

Operational Guidance Note

Simultaneous Tap Change Instruction by National Grid ENCC via Fax

Issue 3: 10/01/2012

Background

Simultaneous tap changing is a technique that can be used to manage system voltage.

Under certain system conditions it can be far more effective than changing taps at each power station separately.

Simultaneous tap changing is a normal (although infrequently used) control action. Its use is described in Grid Code BC2.A.2.6.

Whilst other reactive instructions are normally sent via the automatic logging device (EDL), the nature of simultaneous tap changes does not readily lend itself to this form of instruction.

Historically, simultaneous tap instructions were issued via the Operational Broadcast System (OBS).

With the increase in connection of new power stations, the OBS is no longer capable of supporting simultaneous tap instructions. As a consequence, no simultaneous tap change instructions have been issued in recent years, and operational experience of both the delivery and efficacy of simultaneous tap change has diminished.

Consideration is currently being given to a replacement communication system that would support simultaneous tap change.

In the interim, it is proposed that a fax notification process will be used to deliver simultaneous tap instructions, in order that such instructions can be utilised, and their efficacy in managing system voltage can be assessed.

The purpose of this document is to summarise the fax process and advise how simultaneous tap instructions will be sent.

How Will Simultaneous Tap Instructions be sent?

Advance notification of simultaneous tap change will be sent via fax from National Grid ENCC to power station control points.

The fax templates used will clearly highlight those power stations to be included in the simultaneous tap change instruction.

The fax will be sent well in advance and in all cases at least 30 minutes prior to the designated time of the tap(s).

Shortly after the faxes have been sent, each power station required to be included in the simultaneous tap change instruction will be telephoned by National Grid ENCC. The purpose of the telephone call is to highlight to the power station Control Engineer that:

- a simultaneous tap instruction notification fax has been sent in respect of the power station
- the power station is required to follow the instruction at hh:mm (*i.e. the requested time*)
- that if the fax is not received, the instruction cannot be complied with, or there are any queries, then the power station Control Engineer should contact ENCC, and that
- otherwise the instruction should be followed at the requested time.

To what is the instruction applicable?

The advanced notification fax will clearly highlight those power stations to be included in the simultaneous tap change instruction.

Instructions are applicable to all synchronised **Gensets** with MVA reserves at the power station(s) highlighted in the fax.

BC 2.A.2.6 specifies that simultaneous tap instructions can be made in relation to all **Gensets**.

A **Genset** is defined in the Grid Code as:

A Generating Unit, Power Park Module or CCGT Module at a Large Power Station or any Generating Unit, Power Park Module or CCGT Module which is directly connected to the National Electricity Transmission System.

In practice, instructions will be used to manage the voltage on the National Electricity Transmission System.

As a result, it is not anticipated that instructions will be made to embedded power stations. Instructions to **Power Stations** connected to Offshore Transmission Networks may be included where National Grid identifies a potential benefit in doing so.

National Grid may not necessarily include all **Power Stations** in the instruction.

What will the advanced notification fax contain?

The advanced notification fax will include the information below.

A set of sample faxes is included in Annexe 1 of this paper.

- **Message**
*the type of message, i.e. **Notification of Simultaneous Tap Change***
- **Incident Number**
XXXX where XXXX will be a unique number
- **Included Power stations**
*Those **power stations** at which the simultaneous tap instruction is to apply will be clearly highlighted.
All generator step up transformers at each power station highlighted on the fax should be tapped at the allotted time.*
- **Time and Date Required**
This is the time and date at which the simultaneous tap instruction shall be executed.

*The time will be in the format **HH:MM** where **HH** is the hours in 24 hour clock convention and **MM** the minutes.*

Simultaneous tap changes are to be executed commencing at the start of the notified minute.

*The date will be in the format **dayname dd/mm/yyyy**
(eg Monday 01/11/2011)*
- **Voltage Change**
*this is provided to ensure each power station taps in the appropriate direction and gives the intended change in **System** voltage on the transmission system, therefore:*

Raise System Volts (+ve MVar direction)'
*means tap to increase **System** volts*

Lower System Volts (-ve MVar direction)'
*means tap to decrease **System** volts*
- **No. of taps Requested**
*this will a positive number, either **1** or **2**, representing the number taps to be executed on each **genset** at each applicable power station in accordance with BC2.A.2.6.*

How will the Simultaneous Tap be delivered?

No further communications following the notification fax and confirmatory telephone call will be made from ENCC.

The step up transformers of all **Gensets** at applicable **power stations** should be tapped in accordance with the instruction at the designated time.

The time will be in the format **HH:MM** where HH is the hours in 24 hour clock convention and MM the minutes.


Simultaneous tap changes will be commenced at the start of the notified minute.

Once the instruction has been fulfilled (i.e. requested taps completed), no further tap changes will be made until receipt of further reactive power instructions from National Grid in accordance with BC2.A.2.6

Stephen Curtis
National Grid Network Operations
July 2011

Annexe 1: Fax Proforma for Simultaneous Tap Instruction

a) Scotland



Notification of SIMULTANEOUS TAP CHANGE

The National Grid Company plc
ENCC

St Catherine's Lodge
Bearwood Road
Sindlesham,
Nr Wokingham
Berkshire,
RG41 5BN

CTN: 790 2385
Tel: 0844 892 0385
Fax: 0844 892 0355

Date: Monday 1st November 2011
From: National Grid ENCC
To: Power Stations [Scotland]
Pages (inclusive): 1
Incident Number: 0001

INSTRUCTION APPLICABLE TO POWER STATIONS MARKED 'X' BELOW:

COCKENZIE 1 & 2 <input checked="" type="checkbox"/>	HUNTERSTON <input checked="" type="checkbox"/>	PETERHEAD <input checked="" type="checkbox"/>
FOYERS <input type="checkbox"/>	LONGANNET <input checked="" type="checkbox"/>	TORNESS <input checked="" type="checkbox"/>

Power Stations marked 'X' are requested to carry out a SIMULTANEOUS TAP CHANGE as follows:
Please note the applicability, direction of tap, number of taps and time of this instruction carefully

Time & Date Required:	17:30	hrs	Monday	01/11/2011
Instruction	RAISE System Volts (+ve MVAR direction)	<input checked="" type="checkbox"/>	LOWER System Volts (-ve MVAR direction)	<input type="checkbox"/>
No of Taps Requested:	1	<input checked="" type="checkbox"/>	2	<input type="checkbox"/>

Notes:

- All power stations marked 'X' above will receive a confirmatory telephone call from National Grid in respect of this notification.
- **In the event that:**
 - any power station identified with an 'X' above does not intend to comply with this instruction
 - or there are any questions in relation to this fax or its applicability,
 - then **please contact the ENCC transmission desk on 506 immediately**
 - otherwise: **all power stations marked 'X' should proceed with the instruction at the highlighted time without further reference to National Grid ENCC**

Confidentiality Notice
 This fax and the information it contains may be confidential and is intended solely for the use of the named addressee. If you received this fax in error, please contact us immediately by telephone or fax at the above numbers. The contents of this fax should not be disclosed or copied

Registered Office:
National Grid House
Kirby Corner Road
Coventry CV4 8JY

Registered in
England and Wales
No 2366977

b) North



Notification of SIMULTANEOUS TAP CHANGE

Date: Monday 1st November 2011
 From: National Grid ENCC
 To: Power Stations [North]
 Pages (inclusive): 1
 Incident Number: 0001

The National Grid
 Company plc
 ENCC

St Catherine's Lodge
 Bearwood Road
 Sindlesham,
 Nr Wokingham
 Berkshire,
 RG41 5BN
 CTN: 790 2385
 Tel: 0844 892 0385
 Fax: 0844 892 0355

INSTRUCTION APPLICABLE TO POWER STATIONS MARKED 'X' BELOW:

CONNAH'S QUAY	<input checked="" type="checkbox"/>	FIDDLERS FERRY	<input checked="" type="checkbox"/>	SALTEND SOUTH	<input type="checkbox"/>
COTTAM	<input checked="" type="checkbox"/>	HARTLEPOOL	<input type="checkbox"/>	SOUTH HUMBER BANK	<input type="checkbox"/>
COTTAM DEVELOPMENT CENTRE	<input checked="" type="checkbox"/>	HEYSHAM 1	<input checked="" type="checkbox"/>	SPALDING	<input checked="" type="checkbox"/>
DEESIDE	<input type="checkbox"/>	HEYSHAM 2	<input checked="" type="checkbox"/>	TEESSIDE	<input type="checkbox"/>
DINORWIG	<input type="checkbox"/>	HUMBER REFINERY	<input type="checkbox"/>	WEST BURTON A	<input checked="" type="checkbox"/>
DRAX	<input checked="" type="checkbox"/>	KEADBY	<input type="checkbox"/>	WEST BURTON B	<input type="checkbox"/>
EGGBOROUGH	<input checked="" type="checkbox"/>	KILLINGHOLME A	<input type="checkbox"/>	WILTON	<input type="checkbox"/>
FERRYBRIDGE C	<input checked="" type="checkbox"/>	KILLINGHOLME B	<input type="checkbox"/>	WYLFA	<input checked="" type="checkbox"/>
FFESTINIOG	<input type="checkbox"/>	ROCKSAVAGE	<input checked="" type="checkbox"/>		

Power Stations marked 'X' are requested to carry out a **SIMULTANEOUS TAP CHANGE** as follows:

Please note the applicability, direction of tap, number of taps and time of this instruction carefully

Time & Date Required:	<input type="text" value="17:30"/> hrs	<input type="text" value="Monday"/>	<input type="text" value="01/11/2011"/>
Instruction	RAISE System Volts (+ve MVAR direction) <input checked="" type="checkbox"/>	LOWER System Volts (-ve MVAR direction) <input type="checkbox"/>	
No of Taps Requested:	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	

Notes:

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 - then **please contact the ENCC transmission desk on 506 immediately**
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c) East



Notification of SIMULTANEOUS TAP CHANGE

The National Grid
Company plc
ENCC

St Catherine's Lodge
Bearwood Road
Sindlesham,
Nr Wokingham
Berkshire,
RG41 5BN

CTN: 790 2385
Tel: 0844 892 0385
Fax: 0844 892 0355

Date: Monday 1st November 2011
From: National Grid ENCC
To: Power Stations [East]
Pages (inclusive): 1
Incident Number: 0001

INSTRUCTION APPLICABLE TO POWER STATIONS MARKED 'X' BELOW:

BARKING	<input type="checkbox"/>	GRAIN (CCGT)	<input checked="" type="checkbox"/>	RYE HOUSE	<input type="checkbox"/>
CORYTON	<input checked="" type="checkbox"/>	KINGSNORTH	<input type="checkbox"/>	SIZEWELL B	<input type="checkbox"/>
DAMHEAD CREEK	<input checked="" type="checkbox"/>	LITTLE BARFORD	<input type="checkbox"/>	STAYTHORPE	<input type="checkbox"/>
DUNGESS B	<input type="checkbox"/>	LITTLEBROOK	<input type="checkbox"/>	SUTTON BRIDGE	<input type="checkbox"/>
ENFIELD ENERGY	<input type="checkbox"/>	MEDWAY	<input checked="" type="checkbox"/>	TILBURY	<input checked="" type="checkbox"/>
GRAIN (OIL)	<input checked="" type="checkbox"/>	RATCLIFFE	<input type="checkbox"/>		

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Time & Date Required:	<input type="text" value="17:30"/> hrs	<input type="text" value="Monday"/>	<input type="text" value="01/11/2011"/>
Instruction	RAISE System Volts (+ve MVAR direction)	<input checked="" type="checkbox"/>	LOWER System Volts (-ve MVAR direction)
No of Taps Requested:	1	<input checked="" type="checkbox"/>	2 <input type="checkbox"/>

Notes:

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d) West



Notification of SIMULTANEOUS TAP CHANGE

The National Grid
Company plc

ENCC

St Catherine's Lodge
Bearwood Road
Sindlesham,
Nr Wokingham
Berkshire,
RG41 5BN

CTN: 790 2385
Tel: 0844 892 0385
Fax: 0844 892 0355

Date: Monday 1st November 2011
From: National Grid ENCC
To: Power Stations [West]
Pages (inclusive): 1
Incident Number: 0001

INSTRUCTION APPLICABLE TO POWER STATIONS MARKED 'X' BELOW:

ABERTHAW	<input checked="" type="checkbox"/>	HINKLEY POINT B	<input checked="" type="checkbox"/>	OLDBURY-ON-SEVERN	<input checked="" type="checkbox"/>
BAGLAN BAY	<input type="checkbox"/>	INDIAN QUEENS	<input checked="" type="checkbox"/>	RUGELEY	<input checked="" type="checkbox"/>
DIDCOT A	<input checked="" type="checkbox"/>	IRONBRIDGE	<input checked="" type="checkbox"/>	SEABANK	<input checked="" type="checkbox"/>
DIDCOT B	<input checked="" type="checkbox"/>	LANGAGE	<input type="checkbox"/>	SEVERN POWER	<input type="checkbox"/>
FAWLEY	<input type="checkbox"/>	MARCHWOOD	<input checked="" type="checkbox"/>	USKMOUTH	<input type="checkbox"/>

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