

## IGBC Green Data Centre Rating System, Pilot Version 2016

### Addenda-1, 2017

CII-Indian Green Building Council (IGBC) launched an exclusive rating system to spearhead the green concepts in Data Centre Industry in 2016. Based on the feedback received from Data Centre projects /Stakeholders, Technical Committee of IGBC Green Data Centre rating system has proposed amendment in the PUE for both Existing and New Data Centre Projects.

The following amendment shall be considered by the project team for certification of New and Existing Data Centre Projects under IGBC Green Data Centre Rating system.

#### 1. EE Mandatory Requirement 3

#### Minimum Energy Efficiency

##### Intent:

Optimise energy consumption to reduce negative environmental impacts from excessive energy use.

##### Compliance Options:

##### ❖ Power Usage Effectiveness (PUE)

Minimise the Power Usage Effectiveness (PUE) of the data center by reducing the total facility energy consumption.

PUE is defined as

$$\text{Power Usage Effectiveness} = \frac{\text{Total Facility Energy (kWh)}}{\text{IT Equipment Energy (kWh)}}$$

##### Total Facility Energy

This includes all IT equipment energy which is used to manage, process, store, or route data within the compute space and everything that support the IT equipment using energy such as:

- Power delivery component, including UPS system, switch gear, generator, power distribution Unit (PDU), batteries and distribution losses external to the IT equipment
- Cooling system component such as chiller, cooling tower, pump, computer room air handling unit (CRAHs), computer room air-conditioning units (CRACs) and direct expansion air handler units
- Other miscellaneous loads such as data center lighting.

##### IT Equipment Energy

This includes, energy associated with all the IT Equipment (e.g. compute, storage and network equipment) along with supplemental equipment (e.g. KVM switches, monitors, and workstations or laptops, used to monitor or otherwise control the data center).

Total facility energy and IT equipment energy need to be measured as below:

- Total facility energy at utility-input
- IT Equipment at PDU output (kWh measurement taken either at PDU display or by an energy meter on the secondary side of PDU transformer)

- The IT equipment energy and total facility energy need to be measured on daily basis

Establish the Power Usage Effectiveness of Data Center as per the above procedure and demonstrate that the PUE does not exceed threshold limit at 1/3 (33%) loading of the data center.

| Project Type  | Requirement of Pilot Version  | Addenda-1   |
|---|---|---|
| PUE (Power Usages Effectiveness) for Existing Data centre Project | The Power Usage Effectiveness (PUE) of an existing Data Center shall not exceed 3.0 | The Power Usage Effectiveness (PUE) of an existing Data Center shall not exceed 3.0 |
| PUE (Power Usages Effectiveness) for New Data Centre Project      | The Power Usage Effectiveness (PUE) of a new Data Center shall not exceed 1.5       | The Power Usage Effectiveness (PUE) of a new Data Center shall not exceed 1.69      |

## 2. Enhanced Energy Efficiency -

**Credit 4 Points: 1-42**

### Intent

Optimise energy consumption, to reduce negative environmental impacts arising from excessive energy use.

### Compliance Options

#### ❖ Data Processing (IT Equipment Power)

Demonstrate with the detailed calculations that the Power Usage Effectiveness (PUE) is lower than the threshold limit of 3.0.

The details of monthly energy consumption for the past one year at power distribution unit level and the utility meter level dedicated for the data center to be provided along with the power distribution diagram with the metering details.

Points are awarded based on the actual PUE measured for Existing Data Centers as below:

| S No. | PUE Range   | Credit Points | S No. | PUE Range   | Credit Points |
|-------|-------------|---------------|-------|-------------|---------------|
| 1     | 2.91 - 3.00 | 1             | 10    | 2.01 - 2.10 | 18            |
| 2     | 2.81 - 2.90 | 2             | 11    | 1.91 - 2.00 | 21            |
| 3     | 2.71 - 2.80 | 3             | 12    | 1.81 - 1.90 | 24            |
| 4     | 2.61 - 2.70 | 5             | 13    | 1.71 - 1.80 | 27            |
| 5     | 2.51 - 2.60 | 7             | 14    | 1.61 - 1.70 | 30            |
| 6     | 2.41 - 2.50 | 9             | 15    | 1.51 - 1.60 | 34            |
| 7     | 2.31 - 2.40 | 11            | 16    | 1.41 - 1.50 | 38            |
| 8     | 2.21 - 2.30 | 13            | 17    | < 1.40      | 42            |
| 9     | 2.11 - 2.20 | 15            | -     | -           | -             |

Points are awarded based on the design PUE, for new Data Centers:

| S No.                            | PUE Range   | Credit Points | PUE Range                           | Credit Points |
|----------------------------------|-------------|---------------|-------------------------------------|---------------|
| Requirement as per Pilot Version |             |               | Credit Requirement as per Addenda 1 |               |
| 1                                | 1.50 - 1.40 | 20            | 1.69 - 1.60                         | 20            |
| 2                                | 1.39 - 1.30 | 24            | 1.59 - 1.50                         | 24            |
| 3                                | 1.29 - 1.20 | 28            | 1.49 - 1.40                         | 28            |
| 4                                | 1.19 - 1.10 | 34            | 1.39 - 1.30                         | 34            |
| 5                                | < 1.10      | 42            | < 1.30                              | 42            |

The procedure of calculating PUE (Power Usage Effectiveness) and compliance requirement would remain same, as defined in the IGBC Green Data Centre Rating system, Pilot version. For further details or clarification, please get in touch with IGBC Team:

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