control room or otherwise) or for such other purposes as it may decide.
- 2.3.4 It is the responsibility of National Grid NTS (at its cost) to arrange satellite or other telecommunications services to enable the transmission of telemetry signals from the NTS Telemetry Facilities.
- 2.3.5 Where the NTS Telemetry Facilities in respect of an Offtake are NTS Electronic Telemetry Facilities, and the equipment (other than Telemetry Connection Facilities) provided by the DNO and utilised by such NTS Electronic Telemetry Facilities for the sending and receiving of signals to and from the Measurement Equipment and/or the National Grid NTS Connection Facilities (“**Equipment**”) reaches the end of its service life, then National Grid shall install NTS Physical Telemetry Facilities at the Offtake and connect such facilities (via the Telemetry Connection Facilities) to the Measurement Equipment. For the avoidance of doubt, the provisions of paragraph 2.3 shall apply to such NTS Physical Telemetry Facilities.

The equipment referred to above (the “**Equipment**”) will be deemed to have reached the end of its service life on the earliest of the following:

- (a) the date on which a Reasonable and Prudent Operator would choose to routinely replace the Equipment having regard to its age and condition; or
- (b) the date on which the Equipment fails and is beyond economic repair; or
- (c) on such date as otherwise agreed between National Grid NTS and the DNO, such agreement not being unreasonably withheld.

## **2.4 Modifications of Telemetry Facilities**

- 2.4.1 For the avoidance of doubt, Telemetry Connection Facilities and NTS Telemetry Facilities are Connection Facilities for the purposes of Section B.
- 2.4.2 The purposes referred to in Section B4.1.3 are the continued operation of the Telemetry Connection Facilities and NTS Telemetry Facilities in compliance with paragraphs 2.1.4, 2.1.5 and 2.1.6 above.

## **2.5 Failure of Telemetry Facilities**

- 2.5.1 Where the DNO or National Grid NTS believes or becomes aware that any of the Telemetry Connection Facilities or NTS Telemetry Facilities has failed or is failing to function properly, that Party shall immediately notify the other Party, and the further provisions of this paragraph 2.5 shall apply.
- 2.5.2 The DNO shall:
- (a) promptly on (and in any event within 10 minutes of) despatch by the DNO or receipt from National Grid NTS (as the case may be) of the notice in paragraph 2.5.1 above, inspect (by means of remote interrogation or testing from its control centre or by such other method as the Parties shall agree) the Telemetry Connection Facilities to ascertain whether these are functioning properly;
  - (b) promptly following such inspection, inform National Grid NTS whether the Telemetry Connection Facilities are functioning properly; and

- (c) where a failure or error in the functioning of the Telemetry Connection Facilities has been identified pursuant to paragraph (a) above, within 24 hours of such failure or error having been identified:
    - (i) rectify such failure or error; or
    - (ii) where rectification pursuant to paragraph (i) above is not practicable by the DNO, acting as a Reasonable and Prudent Operator, submit to National Grid NTS proposals for initiating the rectification of such failure or error, and ensure that such rectification is effected as soon as reasonably practicable.
- 2.5.3 Notwithstanding paragraph 2.5.2(c), for so long as any failure or error continues in the functioning of the Telemetry Connection Facilities or the NTS Telemetry Facilities:
- (a) the Parties shall consult as to and keep under review the situation; and
  - (b) subject to paragraph 2.5.4, the DNO shall take such steps as are reasonably practicable and as National Grid NTS may reasonably require for the purposes of the provision (in operational timescales, and without prejudice to paragraph 2.6) of the relevant measured data to National Grid NTS.
- 2.5.4 In the case of a failure or error in the functioning of the NTS Telemetry Facilities, the DNO shall not be required to continue to take steps under paragraph 2.5.3(b) if National Grid NTS does not (and after notice from the DNO continues not to) act as a Reasonable and Prudent Operator to rectify the failure or error.

## **2.6 Arrangements for data provision in case of failure**

- 2.6.1 In the case of any failure of the Telemetry Connection Facilities, measured data will be provided to National Grid NTS by the means and at the times provided in or pursuant to Section M.

## **3 Transitional Provisions**

### **3.1 SOMSA**

- 3.1.1 The provisions of this paragraph 3 shall apply where and for so long as a System Operation Managed Service Agreement ("**SOMSA**") is in force between National Grid Gas plc (as manager) and a DNO in relation to an LDZ.
- 3.1.2 The Parties acknowledge that, by virtue of the SOMSA, National Grid NTS will have access to and the use of telemetry (including telemetry facilities) in relation to each Offtake, which will meet its requirements as reflected in this Section E.
- 3.1.3 The DNO agrees that (notwithstanding the provisions of the SOMSA) National Grid NTS may access and use the telemetry pursuant to the SOMSA in its capacity as National Grid NTS under this Document and for the purposes for which National Grid NTS would use telemetry under this Document, as well as in its capacity of manager under the SOMSA.
- 3.1.4 The DNO undertakes to National Grid NTS, for the purposes of this Document, to comply with the provisions of the SOMSA in relation to telemetry.
- 3.1.5 For so long as the SOMSA remains in force, subject to paragraphs 3.1.6 and 3.2, the provisions of paragraph 2 shall not apply either to the DNO or to National Grid NTS in relation to any NTS/LDZ Offtake to that LDZ.
- 3.1.6 Notwithstanding paragraph 3.1.5:

- (a) this paragraph 2 shall apply in relation to any new Offtake established on or after the date of this Document; and
- (b) paragraph 2.5 shall apply as if references to the Telemetry Connection Facilities were to the telemetry facilities to be provided by the DNO pursuant to the SOMSA.

### **3.2 Expiry or termination of SOMSA**

3.2.1 The DNO shall at its cost, in good time before the expiry or (pursuant to any provision thereof) termination of the SOMSA (and in any event in accordance with any reasonable request to that effect from National Grid NTS), in relation to each Offtake serving the relevant LDZ:

- (a) consult with National Grid NTS so as to establish an agreed process and timetable for the works in paragraphs 3.2.1(b) to (d) (or such alternative works or arrangements as may be agreed by the Parties to ensure that National Grid NTS' requirements for telemetry in accordance with paragraph 2 are satisfied);
- (b) ensure that the Telemetry Connection Facilities (including connection facilities as provided in paragraph 2.1.2) are installed or modified; and
- (c) allow National Grid NTS (at its cost) to install, commission and test the NTS Telemetry Facilities;

so as to enable the DNO to be fully in compliance with its obligations under this Section E by not later than the effective date of expiry or termination of the SOMSA.

3.2.2 The Parties shall cooperate in the commissioning and testing of the Telemetry Connection Facilities and the NTS Telemetry Facilities so as to ensure their mutual compatibility and operability.

## **4 Daily Read Requirement**

### **4.1 General**

4.1.1 "**Daily Read Facilities**" means facilities by means of which measured data from Measurement Equipment can be captured and recorded and periodically transmitted to or retrieved by a Party.

4.1.2 At a LDZ/LDZ Offtake at which Measurement Equipment is installed, the downstream Party shall:

- (a) provide, install (in connection with its Measurement Equipment), maintain and operate Daily Read Facilities, complying with the requirements in Annex E-4, for the purposes of sending to the upstream Party measured data as provided in Annex E-4; and
- (b) obtain by means of the Daily Read Facilities measured data at the times and intervals specified in Annex E-4.

4.1.3 The upstream Party shall be entitled at its cost to install and maintain (as Connection Facilities) separate Daily Read Facilities enabling it directly to obtain measured data from the Measurement Equipment, provided that the installation and operation of such Daily Read Facilities does not interfere with the operation of the Measurement Equipment or the downstream Party's Daily Read Facilities.

4.1.4 The Parties shall cooperate to the extent necessary in the installation, maintenance and operation of the Daily Read Facilities to be installed under this paragraph 4.1.

4.1.5 In relation to any LDZ/LDZ Offtake, where the Supplemental Agreement provides for telemetry facilities to be installed at an LDZ/LDZ Offtake, and such telemetry facilities are installed:

- (a) the requirements of this paragraph 4 shall not apply;

- (b) instead, paragraph 2 (and paragraph 1, mutatis mutandis, but not Annex E-1) shall apply as if references to National Grid NTS were to the upstream Party, the DNO were to the downstream Party, and an NTS/LDZ Offtake were to the LDZ/LDZ Offtake; and
- (c) the downstream Party shall be entitled, after giving notice to and consulting with the upstream Party, to replace such telemetry facilities with Daily Read Facilities (in which case paragraphs (a) and (b) shall cease to apply).

#### **4.2 Sending measured data**

- 4.2.1 The downstream Party shall provide to the upstream Party measured data at the times and intervals specified in Annex E-4 by the means provided in or pursuant to Section M.

#### **4.3 Failure of Daily Read Facilities**

- 4.3.1 If the downstream Party believes or becomes aware that any part of the Daily Read Facilities has failed or is failing to function properly:
  - (a) the downstream Party shall inspect the Daily Read Facilities to ascertain whether they are functioning properly;
  - (b) where it identifies any failure or error in the functioning of the Daily Read Facilities, the downstream Party shall:
    - (i) rectify such failure or error as soon as reasonably practicable, and
    - (ii) if the failure or error prevents or is likely to prevent the downstream Party from providing measured data to the upstream Party at times and otherwise in accordance with paragraph 4.2, inform the upstream Party of such failure or error and keep the upstream Party informed as to the progress in rectifying such failure or error.
- 4.3.2 In the case of any failure of the Daily Read Facilities, measured data will be provided to the upstream Party as provided in or pursuant to Section M.

**ANNEX E-1**

**Points of Telemetry**  
(Paragraph 1.2.2)

In this Annex E-1:

- (a) a Minimum Requirement is a requirement applicable in relation to any Offtake;
- (b) a Site-Specific Option is a requirement applicable (in accordance with paragraph (c) below) in relation to certain Offtakes;
- (c) Site-Specific Options are applicable where so provided under 'Comments' or where agreed between the Parties.

**Part 1 – General Analogues**

<b>Point</b>	<b>Minimum Requirement</b>	<b>Site Specific Options</b>	<b>Comments</b>
Pressure(s)	Yes		
Outlet Pressure(s)	Yes		
Interstage pressure(s)		Yes	If fitted.
Temperature(s)		Yes	If pre-heating on Site.
Orifice DP(s)		Yes	High head and standby.
Filter DP		Yes	Where analogue reading provided.
FCV position(s)		Yes	If fitted.
Flow Setpoint(s)		Yes	If fitted.
Low Pressure Override Setpoints		Yes	If remote volumetric control fitted.
High Pressure Override Setpoints		Yes	If remote volumetric control fitted.
Outlet pressure set point		Yes	If remote pressure control fitted.
Compressibility		Yes	If fitted.
Flow meter temperature		Yes	If fitted.

**Part 2A – FWACV Analogues – CV-Directed Offtakes**

<b>Point</b>	<b>Minimum Requirement</b>	<b>Site Specific Options</b>	<b>Comments</b>
Calorific Value	Yes		
Relative Density	Yes		
Nitrogen	Yes		
Carbon Dioxide	Yes		
Wobbe	Yes		
24 Hour Average CV	Yes		
24 Hour Average RD	Yes		
Inst. Volume Flow(s)	Yes		
Inst. Energy Flow(s)	Yes		

**Part 2B – FWACV Analogues NTS/LDZ Offtakes which are not CV-Directed Offtakes**

<b>Point</b>	<b>Minimum Requirement</b>	<b>Site Specific Options</b>	<b>Comments</b>
CV Tracker	Yes		
RD Tracker	Yes		
24 Hour Average CV	Yes		
24 Hour Average RD	Yes		
Instantaneous Volume Flow(s)	Yes		
Instantaneous Energy Flow(s)	Yes		



**Part 3 – States (All Sites)**

<b>Point</b>	<b>Minimum Requirement?</b>	<b>Site Specific Options</b>	<b>Comments</b>
Filter	Yes		Common or individual alarm as fitted.
Slam Shut	Yes		Common or individual alarm as fitted.
Maintenance key	Yes		
Inlet pressure alarm		Yes	If fitted.
Outlet pressure alarm	Yes		
Heater/boiler status alarms			
Instrument fault		Yes	If fitted (may include RTU communications faults, barrier faults etc).
Intruder alarm	Yes		
System alarm(s)	Yes		CV or tracker monitoring alarms.
Instrument Gas Fail		Yes	If fitted.
Override		Yes	If remote volumetric control fitted.
Site mains supply	Yes		
Site charger alarm	Yes		
Generator running/locked out		Yes	If fitted.
Metering alarm	Yes		
Remotely operable meter valves		Yes	If fitted.
CV or tracker UPS alarm	Yes		CV or tracker UPS supply.
CV Not Valid		Yes	CV-Directed Offtake
CV Not Attributable		Yes	CV-Directed Offtake
FWACV Remote Access alarm	Yes		CV-Directed Offtake
Status Local/Remote		Yes	If remote control fitted.
FCV Selected		Yes	If more than one control valve.
FCV Parallel		Yes	If more than one control valve.
Mode SPC/DVC		Yes	If remote control fitted.
Override in DVC		Yes	If remote control fitted.
Local Valve indications	Yes		
Pump A common alarm	Yes		Local Gas treatment.
Pump B common alarm	Yes		Local Gas treatment.
Tank low level	Yes		Local Gas treatment.
Power Supply	Yes		Local Gas treatment.

**Part 4 – Controls**

<b>Point</b>	<b>Minimum Requirement?</b>	<b>Site Specific Options</b>	<b>Comments</b>
Remote Flow Control Valves	Yes		
Remotely operable meter valves		Yes	If multiple meter streams selectable.
FCV Select		Yes	If more than one control valve.
SPC/DVC Select		Yes	If remote control fitted.
Override in DVC		Yes	If remote control fitted.
FCV Parallel		Yes	If remote control fitted.
Flow Setpoint		Yes	If remote control fitted.
DVC Control		Yes	If remote control fitted.
Low Press override		Yes	If remote control fitted.
High Press override		Yes	If remote control fitted.

**Part 5 – Counters**

<b>Point</b>	<b>Minimum Requirement?</b>	<b>Site Specific Options</b>	<b>Comments</b>
Volume integrators	Yes		
Boiler volume integrators		Yes	If fitted.
Boiler energy integrators		Yes	If fitted.
Energy integrators		Yes	CV-Directed Offtake
Pump A flow integrator	Yes		Local Gas treatment
Pump B flow integrator	Yes		Local Gas treatment

**ANNEX E-2**

**Resilience of Telemetry Connection Facilities**

(Paragraph 2.1.4)

1. Telemetry Connection Facilities are to comply with the resilience requirements specified in the statement (prevailing at the time of installation of such facilities) issued by National Grid NTS under paragraph 2.
2. National Grid NTS will, after consultation with each DNO, prepare and from time to time review and update a statement of the resilience requirements for Telemetry Connection Facilities consistent with paragraph 3.
3. The statement will provide for the design, operation and maintenance of Telemetry Connection Facilities as described in BS IEC 61511 and with:
  - (a) availability between 99.5% and 99.95%;
  - (b) reliability in excess of 13,000 hours in respect of Mean Time Between Failures;
  - (c) capability of detecting and communicating certain failures; and
  - (d) battery back-up for at least 8 hours.

**ANNEX E-3**

**Compatibility Requirements**

(Paragraph 2.1.6)

1. Telemetry Connection Facilities are to comply with the protocols, standards and other requirements specified in the statement (prevailing at the time of installation of such facilities) issued by National Grid NTS under paragraph 2.
2. National Grid NTS will, after consultation with each DNO, prepare and from time to time review and update a statement of the protocols, standards and other requirements for Telemetry Connection Facilities consistent with paragraph 3.
3. The statement will provide for the Telemetry Connection Facilities to be capable of supporting the 'Modbus Variant' protocol to allow communications with the Front End Processor devices of National Grid NTS' control systems (as described in the Offtake Communications Document).

**Annex E-4**

**Daily Read Facilities**  
(Paragraphs 4.1.2 and 4.2.1)

**Part 1 - Specifications**

The Daily Read Facilities shall:

- (a) be compatible with the Measurement Equipment installed at the Offtake;
- (b) capture the prescribed information; and
- (c) capture the information on Site at least every 4 minutes for transmission every 24 hours in an electronic format with at least 1-month's information archived on Site.

**Part 2A – Data Transfer from Metered Connections with Daily Read Equipment Installed**

<b>Point</b>	<b>Minimum Requirement?</b>	<b>Comments</b>
Daily Calorific Value	Yes	Where measured.
	No	Where DCV from alternative place is used.
24 hour relative density	Yes	
24 hr integrated volume	Yes	

**Part 2B – Data to be provided every 24 hours by the Downstream Party**

<b>Point</b>	<b>Minimum Requirement?</b>	<b>Comments</b>
Daily Calorific Value	Yes	From measurement equipment of alternative place.
24 hour integrated volume	Yes	From measurement equipment.