

# MODIFICATION RECOMMENDATION

## MPID 253 – DSU, Definitions

*RECOMMENDATION TO CER BY EIRGRID OF MODIFICATION TO GRID CODE.*



<b>ABSTRACT / TITLE OF MODIFICATION</b>	<b>MPID 253 – DSU, Definitions</b>
<b>MODIFICATION NUMBER</b>	MPID 253
<b>RECOMMENDED AT GCRP MEETING NUMBER</b>	39
<b>LIST OF GRID CODE SECTION(S) AFFECTED BY PROPOSED MODIFICATION:</b>	PC.A6, Definitions
<b>CURRENT GRID CODE VERSION :</b>	5
<b>MODIFICATION DESCRIPTION Overview</b>  <b>THE REASON FOR THE RECOMMENDED MODIFICATION</b>	<p>This modification is required to give clarity to DSU Operators on the data requirements of the TSO and DSO in relation to applications for DSUs.</p>
<b>History of Progression through GCRPs, Working Group and/or Consultation</b>	<p>Following consultation with industry through the Demand Side Unit Joint Grid Code Working Group and ESB Networks through TSO-DSO engagement the following modification was unanimously agreed among Demand Side Unit Joint Grid Code Working Group members at the 5<sup>th</sup> meeting which took place via teleconference on 09/05/2014.</p> <p>EirGrid presented the modification proposal MPID 253 to the Grid Code Review Panel members at a meeting held at The Spencer Hotel in Dublin on the 11<sup>th</sup> June 2014. No objections were raised by the panel members and the modification was recommended for approval.</p>

<p><b>Summary Note of any Objections to the Recommended change from GCRP Members or Consultation Responses</b></p>	<p>No objections were raised.</p>
<p><b>Outcome of any GCRP Meeting Actions Relating to the Recommended Modification</b></p>	<p>No objections were raised.</p>
<p><b>Implication of not implementing the Modification</b></p>	<p>This modification is required to give clarity to DSU Operators on the data requirements of the TSO and DSO in relation to applications for DSUs.</p>

### RED-LINE VERSION

#### **PC.A6: Demand Side Unit Operators**

For each **Demand Side Unit Operator**, the following information shall be provided:

- (a) General Details
  - (i) name of **Demand Side Unit**;
  - (ii) address of the **Demand Side Unit Control Facility**;
  - (iii) address of each **Individual Demand Site(s)** comprising the **Demand Side Unit**;
  - (iv) Irish Grid Co-ordinates of the **Connection Point** of each **Individual Demand Site** comprising the **Demand Side Unit**;
  - (v) Meter Point Reference Number for each **Individual Demand Site** comprising the **Demand Side Unit**;
  - ~~(vi) the name of the **Transmission Station(s)** to which each **Individual Demand Site** comprising the **Demand Side Unit** is/are normally connected;~~
  - (vi) ~~single line diagram~~ classification of ~~for~~ operation of each **Individual Demand Site** comprising the **Demand Side Unit** as one of:
    - avoided **Demand** consumption only,
    - combination of avoided **Demand** consumption and **Shaving Mode** operation of **Generation Units**,
    - combination of avoided **Demand** consumption and **Continuous Parallel Mode** operation of **Generation Units**,

- combination of avoided **Demand** consumption and **Lopping Mode** operation of **Generation Units**,
  - combination of avoided **Demand** consumption and **Standby Mode** operation of **Generation Units**,
  - combination of avoided **Demand** consumption and **Automatic Mains Failure Mode** operation of **Generation Units**,
  - **Shaving Mode** operation of **Generation Units** only,
  - **Continuous Parallel Mode** operation of **Generation Units** only,
  - **Lopping Mode** operation of **Generation Units** only,
  - **Standby Mode** operation of **Generation Units** only,
  - **Automatic Mains Failure Mode** operation of **Generation Units** only;
- (vii) current classification of operation of each **Individual Demand Site** comprising the **Demand Side Unit** if different to above;
- (viii) details of all **Generation Units** used as part of the **Demand Side Unit** operated in **Continuous Parallel Mode**, **Shaving Mode** or **Lopping Mode**, including the make, model, **Capacity**, ~~the~~ MVA rating, fuel type, and protection settings ~~whether it will be used as a standby plant~~;
- (ix) whether a change is required to the current **Maximum Export Capacity** or **Maximum Import Capacity** of **Individual Demand Sites** comprising the **Demand Side Unit**;
- (x) whether the operation of **Embedded Generator Interface Protection** trips a **DSO**-operated interface circuit breaker, **DSO Demand Customer** main incomer, **Generation Unit LV** circuit breaker, **Generation Unit HV** transformer circuit breaker or other on a **Distribution System**-connected **Individual Demand Site** comprising a **Demand Side Unit** containing **Generation**;
- (xi) the current operation **Embedded Generator Interface Protection** if different to above;
- (~~ix~~xii) details of all **Demand** loads with **Demand** reduction capability of 5 MW or greater, including size in MW and demand reduction capability from load;
- ~~(x) **Maximum Import Capacity** of each **Individual Demand Site** comprising the **Demand Side Unit** (MW);~~
- ~~(xi) **Maximum Export Capacity** of each **Individual Demand Site** comprising the **Demand Side Unit** (MW);~~
- ~~(xii) proof of a valid **Connection Agreement** for each **Demand Customer** and proof of a valid **DSO Connection Agreement** for each **DSO Demand Customer** that comprises the **Demand Side Unit** clearly showing **Maximum Import Capacity** and **Maximum Export Capacity** (if applicable);~~
- (xiii) whether the **Distribution System Operator** has been informed about the intention of the **Demand Side Unit Operator** to operate a

**Demand Side Unit** (the **Demand Side Unit Operator** is obliged to inform the **Distribution System Operator**);

- ~~(xiv) details of any special operating or network limitations placed by the **Distribution System Operator** on the **Demand Side Unit**;~~
- ~~(xv) details of restrictions to the **Operation** of **Individual Demand Sites** comprising the **Demand Side Unit** (e.g. EPA Licence or planning conditions);~~
- (xiv*i*) whether each confirmation that all **Individual Demand Sites** comprising the **Demand Side Unit** are ~~notis~~ currently participating ~~registered or shall not be registered~~ as or part of any **Aggregated Generator Unit** or other **Demand Side Unit**;
- ~~(xvii) whether any **Individual Demand Site** comprising the **Demand Side Unit** participates in any demand side management schemes;~~
- ~~(xviii) annual **Demand Side Unit MW Capacity** profile of the **Demand Side Unit** for each **Trading Period** of the year;~~
- ~~(xix) annual **Demand Side Unit Energy Profile** of the **Demand Side Unit** for each **Trading Period** of the year;~~
- ~~(xx) annual **Demand Side Unit Energy Profile** of each **Individual Demand Site** comprising the **Demand Side Unit** for each **Trading Period** of the year;~~
- ~~(xxi) detailed specification of the **Demand Side Unit** control system and method of aggregation, and the communications systems that will be in place between the **Demand Side Unit Control Facility** and the **Individual Demand Sites**;~~
- ~~(xxii) project milestones;~~
- (xv*xiii*) proposed effective date in **Single Electricity Market** for first-time applicants; and
- (xv*iv*) proposed date for **Grid Code Testing**.

(b) Technical Details

- (i) total **Demand Side Unit MW Capacity (MW)** of the **Demand Side Unit**;
- (ii) **Demand Side Unit MW Capacity (MW)** of each **Individual Demand Site** comprising the **Demand Side Unit**;
- (iii) total **Demand Side Unit MW Capacity** of the **Demand Side Unit** available from on-site **Generation (MW)** operated in **Shaving Mode** or **Continuous Parallel Mode**;
- (iv) **Demand Side Unit MW Capacity** of each **Individual Demand Site** comprising the **Demand Side Unit** available from on-site **Generation (MW)** operated in **Shaving Mode** or **Continuous Parallel Mode**;
- (v) total **Demand Side Unit MW Capacity** of the **Demand Side Unit** available from avoided **Demand** consumption (MW) and on-site **Generation (MW)** operated in **Lopping Mode** and on-site **Generation (MW)** operated in **Standby Mode**;

- (vi) **Demand Side Unit MW Capacity** of each **Individual Demand Site** comprising the **Demand Side Unit** available from avoided **Demand** consumption (MW) or on-site **Generation (MW)** operated in **Lopping Mode** or on-site **Generation (MW)** operated in **Standby Mode**;
- (vii) **Demand Side Unit MW Response Time** of the **Demand Side Unit**;
- (viii) **Demand Side Unit Notice Time** of the **Demand Side Unit**;
- ~~(viii) **Demand Side Unit MW Response Time** of each **Individual Demand Site** comprising the **Demand Side Unit**;~~
- (ix) **Minimum Down Time** of the **Demand Side Unit**;
- ~~(x) **Minimum Down Time** of each **Individual Demand Site** comprising the **Demand Side Unit**;~~
- (xi) **Maximum Down Time** of the **Demand Side Unit**;
- ~~(xii) **Maximum Down Time** of each **Individual Demand Site** comprising the **Demand Side Unit**;~~
- (xiii) **Minimum off time** of the **Demand Side Unit**;
- ~~(xiv) **Minimum off time** of each **Individual Demand Site** comprising the **Demand Side Unit**;~~
- (xiiiv) **Maximum Ramp Up Rate** of the **Demand Side Unit**;
- ~~(xvi) **Maximum Ramp Up Rate** of each **Individual Demand Site** comprising the **Demand Side Unit**;~~
- (xviii) **Maximum Ramp Down Rate** of the **Demand Side Unit**;
- ~~(xviii) **Maximum Ramp Down Rate** of each **Individual Demand Site** comprising the **Demand Side Unit**;~~

<p><b>Automatic Mains Failure Mode</b></p>	<p>The operation of <b>Generation Unit(s)</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where in the event of <b>Disconnection</b>, the <b>Generation Unit(s)</b> is(are) enabled and supplies(y) the <b>Demand Customer's</b> or <b>DSO Demand Customer's Load</b> while not <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b>. Upon sustained restoration of the connection to the <b>Transmission System</b> or <b>Distribution System</b> for a settable period of time, the <b>Generation Unit(s)</b> <b>Synchronise</b> to the <b>Transmission System</b> or <b>Distribution System</b> for a short period of time not exceeding 180 seconds to facilitate the smooth transfer of power prior to <b>Shutdown</b> of the <b>Generation Unit(s)</b>.</p>
<p><b>Continuous Parallel Mode</b></p>	<p>Unrestricted periods of <b>Synchronised</b> operation of <b>Generation Unit(s)</b> to the <b>Transmission System</b> or <b>Distribution System</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b>.</p>
<p><b>Demand Side Unit MW Capacity</b></p>	<p>The maximum change in <b>Active Power</b> that can be achieved by a <b>Demand Side Unit</b> on a sustained basis for the duration of the <b>Demand Side Unit's Maximum Down Time</b> by totalling the potential increase in on-site <b>Active Power Generation</b> and the potential decrease in on-site</p>

	<b>Active Power Demand at each Individual Demand Site.</b>
<b>Demand Side Unit Notice Time</b>	The time as specified by the <b>Demand Side Unit Operator</b> in the <b>Technical Parameter</b> and is the time it takes for the <b>Demand Side Unit</b> to begin ramping to the <b>Demand Side Unit MW Response</b> from receipt of the <b>Dispatch Instruction</b> from the <b>TSO</b> .
<b>Embedded Generator Interface Protection</b>	Protection designed to disconnect <b>Generation Units</b> from the <b>Distribution System</b> during abnormal system conditions by tripping a dedicated circuit breaker or recloser located as close as practically possible to the interface between the <b>DSO Demand Customer</b> equipment and the <b>Distribution System</b> .
<b>Lopping Mode</b>	The operation of <b>Generation Unit(s)</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where the <b>Generation Unit(s)</b> supplies the <b>Demand Customer's</b> or <b>DSO Demand Customer's Load</b> while not <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> . The <b>Generation Unit(s)</b> is(are) <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> for short periods of time not exceeding 180 seconds at <b>Start-Up</b> and <b>Shutdown</b> of the <b>Generation Unit(s)</b> to facilitate a smooth transfer of power.
<b>Maximum Export Capacity</b>	The value (in MW, MVA, kW and/or kVA) provided in accordance with the <b>User's Connection Agreement</b> or <b>DSO Demand Customer's DSO Connection Agreement</b> .
<b>Maximum Import Capacity</b>	The values (kW and/ or kVA) provided in accordance with the <b>User's Connection Agreement</b> or <b>DSO Demand Customer's DSO Connection Agreement</b> .
<b>Shaving Mode</b>	The <b>Synchronised</b> operation of <b>Generation Unit(s)</b> to the <b>Distribution System</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where the <b>Generation Unit(s)</b> supplies part of, or, the <b>DSO Demand Customer's Load</b> . Normally the <b>Generation Unit(s)</b> would operate for 2 hours per day as agreed with the <b>DSO</b> .
<b>Standby Mode</b>	The operation of <b>Generation Unit(s)</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where the <b>Generation Unit(s)</b> supplies the <b>Demand Customer's</b> or <b>DSO Demand Customer's Load</b> while not <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> . The <b>Generation Unit(s)</b> is(are) never <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> .

### **GREEN-LINE VERSION**

#### **PC.A6: Demand Side Unit Operators**

For each **Demand Side Unit Operator**, the following information shall be provided:

- (a) General Details
  - (i) name of **Demand Side Unit**;
  - (ii) address of the **Demand Side Unit Control Facility**;
  - (iii) address of each **Individual Demand Site(s)** comprising the **Demand Side Unit**;

- (iv) Irish Grid Co-ordinates of the **Connection Point** of each **Individual Demand Site** comprising the **Demand Side Unit**;
- (v) Meter Point Reference Number for each **Individual Demand Site** comprising the **Demand Side Unit**;
- (vi) classification of operation of each **Individual Demand Site** comprising the **Demand Side Unit** as one of:
  - avoided **Demand** consumption only,
  - combination of avoided **Demand** consumption and **Shaving Mode** operation of **Generation Units**,
  - combination of avoided **Demand** consumption and **Continuous Parallel Mode** operation of **Generation Units**,
  - combination of avoided **Demand** consumption and **Lopping Mode** operation of **Generation Units**,
  - combination of avoided **Demand** consumption and **Standby Mode** operation of **Generation Units**,
  - combination of avoided **Demand** consumption and **Automatic Mains Failure Mode** operation of **Generation Units**,
  - **Shaving Mode** operation of **Generation Units** only,
  - **Continuous Parallel Mode** operation of **Generation Units** only,
  - **Lopping Mode** operation of **Generation Units** only,
  - **Standby Mode** operation of **Generation Units** only,
  - **Automatic Mains Failure Mode** operation of **Generation Units** only;
- (vii) current classification of operation of each **Individual Demand Site** comprising the **Demand Side Unit** if different to above;
- (viii) details of all **Generation Units** used as part of the **Demand Side Unit** operated in **Continuous Parallel Mode**, **Shaving Mode** or **Lopping Mode**, including the make, model, **Capacity**, MVA rating, fuel type, and protection settings;
- (ix) whether a change is required to the current **Maximum Export Capacity** or **Maximum Import Capacity** of **Individual Demand Sites** comprising the **Demand Side Unit**;
- (x) whether the operation of **Embedded Generator Interface Protection** trips a **DSO**-operated interface circuit breaker, **DSO Demand Customer** main incomer, **Generation Unit LV** circuit breaker, **Generation Unit HV** transformer circuit breaker or other on a **Distribution System**-connected **Individual Demand Site** comprising a **Demand Side Unit** containing **Generation**;
- (xi) the current operation **Embedded Generator Interface Protection** if different to above;
- (xii) details of all **Demand** loads with **Demand** reduction capability of 5 MW or greater, including size in MW and demand reduction capability from load;

- (xiii) whether the **Distribution System Operator** has been informed about the intention of the **Demand Side Unit Operator** to operate a **Demand Side Unit** (the **Demand Side Unit Operator** is obliged to inform the **Distribution System Operator**);
  - (xiv) whether each **Individual Demand Site** comprising the **Demand Side Unit** is currently participating as or part of any **Aggregated Generator Unit** or other **Demand Side Unit**;
  - (xv) proposed effective date in **Single Electricity Market** for first-time applicants; and
  - (xvi) proposed date for **Grid Code Testing**.
- (b) Technical Details
- (i) total **Demand Side Unit MW Capacity (MW)** of the **Demand Side Unit**;
  - (ii) **Demand Side Unit MW Capacity (MW)** of each **Individual Demand Site** comprising the **Demand Side Unit**;
  - (iii) total **Demand Side Unit MW Capacity** of the **Demand Side Unit** available from on-site **Generation (MW)** operated in **Shaving Mode** or **Continuous Parallel Mode**;
  - (iv) **Demand Side Unit MW Capacity** of each **Individual Demand Site** comprising the **Demand Side Unit** available from on-site **Generation (MW)** operated in **Shaving Mode** or **Continuous Parallel Mode**;
  - (v) total **Demand Side Unit MW Capacity** of the **Demand Side Unit** available from avoided **Demand** consumption (**MW**) and on-site **Generation (MW)** operated in **Lopping Mode** and on-site **Generation (MW)** operated in **Standby Mode**;
  - (vi) **Demand Side Unit MW Capacity** of each **Individual Demand Site** comprising the **Demand Side Unit** available from avoided **Demand** consumption (**MW**) or on-site **Generation (MW)** operated in **Lopping Mode** or on-site **Generation (MW)** operated in **Standby Mode**;
  - (vii) **Demand Side Unit MW Response Time** of the **Demand Side Unit**;
  - (viii) **Demand Side Unit Notice Time** of the **Demand Side Unit**;
  - (ix) **Minimum Down Time** of the **Demand Side Unit**;
  - (x) **Maximum Down Time** of the **Demand Side Unit**;
  - (xi) **Minimum off time** of the **Demand Side Unit**;
  - (xii) **Maximum Ramp Up Rate** of the **Demand Side Unit**;
  - (xiii) **Maximum Ramp Down Rate** of the **Demand Side Unit**;

<b>Automatic Mains Failure</b>	The operation of <b>Generation Unit(s)</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where in the event of <b>Disconnection</b> , the <b>Generation Unit(s)</b> is(are) enabled and supplies(y) the <b>Demand</b>
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<b>Mode</b>	<b>Customer's or DSO Demand Customer's Load</b> while not <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> . Upon sustained restoration of the connection to the <b>Transmission System</b> or <b>Distribution System</b> for a settable period of time, the <b>Generation Unit(s) Synchronise</b> to the <b>Transmission System</b> or <b>Distribution System</b> for a short period of time not exceeding 180 seconds to facilitate the smooth transfer of power prior to <b>Shutdown</b> of the <b>Generation Unit(s)</b> .
<b>Continuous Parallel Mode</b>	Unrestricted periods of <b>Synchronised</b> operation of <b>Generation Unit(s)</b> to the <b>Transmission System</b> or <b>Distribution System</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> .
<b>Demand Side Unit MW Capacity</b>	The maximum change in <b>Active Power</b> that can be achieved by a <b>Demand Side Unit</b> on a sustained basis for the duration of the <b>Demand Side Unit's Maximum Down Time</b> by totalling the potential increase in on-site <b>Active Power Generation</b> and the potential decrease in on-site <b>Active Power Demand</b> at each <b>Individual Demand Site</b> .
<b>Demand Side Unit Notice Time</b>	The time as specified by the <b>Demand Side Unit Operator</b> in the <b>Technical Parameter</b> and is the time it takes for the <b>Demand Side Unit</b> to begin ramping to the <b>Demand Side Unit MW Response</b> from receipt of the <b>Dispatch Instruction</b> from the <b>TSO</b> .
<b>Embedded Generator Interface Protection</b>	Protection designed to disconnect <b>Generation Units</b> from the <b>Distribution System</b> during abnormal system conditions by tripping a dedicated circuit breaker or recloser located as close as practically possible to the interface between the <b>DSO Demand Customer</b> equipment and the <b>Distribution System</b> .
<b>Lopping Mode</b>	The operation of <b>Generation Unit(s)</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where the <b>Generation Unit(s)</b> supplies the <b>Demand Customer's or DSO Demand Customer's Load</b> while not <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> . The <b>Generation Unit(s)</b> is(are) <b>Synchronised</b> to the <b>Transmission System</b> or <b>Distribution System</b> for short periods of time not exceeding 180 seconds at <b>Start-Up</b> and <b>Shutdown</b> of the <b>Generation Unit(s)</b> to facilitate a smooth transfer of power.
<b>Maximum Export Capacity</b>	The value (in MW, MVA, kW and/or kVA) provided in accordance with the <b>User's Connection Agreement</b> or <b>DSO Demand Customer's DSO Connection Agreement</b> .
<b>Maximum Import Capacity</b>	The values (kW and/ or kVA) provided in accordance with the <b>User's Connection Agreement</b> or <b>DSO Demand Customer's DSO Connection Agreement</b> .
<b>Shaving Mode</b>	The <b>Synchronised</b> operation of <b>Generation Unit(s)</b> to the <b>Distribution System</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where the <b>Generation Unit(s)</b> supplies part of, or, the <b>DSO Demand Customer's Load</b> . Normally the <b>Generation Unit(s)</b> would operate for 2 hours per day as agreed with the <b>DSO</b> .
<b>Standby Mode</b>	The operation of <b>Generation Unit(s)</b> at an <b>Individual Demand Site</b> of a <b>Demand Side Unit</b> where the <b>Generation Unit(s)</b> supplies the <b>Demand Customer's or DSO Demand Customer's Load</b> while not

	<p><b>Synchronised to the Transmission System or Distribution System.</b> The <b>Generation Unit(s)</b> is(are) never <b>Synchronised</b> to the <b>Transmission System or Distribution System.</b></p>
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