

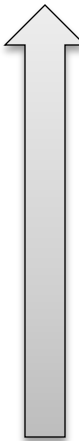
“Indo-German Partnership on Energy Efficiency”

“Initiatives of the National Housing Bank to incorporate and promote Energy Efficient residential buildings / sustainable habitat design”

National Housing Bank

February 12, 2015

Background



Projected Timeline	Demographic Changes
By 2050	World's population will reach 9 Billion
By 2050	70% of the world's population will live in urban areas, up from 50% today
By 2030	40.8% of India's population will be living in urban areas (current 28.4%), increasing to 50% by 2041

- Housing sector accounts for nearly 40% of energy consumption
- Populations in emerging markets are creating a huge demand for homes that need to be both affordable and green

Energy Efficiency in Housing

- Energy efficient housing balances all aspects of energy use in a building
 - Lighting
 - Space utilization
 - Ventilation
 - Use of energy efficient building materials
 - Use of energy efficient equipment
 - Use of alternative and renewable sources of energy
- Reducing energy demand at source
 - More sustainable in long run
 - Often with little incremental cost

About NHB

- Statutory body
 - National Housing Bank Act, 1987
- Regulator of Housing Finance Companies in India
- Promotion and development of housing and housing finance sector
- Provides finance to Primary Lending Institutions for retail housing finance

NHB KfW Partnership

- Important step forward in promoting use of energy efficiency techniques in buildings
- Programme initiated jointly by NHB and KfW, German Development Bank in 2008 pursuant to Indo - German Government-to-Government negotiations
- Prime objective of the Programme - Promoting Energy Efficient Residential Housing
- First of its kind of programme in India

Partnership contd...

- Line of Credit of € 50 million on 31st Dec'2010.
- Technical assistance grant of €1.5 million.
- The Programme
 - Financial and technical assistance to stakeholders to promote EE residential housing
 - Financial assistance - housing loans to individual borrowers through retail lending institutions for purchase / construction of EE residential houses / flats
 - Technical assistance - Fraunhofer TERI Assessment Tool to calculate the level of energy savings of EE houses on the baseline (developed by TERI / Fraunhofer)


Partnership contd...


- Initial implementation - facilitator appointed to assist NHB
- Identification of EE building projects
- Identification of retail lending institutions
- Assessment of refinance potential for NHB
- Gathering of borrower information
- Assistance in energy calculation & certification
- Compliance with NHB's reporting requirements to KfW
- Launching of logo and website for the programme - ee-homes.com
- Signed MoU with IGBC and AdARSH

Program Structure and Flow




Snapshot of some Certificates





EnEff:ResBuild India
Toolkit for energy efficient residential buildings in India



Project: Sahara City Homes –Type C

Building:

Address of project:	Table of results - Electrical energy in kWh/m ² yr*		
Sitapur Hardoi By-Pass Road, Near IIM, Lucknow, Uttar Pradesh 226020	This building	Reference building	
	Internal lighting	12,81	12,81
	Common lighting	1,54	1,54
	Parking lighting	0,00	0,00
	Cooling	20,27	35,80
	Heating	3,25	3,25
	Hot water	6,97	11,16
	Ceiling fans	1,74	1,74
	Appliances	26,00	26,00

Occupant/Owner:

Building parameters:

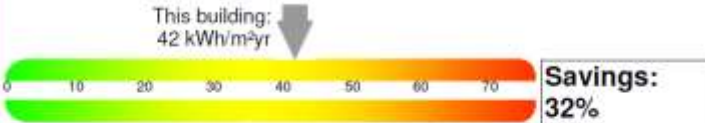
Building type:	Residential building
Total building area:	6.174,00 m ²
Climatic zone:	New Delhi
Created with:	EnEffResBuild:India Version 0.9.1.0

Consumption of electrical energy in kWh/m²yr*:

*The consumption is related to the building area

This building: ↓

42 kWh/m²yr



Savings:
32%

Reference: ↑

61 kWh/m²yr

Energy shares considered for the loan application

Internal lighting

Parking lighting

Heating

Ceiling fans

Common lighting

Cooling

Hot water

Appliances


Qualitative parameters (0 out of 6 measures are applied in this building):

<input type="checkbox"/> Daylit area in the core area is 20% to 40%	<input type="checkbox"/> Presence detection or photo sensors for outdoor and
<input type="checkbox"/> Solar street lights	<input type="checkbox"/> Efficient water pumps
<input type="checkbox"/> Efficient transformers	<input type="checkbox"/> Tailored user manual


Issuer:
The Energy And Resource Institute (TERI)


04.07.2011

Date




Signature





EnEff:ResBuild India
Toolkit for energy efficient residential buildings in India



Project: Lotus Boulevard-Tower 18

Building:

Address of project:	Table of results - Electrical energy in kWh/m ² yr*		
GH-03, Sector 100, Noida, Gautam Budh Nagar District Uttar Pradesh, 201301	This building	Reference building	
	Internal lighting	14,03	14,03
	Common lighting	1,50	1,00
	Parking lighting	0,00	0,00
	Cooling	24,99	32,77
	Heating	1,68	1,68
	Hot water	10,24	10,24
	Ceiling fans	0,90	0,90
	Appliances	25,23	25,23

Occupant/Owner:

Building parameters:

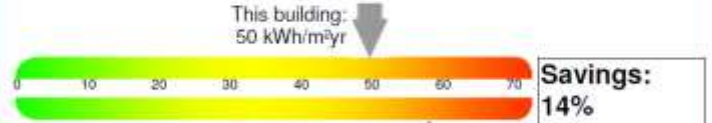
Building type:	Residential building
Total building area:	14.139,00 m ²
Climatic zone:	New Delhi
Created with:	EnEffResBuild:India Version 0.9.1.0

Consumption of electrical energy in kWh/m²yr*:

*The consumption is related to the building area

This building: ↓

50 kWh/m²yr



Savings:
14%

Reference: ↑

58 kWh/m²yr

Energy shares considered for the loan application

Internal lighting

Parking lighting

Heating

Ceiling fans

Common lighting

Cooling

Hot water

Appliances


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Financial achievements under the Programme

- Entire amount of € 50 million utilized
- No. of PLIs participated in the Programme - 06
- No. of loans: 2,065
- No. of buildings certified: 21,577 residential units (162 towers)
- Energy savings: 1,864 MWh/p.a.
- CO₂ avoided: 32,800 t/p.a.

A snap shot of few certified projects under the Program



Sahara City Homes, Nagpur

**Sahara City Homes
Nagpur**

Savings – 26%

Number of Units – 2,646



BCIL ZED Collective,
Bangalore
Savings – 40%
Number of Units - 44

BCIL ZED Woods,
Bangalore
Savings – 33%
Number of Units-60




Lotus Panache, Noida
Savings – 21%
Number of Units – 4,048



3C Projects



Lotus Boulevard, Noida
Savings – 20%
Number of Units – 2,224



HIRCO, Mumbai
Savings – 34%
Number of Units – 1,212

Labelling Process

Need & Approach for Labelling

1. Ensure transparency
2. Assign responsibility and ownership
3. Reduce liability
4. Prevent misuse
5. Ensure mainstreaming EE homes

Key Approach to Labelling

1. Voluntary labelling program linked to EE homes finance
2. EPI Based Certification for each unique block
3. Design and Specifications to be certified based on EE tools
4. Label/Certificate to show the key specs and features which can be verified by homeowners and other agencies

BEE Appliance Labelling as a Model

- BEE label is trusted and well accepted
- BEE Label design can be adopted and 5-star system should continue
- Linking directly to LEED and GRIHA ratings
- Focus on refinance and market development
- Long term implementation by in-house team

Development till date

- Task Force Constituted on Certification and Labelling Scheme constituted under the NHB-KfW Programme with members from different institutions viz. NHB, BEE, DFS (MoF), MoHUPA, KfW, TERI, IGBC and EDS Global
- The Task force had its first and second meeting on May 15, 2014 and July 15, 2014 respectively
- BEE Launched Guidelines on EE Multi-storeyed Residential Buildings

BEE Guidelines on EE Multi-storeyed Residential Buildings

- Launched 2nd Sept., 2014 by the Hon'ble MoS(i/c) for Power, Coal and New & Renewable Energy.
- Set of 12 Recommendations under six sections viz.
 - ✓ *Building massing and spatial configuration (Recommendations 1–3)*
 - ✓ *Building envelope (Recommendations 4–6)*
 - ✓ *Space cooling (Recommendations 7–10)*
 - ✓ *Appliances (Recommendation 11)*
 - ✓ *Common services (Recommendations 12–14)*
 - ✓ *Renewable energy integration (Recommendation 15)*

Steps Ahead

- Outlining the process and key features of the Labelling & Certification to the satisfaction of all stakeholders
- Presentation of the labeling process at a technical committee meeting at BEE
- To decide about the authority for such certification and labelling
- Need for continuous support from IGF/GiZ/KfW on the proposal

Thank You