# Compliance Reporting Form-Class A1

Embedded Generation via Inverter Energy System
>30kVA and ≤1,500 kVA

## Certification

Energex WR#:

Date: / /

**Embedded Generation via Inverter Energy System > 30 kVA and ≤ 1,500 kVA –**
**Project Name:**
**Location:**

I certify that as a Registered Professional Engineer of Queensland and by virtue of my training and experience, that the submission documentation complies with the requirements of the latest revisions of the following:

- Energex's Technical Study Report provided for the above stated project.
- STNW1175 - Standard for HV Embedded Generating Connections
- AS/NZS 3000 – Electrical Installations
- AS 2067 - Substations and high voltage installations exceeding 1kV A.C.
- AS 3100 – Approval and test specification – General requirements for electrical equipment
- AS/NZS 4777 series – Grid connection of energy systems via inverters
- AS/NZS 5139 – Electrical Installations – Safety of battery systems for use with power conversion equipment
- Queensland Electricity Connection Manual

In addition to the above, the following attachments have been submitted as part of the application:

- Attachment 1 – PV inverter & Battery Specifications & Checklist
- Attachment 2 – Compliance Checklist
- Attachment 3 – Commissioning Test Results
- Attachment 4 – As Constructed Drawings

Signature

| |
|---|
| |

| | |
|---|---|
| | RPEQ Engineer Name |
| | Registration Number |
| | Professional Title |
| | Company Name |
| | Company Address |
| | Contact Details |

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All questions in each applicable section must be answered.

## Attachment 1 - PV Inverter & Battery Specifications & Checklist

| Installation details | Data |
|---|---|
| Customer Name | |
| Customer contact details | |
| Energex contact | |
| Installation approved capacity (kVA) | |
| Installation approved export (kW) | |
| Installed capacity (kVA)<br>(Must not exceed approved limit) | |
| Installed export power limit (kW)<br>(Must not exceed approved export) | |

### As installed – IES Rating Data

| Parameters | Data |
|---|---|
| Cell/PV type | |
| Peak Power Pmax | |
| Rated voltage Vmp | |
| Rated Current Ipm | |
| Short circuit current Imc | |
| Open circuit voltage | |
| Maximum system voltage | |
| Module Efficiency | |

Manufacturer's specification data sheet/user manual attached ◯ Yes ◯ No

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### As installed – Inverter Technical Data

| Parameters | Data |
|---|---|
| Type | |
| Model | |
| Part Number / Manufacturer | |
| Max. Input DC Power | |
| Max. Input DC Voltage | |
| Max. Input Current | |

Clean Energy Council Approved Inverter used Yes ◯

### As installed – Battery Technical Data

| Parameters | Data |
|---|---|
| Capacity | |
| Planned Operating Mode | |
| Max Rate of Charge | |

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### Output - Data

| Description | Data |
|---|---|
| Nominal Site Output to Grid | |
| Max. output current | |
| Nominal AC voltage range | |
| Max. efficiency | |
| Power quality mode | |

**Comments**
(please supply additional information for any non-compliances)

AC Grid frequency adjusting range Yes ◯ No ◯

Single Line Diagram (SLD) attached Yes ◯ No ◯

### Existing Onsite Embedded Generating Systems

| Existing Installation details* | Data |
|---|---|
| Types | |
| Capacity | |

*Prior to this application

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## Attachment 2 - Compliance Checklist

| Description | Complies | If No, supply details |
|---|---|---|
| Voltage Fluctuation or Flicker | Yes ◯ No ◯ | |
| Export Requirements | Yes ◯ No ◯ | |
| Special Instructions | Yes ◯ No ◯ | |
| Fluctuation and Harmonic Allocations | Yes ◯ No ◯ | |
| Power Factor Limits | Yes ◯ No ◯ | |

### Compliance with Standard for HV EG Connections

| Clause | Description | Complies |
|---|---|---|
| 5.1 and 5.1.1 | Compliance to Standards | Yes ◯ No ◯ N/A ◯ |
| 4.4.3 | Power limiting (for partial-export and non-export systems only)<br>- Provide setting below | Yes ◯ No ◯ N/A ◯ |
| 5.1.1 | Energy Storage Systems (if applicable) compliance to (AS/NZS 5139) | Yes ◯ No ◯ N/A ◯ |
| 5.2.2 | Inverter protection settings | Yes ◯ No ◯ N/A ◯ |
| 4.7.1 | Protection device compliance | Yes ◯ No ◯ N/A ◯ |
| 5.2.12 | Grid Protection Relay | Yes ◯ No ◯ N/A ◯ |
| 4.15 | Interlocking (if applicable) | Yes ◯ No ◯ N/A ◯ |
| 5.2.13 | Wireless transfer (where used)– provide Trip Time results - (coms failure &GPR pickup) below | Yes ◯ No ◯ N/A ◯ |
| 4.10.1 - 4.10.6 | Power Quality | Yes ◯ No ◯ N/A ◯ |
| 7 | Commissioning | Yes ◯ No ◯ |
| 8 | Operation and maintenance | Yes ◯ No ◯ |

**Comments**
(please supply additional information for any non-compliances)

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All questions in each applicable section must be answered.

## Attachment 3 – Compliance Report – Commissioning

### Commissioning shall include the following information and test certificates are recommended for further evidence:

#### Compliance with Standard for HV EG Connections

| System Details | Complies | Data, provide details (attach docs if required) |
|---|---|---|
| Installed system meets all criteria outlined in the Energex Technical Study Report issued for project | Yes ◯ No ◯ | |

#### Inverters

| System Details | Complies | Data, provide details (attach docs if required) |
|---|---|---|
| Passive anti-islanding tested for conformance, Vnom_max, V<, V>, V>>, f< and f>. | Yes ◯ No ◯ | |
| Tests to prove anti-islanding operation during network outage | Yes ◯ No ◯ | |
| DC input voltage to inverter on commissioning | Yes ◯ No ◯ | |
| AC Output Voltage from inverter on commissioning | Yes ◯ No ◯ | |
| Input and Output power from inverter on commissioning | Yes ◯ No ◯ | |
| Warning signs fitted as per AS/NZS 4777.1 and AS 5033 | Yes ◯ No ◯ | |

#### Protection

| System Details | Complies | Data, provide details (attach docs if required) |
|---|---|---|
| Tripping and control scheme logic | Yes ◯ No ◯ | |
| Instrument transformer ratios | Yes ◯ No ◯ | |
| Relay settings as per standard | Yes ◯ No ◯ | |
| Relay pickup tests | Yes ◯ No ◯ | |

**Comments**
(please supply additional information for any non-compliances and settings as required)

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All questions in each applicable section must be answered.

### Protection cont.

| GPR Details | Data |
|---|---|
| Make | |
| Model | |
| Serial Number | |

### Power Quality

Power Quality testing is required ◯ Yes ◯ No

| System Details | Complies | If No, provide details (attach docs if required) |
|---|---|---|
| Flicker | ◯ Yes ◯ No | |
| Harmonics emissions levels (e.g. 5,7) | ◯ Yes ◯ No | |
| Voltage Unbalance (%) | ◯ Yes ◯ No | |
| Power Factor | ◯ Yes ◯ No | |

Copy of Test Certificates attached ◯ Yes ◯ No

### Interlocking

| System Details | Complies | If Yes, provide details (attach docs if required) |
|---|---|---|
| Manual (Key-based) or | ◯ Yes ◯ No | |
| Automated | ◯ Yes ◯ No | |

Prior approved automated design attached ◯ Yes ◯ No

All questions in each applicable section must be answered.

## Attachment 4 – As Commissioned Drawings

**Single Line Diagram and AC Schematics should include:**

1. RPEQ Signature
2. NMI, Site name and address
3. GPR settings
4. Inverter protection details

| | | |
|---|---|---|
| Single Line Diagram (SLD) attached | Yes ◯ | No ◯ |
| AC schematics attached | Yes ◯ | No ◯ |