

## Limiting the impact of network restrictions upon the provision of reactive power



Steven Lam – 17<sup>th</sup> November 2010

## Background

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- CAP169/ Grid Code E/09 prohibited NGET to instruct DNO restricted generators
- “Reactive despatch network restriction” – prevents generator from complying with any reactive despatch instruction to provide Mvars over the Grid Code defined range
- Original purpose was to introduce 3 provisions:
  - Allow PPMs to be despatched
  - Allow large power stations with range below 15Mvar to request MSA
  - **Reduced payment terms (20%) for DNO restricted generators**
- Alternative was proposed by an industry party which meant a zero payment would be made where a DNO restriction exists – this was implemented

## Reasons for Authority decision

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- CAP169 would introduce a payment which would not be used in the most efficient manner
- NGET may not be able to instruct generators to 0Mvar due to a DNO network restriction - inefficient
- Mvar production from a restricted generator may contribute to additional balancing actions
- Avoids risk of costs falling to consumers

## Consequence

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- Amendment Report did not reflect the following consequences
- NGET would not be able to instruct any DNO network restricted generator even if they can be despatched to 0Mvar
- Embedded generator may be just short of the Grid Code defined range
- Reduces the pool of providers for reactive services

## Proposed solution

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- Amend the definition of a DNO network restriction to include only those generators which cannot be despatched to 0Mvar
- Allows NGET to despatch generators with a reactive range just short of the Grid Code range
- Generators which cannot reach 0Mvar would not be despatched and will receive no payment
- Increases pool of providers for reactive services

## Proposed option 1

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- Change the Grid Code definition of reactive despatch network restriction:
- “restriction placed upon an **Embedded Generating Unit, Embedded Power Park Module** or **DC Converter** at an **Embedded DC Converter Station** by the **Network Operator** that prevents the **Generator** or **DC Converter Station** owner in question (as applicable) from complying with any **Reactive Despatch Instruction** to provide 0Mvar at the **Commercial Boundary** with respect to that **Generating Unit, Power Park Module** or **DC Converter** at a **DC Converter Station**.”

## Proposed option 2

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- Insert reactive despatch network restriction into CUSC definitions:
- restriction placed upon an **Embedded Generating Unit, Embedded Power Park Module or DC Converter** at an **Embedded DC Converter Station** by the **Network Operator** that prevents the **Generator or DC Converter Station** owner in question (as applicable) from complying with any **Reactive Despatch Instruction** to provide OMvar at the Commercial Boundary with respect to that **Generating Unit, Power Park Module or DC Converter** at a **DC Converter Station**.
- Delete – “As defined in the Grid Code”
- Insert into the Grid Code:
- Where NGET has received notification pursuant to the Grid Code that a Reactive Despatch Network Restriction is in place **as defined in the CUSC** with respect to any Embedded Generating Unit, Embedded Power Park Module or DC Converter at an Embedded DC Converter Station, then NGET will not issue any Reactive Despatch Instruction with respect to that Generating Unit, Power Park Module or
- DC Converter until such time as notification is given to NGET pursuant to the Grid Code that such Reactive Despatch Network Restriction is no longer affecting that Generating Unit, Power Park Module or DC Converter.”

## Proposed option 3

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- Change the definition of the Grid Code Clause BC2.8.5
- “Where **NGET** has received notification pursuant to the **Grid Code** that a **Reactive Despatch Network Restriction** is in place to provide 0Mvar at the Commercial Boundary with respect to any **Embedded Generating Unit, Embedded Power Park Module or DC Converter** at an **Embedded DC Converter Station**, then **NGET** will not issue any **Reactive Despatch Instruction** with respect to that **Generating Unit, Power Park Module or DC Converter** until such time as notification is given to **NGET** pursuant to the **Grid Code** that such **Reactive Despatch Network Restriction** is no longer affecting that **Generating Unit, Power Park Module or DC Converter**.”
- This will have a consequential change on the CUSC (Appendix 3) whereby payments will not be made to those embedded generators who cannot provide 0Mvar