Welcome you all !

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IGBC

CII Confederation of Indian Industry 125 Years - Since 1895

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Half-day Online Workshop on
Green Data Centers: A Joint Initiative of IGBC and LBNL (DOE) US
"Enhanced Energy Efficiency in Indian Data Centers"
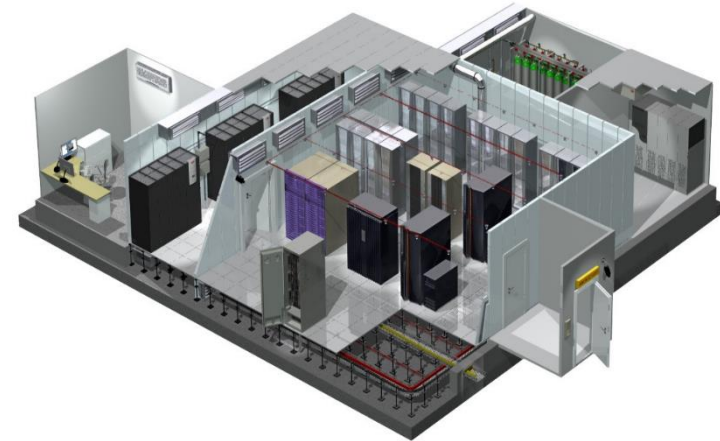
22 Oct 2020 | 1500 hrs to 1900 hrs

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Indian Green Building Council
Greening India since 2001

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Green Data Centre Rating
and
New Initiatives by IGBC and LBNL (DOE) US
22 Oct 2020

Indian Green Building Council (IGBC)
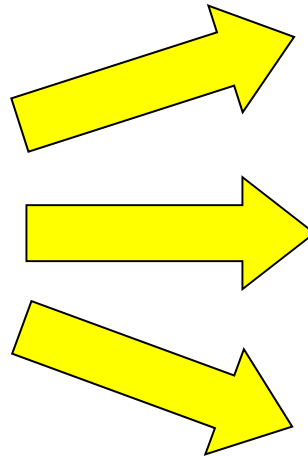
❖ **Vision of IGBC**

➢ **Enable 'sustainable built environment for all'**

➢ **India to be one of the global leaders in sustainable built environment by 2025**

Green Building Movement in India

In 2001,
1 Green Building
20,000 sq.ft.

6,065 Registered Projects
7.61 Billion sq. ft.

Indian Green Building Council
Greening India since 2001

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Unique Features
of Green Data Centre Rating System

- **Addresses Data Centre IT & Non-IT load**

- **At par with International standards**

- **Key focus areas**

  - **Energy efficiency**

  - **Operation & Maintenance**

  - **Indoor Environment Quality (IEQ)**

  - **e-Waste management**

- **Handholding for implementation of green features**

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Benefits of Green Data Center Rating

□ **Tangible benefits**

 ◘ **Improvement in Power Usages Effectiveness (PUE)**

 ◘ **Increased reliability**

 ◘ **Reduction in water consumption in case of water-cooled chillers**

□ **Intangible benefits**

 ◘ **Enhanced e-waste management**

 ◘ **Improved Indoor Environment Quality (IEQ)**

 ◘ **Green image and Benchmarking**

Support from IGBC

- **Feasibility study**
  - **Site visit / Feasibility study**
  - **Present status with respect to Green Data Center rating**
  - **Improvement opportunities**
- **Facilitation and Handholding**
  - **Implementation of green features**
  - **Information sharing**
    - **Leading data centres**
    - **Technology suppliers**
    - **Service providers**

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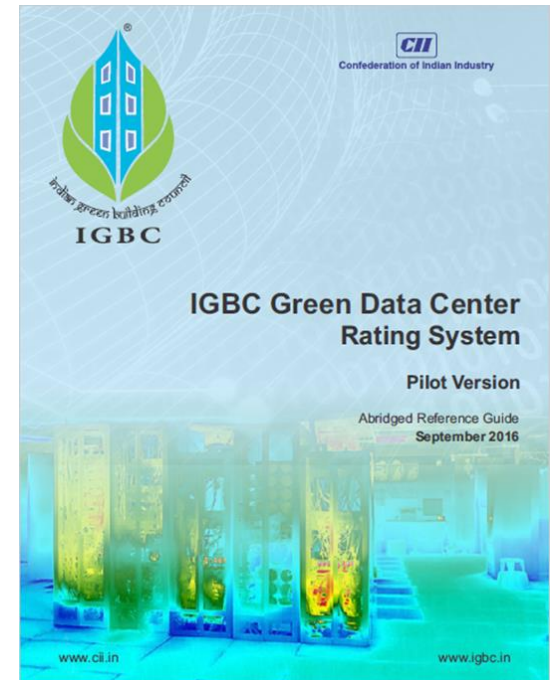
Joint Initiative: IGBC and LBNL (DOE) US

- ☐ **Develop and Implement Policies and Programs Supporting**
  - ❑ **Greater Energy Efficiency in Indian Data Centres**
- ☐ **Objectives of the initiative:**
  - ❑ **Develop and recommend Energy Efficiency standards for Indian Data centres**
    - ■ **To augment the minimum energy efficiency requirements: ECBC 2017**
    - ■ **Recommend higher performance rating: Level-I, Level II and Level-III**
  - ❑ **Develop User Guide for implementing the ECBC 2017**
  - ❑ **Document case studies of exemplary Data Centers**
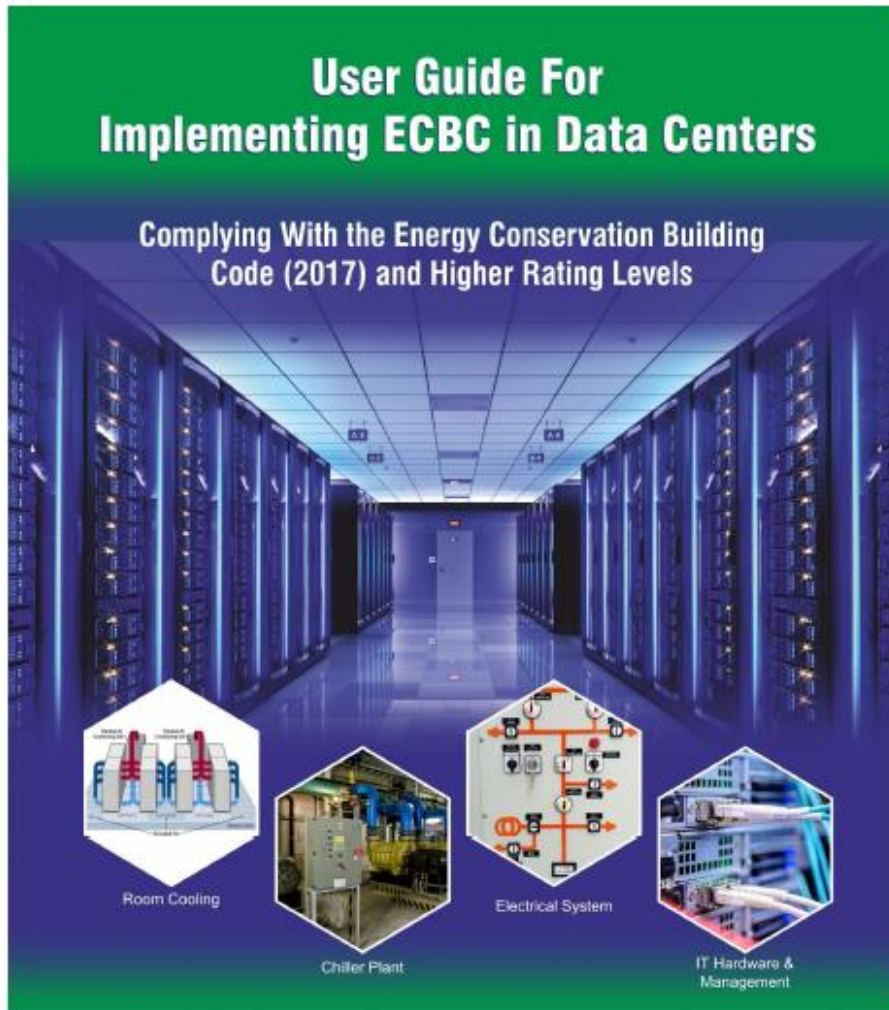 - ❑ **Capacity building – Spread awareness in DC industry**

AGM and Task Force

❖ **Key DC stakeholders are part of AGM**

❖ **Task Force Chairman**

  ❑ **Chiller Plant : Mr P.C. Lohia**
     Vice President - HVAC, Reliance Industries Ltd.

  ❑ **Electrical Systems: Mr Pritam Goyal**
     Sr Programme Manager, Microsoft

  ❑ **Room Cooling: Mr Raghuveer Singh**
     Director -Thermal Management, Vertiv Energy Private Limited

  ❑ **IT Hardware & Management : Mr Vivek Rajendran**
     Director, Software Engineering, Dell EMC, Infrastructure

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User Guide for ECBC 2017 for DCs and Case Studies

User Guide For Implementing ECBC in Data Centers

Complying With the Energy Conservation Building Code (2017) and Higher Rating Levels

Room Cooling

Chiller Plant

Electrical System

IT Hardware & Management

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Infosys

INNOVATION IN ENERGY EFFICIENCY: INFOSYS-BANGALORE DATA CENTER

OVERVIEW

Organization & Data Center Background

Infosys Limited is a multinational consulting, information technology and outsourcing firm that maintains millions of square feet of its own offices and data centers. For its headquarters campus In Bangalore, Infosys built a 250 square meter data center to be a model of innovation and energy efficient computing. Tucked inside a four-story office building, the small data center features a creative combination of novel IT, electrical and cooling technologies. Designers aimed for a Power Use Effectiveness (PUE) score of 1.12. Actual energy performance thus far has averaged 1.33, which nonetheless denotes strong performance, based on available data for India.

Infosys has encountered challenges and is refining the data center in pursuit of higher performance to approach the design target.

Figure 1. Infosys data center server room

Project Highlights

- Designed to achieve a PUE of 1.12
- Achieved PUE of 1.33 at <50% load
- First project in India to maintain high server hall temperatures (~27°C) to enable warm-water cooling to avoid compressor use and thus lower cooling energy cost
- Passive Rear Door Heat Exchangers (RDHx) for efficient cooling at the cabinet level
- Sophisticated Building Management System (BMS) for automation and optimization

Table 1. Design and operational parameters

Facility Characteristics	Description	
IT Load (Design)	0.3 MW Design, up to 10kW/rack	0.14 MW Operational
Cooling System Specs	Designed to maintain server room temperature of 27°C (vs. a more typical 17-18°C)	
UPS Capacity	300 kVA + 300 kVA in a 2N configuration for Tier III availability	
Total Current Energy Use	1,308 MWh/year	
PUE	1.12 Design	PUE: 1.33 Operational

Case studies of Exemplary data Centers

Capacity Building Programmes and AGM

20 July 17, Bangalore

14 Sep 17, Mumbai

13 Feb 2019, Bangalore

AGM 2018 Infosys, Bangalore

AGM 2019
Hotel Taj West End Bangalore

CII-IGBC - ANSI – USTDA- BIS
DC Conf

24 Jul 2018, Mumbai

Indian Industry

18 May 2018, Mumbai

To sum up

- ❖ **Excellent opportunity for Indian Data Centers to improve**
    - ❑ **Improved Design Performance**
    - ❑ **Enhanced Operation & Maintenance**
    - ❑ **Benchmarking, Green Image and Recognition**
- ❖ **Aim for elevated performance**
    - ❑ **Meet Performance Standards (Level-I)**
    - ❑ **Exceed Performance – Level-II**
    - ❑ **Demonstrate Leadership in Performance – Level-III**
- ❖ **Knowledge exchange and best practices**

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Thank You !

For any further support, please contact:

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