



OVERVIEW:

BUILDING ENERGY PERFORMANCE-

ENERGY MONITORING INFORMATION SYSTEM

***Integrated online platform for ECBC COMPLIANCE and
BUILDING ENERGY MONITORING***

Saurabh Diddi
Director
Bureau of Energy Efficiency (BEE)



SALIENT FEATURES OF THE TOOL



ECBC COMPLIANCE TOOL

- ✓ Facilitates COLLABORATION among stakeholders
- ✓ STRUCTURED and GUIDED compliance procedure
- ✓ SEAMLESS workflow, interweaving functionalities of different Users
- ✓ EASY TO USE and INTUITIVE User Interface
- ✓ CUSTOMIZED Interface caters to various user groups

BUILDING ENERGY MONITORING

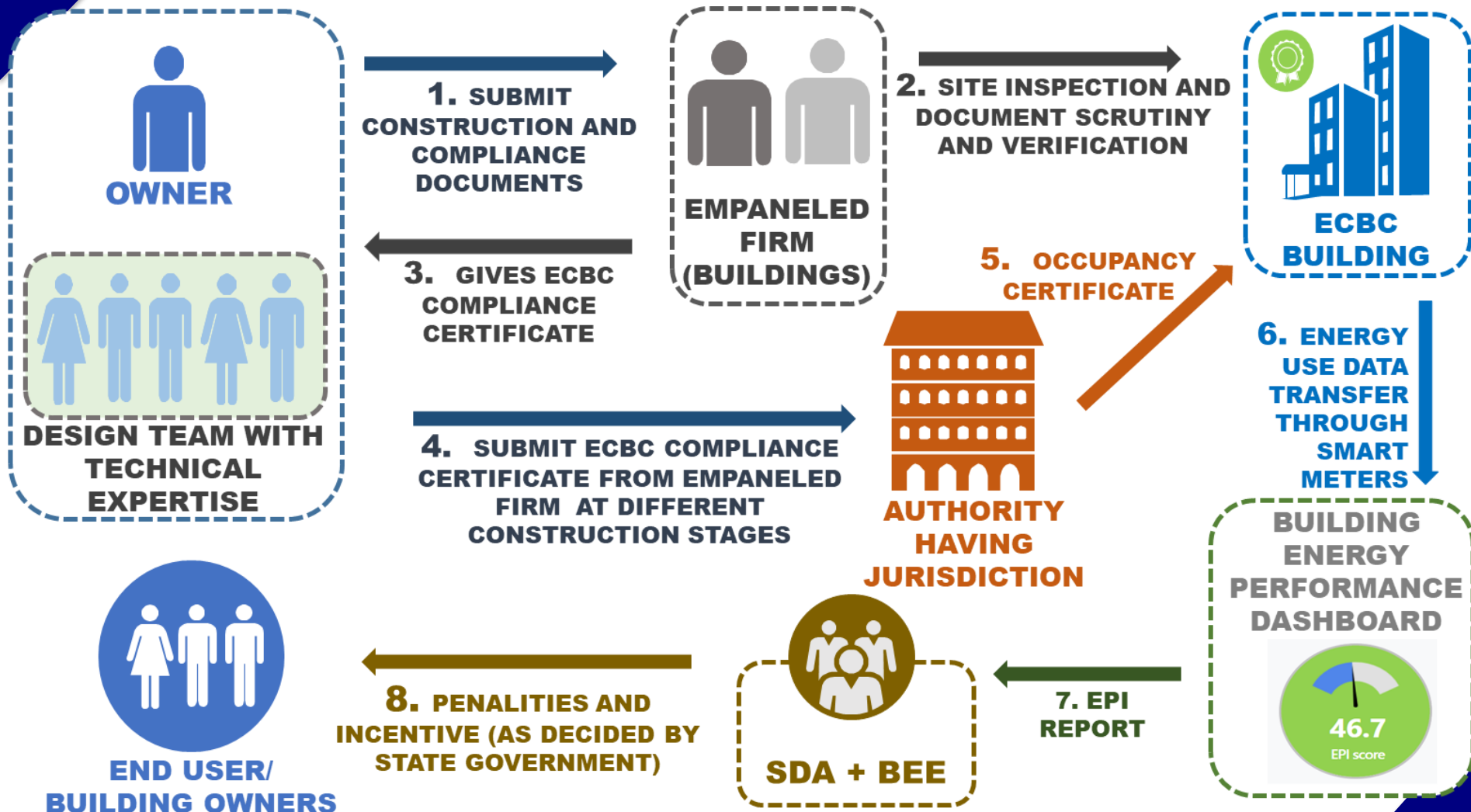
- ✓ Real-time tracking of ONGOING Energy and Demand MONITORING (via. Smart meters)
- ✓ Different hierarchies of
 - dashboard(National, State, ULB, Building)
 - time period (daily/weekly/annually/custom)
- ✓ Customizable DASHBOARDS for different user groups
- ✓ Assess building performance based on metrics
 - Energy Performance Index (EPI)
 - Daily Energy Use
 - Building Rating (Future Provision)
- ✓ Update building information (Typology, Occupancy, etc.)



ECBC COMPLIANCE



PROCESS FOR ECBC COMPLIANCE





PORTAL HOME PAGE



BEP-EMIS Meeting Notes x Environmental Design So x BEP-EMIS x

Secure | <https://bepemis.zenatix.com>

GOVERNMENT OF INDIA
MINISTRY OF POWER

BEE

BEP-EMIS Home About Contact Resources Register

NATIONAL

BUILDING

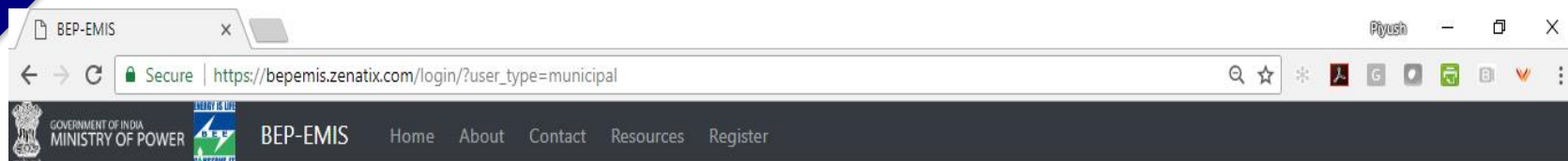
MUNICIPALITY

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https://bepemis.zenatix.com/login/?user_type=municipal



LOGIN PORTAL



Login

Email

ApprovingOfficer@ndmc.com

Password

Login

☐ Keep me signed in

Don't have an account? [Register here](#)



[Forgot your password?](#)



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Bureau of Energy Efficiency, Ministry of Power, Government of India



PROJECT INFORMATION



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Project List

Project Information

Project Team

Empaneled Firm

Project Uploads

Building Envelope

Comfort Systems & Controls

Lighting & Controls

Electrical & Renewable Energy

Whole Building Simulation

SimTest_VCL | DL-Ho-North Delhi Municipal Corporation-44

Current

Project Scope

Is building or building complex intended for Commercial Use?

Yes

Does building or building complex has a connected load of 100 kW or greater or a contract demand of 120 kVA or greater?

Yes

Note: In case of addition/alteration consider load for building or building complex

Input ownership scope

Owner Occupied

Input building scope

New Construction

Building or building complex complies with the provisions of §4 through §7

UN
DP

gef

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PROJECT INFORMATION



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Whole Building Simulation

SimTest_VCL | DL-Ho-North Delhi Municipal Corporation-44

Current

Project Contact

First Name: Rajesh

Last Name: Kumar

E-mail: raj@gmail.com

Phone No.: 9876543210

Organization: Some Co.

Organization Address: B-17, Sector 32, Gurugram

State: Andhra Pradesh

City: Visakhapatnam

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ONLINE SELECTION: EMPANELED FIRM



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Whole Building Simulation

SimTest_VCL | DL-Ho-North Delhi Municipal Corporation-44

Current

Select Empaneled Firm

Search Empaneled Firm

Regn. No. ⌵	Name ⌵	City ⌵	State ⌵	E-mail ⌵	Mobile ⌵	Assign
TPA-007	NikTPAShukla	North	DL	s.nikunj.11@gmail.com	9999999999	Assigned

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ENERGY AND DAYLIGHT: REPORT GENERATION



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Whole Building Simulation

4.2.3 Daylighting

Daylight Compliance Method

Daylight Simulation Method

Building Name	# Floor	Floor Multiplier	Upload		Status	Daylit Area (in %)		
1	1	1	Upload *.rad file	Browse	Upload *.pts file	Browse	Run	66.61
1	2	1	Upload *.rad file	Browse	Upload *.pts file	Browse	Run	64.56
2	1	2	Upload *.rad file	Browse	Upload *.pts file	Browse	Run	39.22

Add row Run Simulation

Daylight Overall Compliance Pass

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ENERGY SIMULATION OUTPUT



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Whole Building Simulation

Energy Simulation Summary

Passed

EPI Ratio: 0.9 Threshold: 1

Proposed Design Case

Standard Design Case

EPI

132.3

kWh/m²-year

EPI

155.6

kWh/m²-year

	Proposed		Standard	
End Uses	Energy (kWh)	Demand (kW)	Energy (kWh)	Demand (kW)



REVIEW AND RAISE ISSUE



BEP-EMIS

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Review

Corporate Towers | DL-Bu-North Delhi Municipal Corporation-51

Current

Issues

Create Issue E-mail Issues Approve Project Reject Project

#	Issue	Advice	Response	Status	User
2	This submitted project area information is not in line with	Revise area statements to be consistent with developmental c	No response yet.	Unresolved	Approving Authority
1	Project Documents indicate mismatch on built up area.	Update project forms and upload revised drawings along with	Project information including built up area has been updated	Resolved	Empaneled Firm

Approval Certificates

Form III - Design Form II - Design

Form VII - Construction Form II - Construction

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CREATE ISSUE: NON-COMPLIANCE



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Review

Form VII - Construction

Form II - Construction

Logout

Create Issue

Issue

Unresolved

Issue

This submitted project area information is not in line with documentation submitted for developmental clearances.

Advice

Revise area statements to be consistent with developmental clearances.

Response

Close Submit

Status User

Unresolved Approving Authority

Resolved Empaneled Firm

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CERTIFICATE GENERATION



State
LOGO

ULB
LOGO

BEP-EMIS

Form III

[Sec rule 5(1)(c)(ii) and 5(4)(a)(i)]

COMPLIANCE CERTIFICATE- DESIGN

I/We am/are Empanelled firm having registration No. (EMPAANELED FIRM REGISTRATION NO) under the Energy Conservation Act 2001 (52 of 2001) and am authorized to scrutinize and verify the design of Energy Conservation Building Code compliant building. I/We certify that -

- I/We have scrutinized the construction documents, undertaking submitted by the owner duly signed by the owner/design professional showing all the pertinent data and features of the building, equipment and systems in sufficient details covering building envelope, heating, ventilation and air-conditioning, service hot water, lighting and electrical power in accordance with the Energy Conservation Building Code rules, 2018 (state specific) in respect of building proposed to be constructed on PROPOSED PROJECT ADDRESS.
- I/We have scrutinized the compliance forms with the check-lists to ensure compliance with the bye-laws and the Energy Conservation Building Code rules, 2018 (state specific).
- The compliance documents have been duly inspected by the undersigned.
- The energy performance index ratio of the building design as per compliance documents, at the design stage is equal to or less than one and is therefore in compliance with Energy Conservation Building Code rules, 2018 (state specific).
- It is certified that all required scrutiny and verification of the documents submitted have been carried out diligently, truthfully and all reasonable professional skill, care and diligence have been taken in scrutinizing and verifying the drawings of the buildings and compliance forms together with check-lists covering the various components of the Energy Conservation Building Code rules, 2018 (state specific).
- The contents of all the documents submitted along with the application are a true representation of the facts and nothing has been concealed.

There is no objection for issue of building permit in respect of the aforesaid proposed building in so far as requirements of Energy Conservation Building Code rules, 2018 (state specific) are concerned.

DIGITAL
SIGNATURE

Authorized Signatory

DIGITAL
SIGNATURE

NAME
Certified energy Auditor
Registration No

DIGITAL
SIGNATURE

NAME
Certified energy Auditor (Building)
Registration No

DIGITAL
FIRM
STAMP

Date: - / /



State
LOGO

ULB
LOGO

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Form VII

[Sec rule 5(0)(b) and (4)]

COMPLIANCE CERTIFICATE- DESIGN

EMPAANELED FIRM NAME, being an authorised **Empanelled Firm** with registration no. (EMPAANELED FIRM REGISTRATION NO) here by state I/We have reviewed the undertaking given by the owner, **energy conservation measures installed during the construction works** and have reviewed the construction documents, compliance forms, check-lists, submitted and inspected progress in construction works in respect of the various elements of the components referred to in sub-rule (6) of Rule 5 of the proposed Energy Conservation Building Code compliant building at PROPOSED PROJECT ADDRESS and certify that the energy performance index ratio calculation meets the requirement of ECBC compliant/ ECBC plus/ Super ECBC building.

I/We further certify that all reasonable professional skill, care, and diligence have been taken in verifying the construction document and compliance forms in respect of the various elements of the components covered in Energy Conservation Building Code rules, 2018 (state specific) and contents thereof are a true representation of the facts and meet the requirements of Energy Conservation Building Code rules, 2018 (state specific).

Duly filled checklist of the proposed project is attached with the certificate.

DIGITAL
SIGNATURE

NAME
Certified energy Auditor
Registration No

DIGITAL
SIGNATURE

NAME
Certified energy Auditor (Building)
Registration No

DIGITAL
SIGNATURE

Authorized Signatory

DIGITAL
FIRM
STAMP

Date: - / /



EMPANELED FIRM



DESIGN PHASE

FORM III (GENERATE)

ON SATISFACTORY SUBMISSION BY
OWNER AND VERIFYING COMPLIANCE

SUBMIT

OWNER

CONSTRUCTION PHASE

FORM VII (GENERATE)

ON SATISFACTORY SUBMISSION BY
OWNER AND INSPECTION OF
COMPLIANCE

SUBMIT

OWNER

COMPLETION PHASE

FORM X (GENERATE)

ON SATISFACTORY SUBMISSION BY
OWNER AND INSPECTION OF
COMPLIANCE

SUBMIT

OWNER



BUILDING OWNER



DESIGN PHASE

FORM II (GENERATE)

FORM III (FROM EMPANELED
FIRM)

SUBMIT

**APPROVING
AUTHORITY**

CONSTRUCTION PHASE

FORM II (GENERATE)

FORM VII (FROM EMPANELED
FIRM)

SUBMIT

**APPROVING
AUTHORITY**

COMPLETION PHASE

FORM II (GENERATE)

FORM X (FROM EMPANELED
FIRM)

SUBMIT

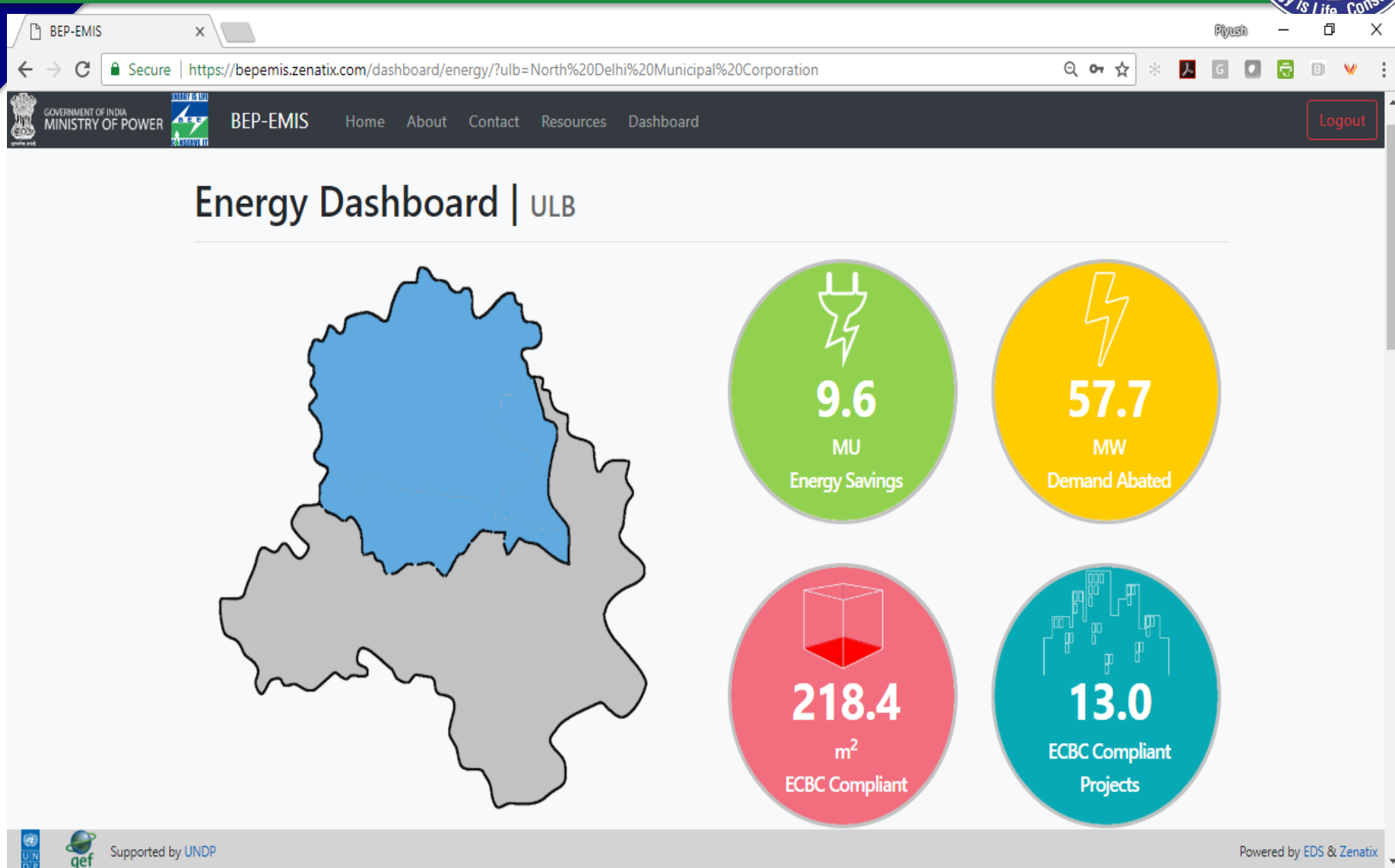
**APPROVING
AUTHORITY**



BUILDING ENERGY MONITORING



ULB LEVEL: ENERGY USE MATRIX



SIMILARLY, NATIONAL, STATE AND BUILDING LEVEL DATA CAN BE VIEWED



PROJECTS BEING MONITORED



BEP-EMIS				
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Location	ECBC Compliant Projects	ECBC Compliant Area (Million m ²)	Energy Savings (MU)	Demand Abated (MW)
DL-Ho-North Delhi Municipal Corporation-4	1	10,001	89.4	655.1
DL-Ho-North Delhi Municipal Corporation-5	1	2,000	89.4	655.1
DL-Ho-North Delhi Municipal Corporation-6	1	15,000	89.4	655.1
DL-Ho-North Delhi Municipal Corporation-7	1	2,000	89.4	655.1
DL-Ho-North Delhi Municipal Corporation-8	1	2,000	78.0	54915.8
DL-Ho-North Delhi Municipal Corporation-41	1	1,000	7.8	49.0
DL-Bu-North Delhi Municipal Corporation-42	1	10,000	0.0	0
DL-Ho-North Delhi Municipal Corporation-44	1	1,900	34.1	58.3

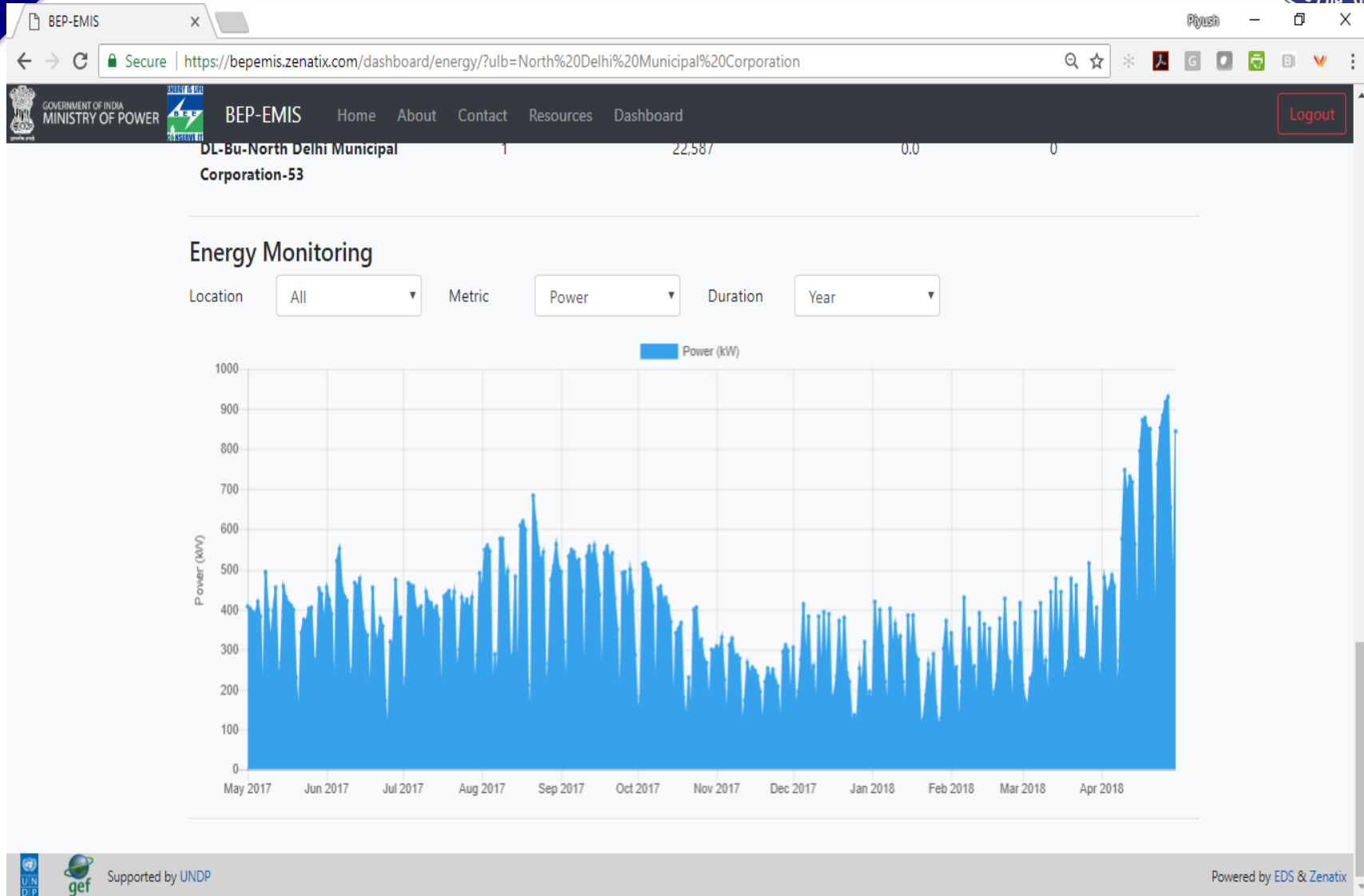


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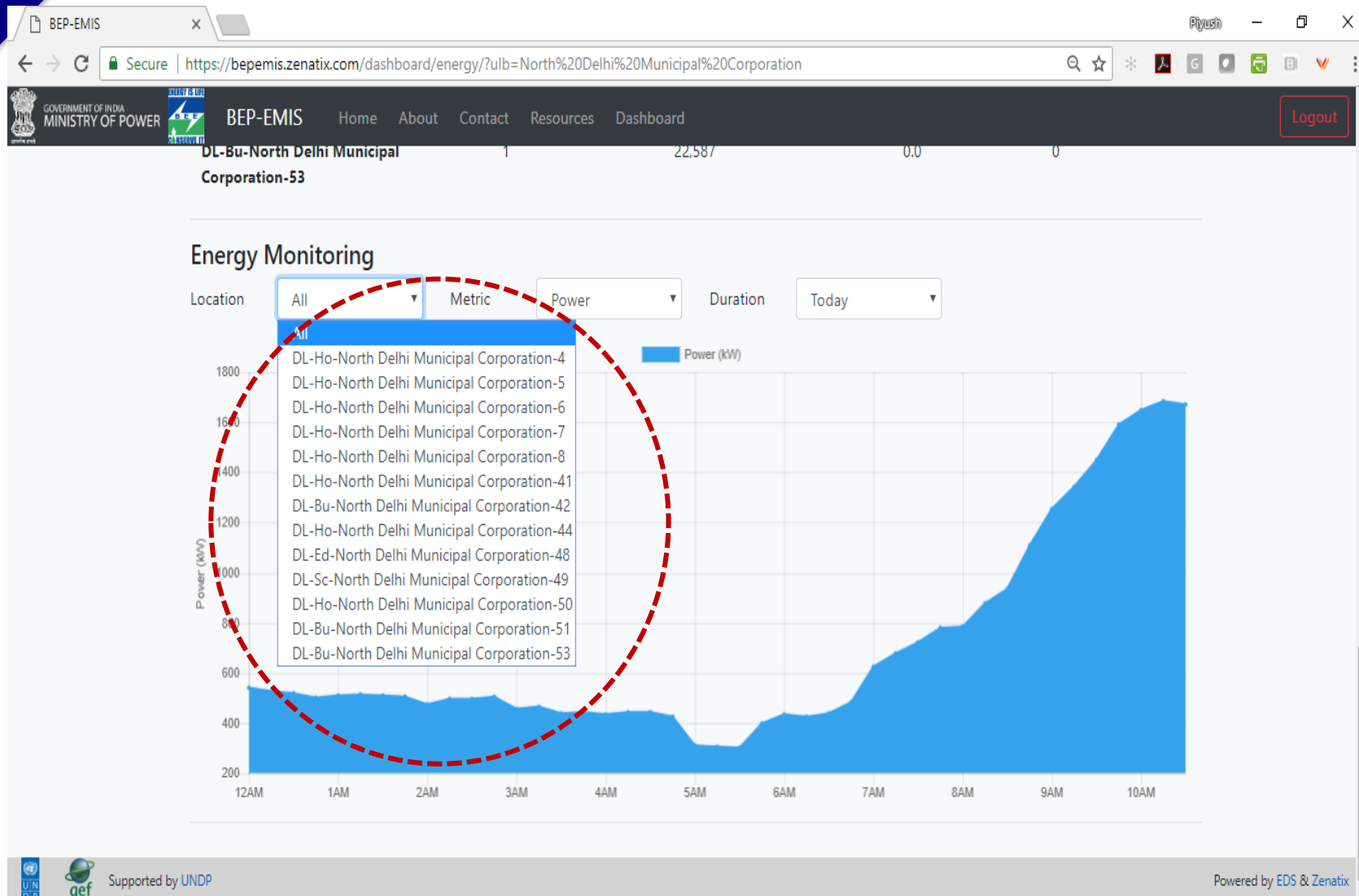


ENERGY USAGE PATTERN



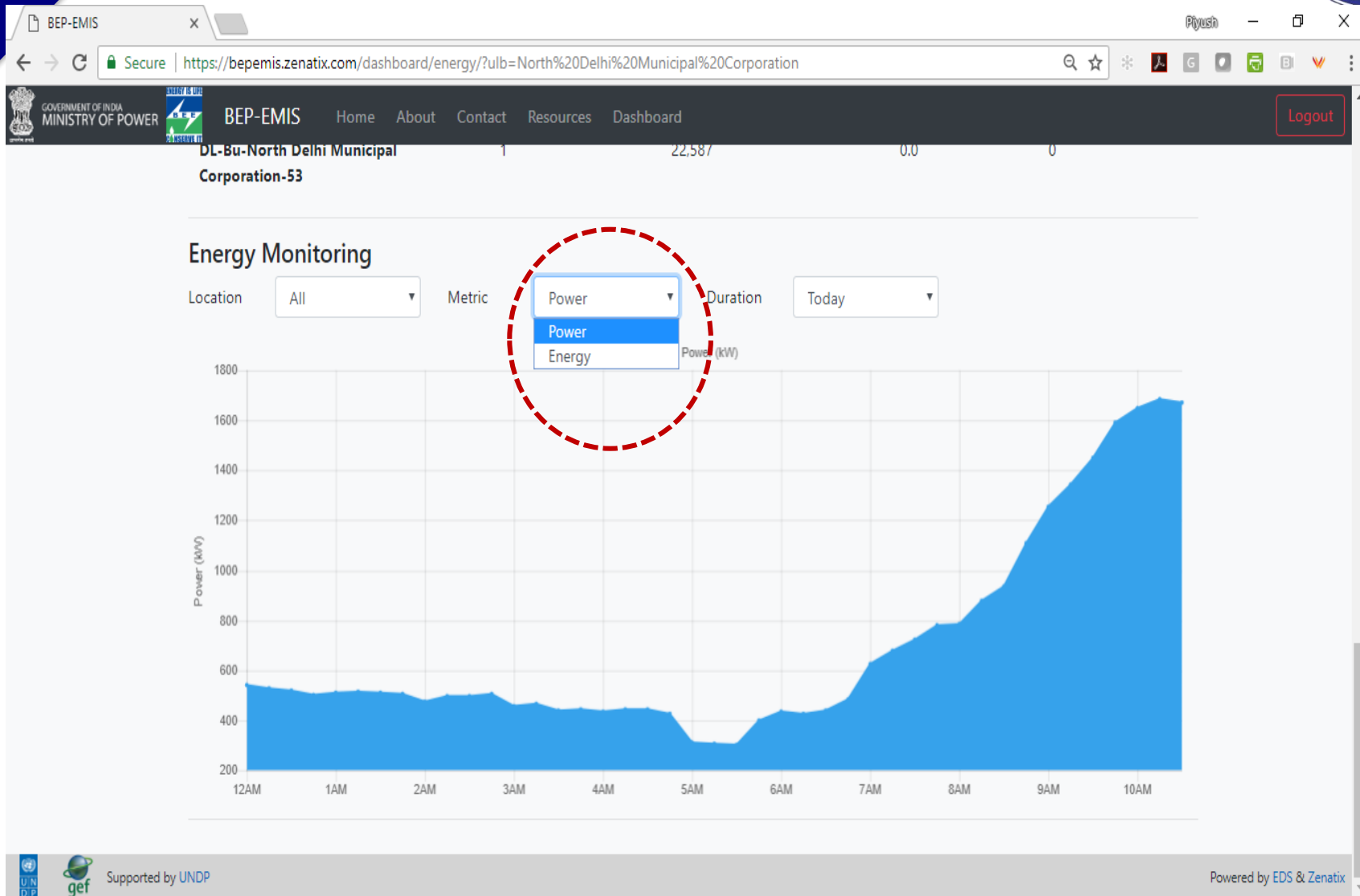


PROJECT WISE: ENERGY USAGE PATTERN



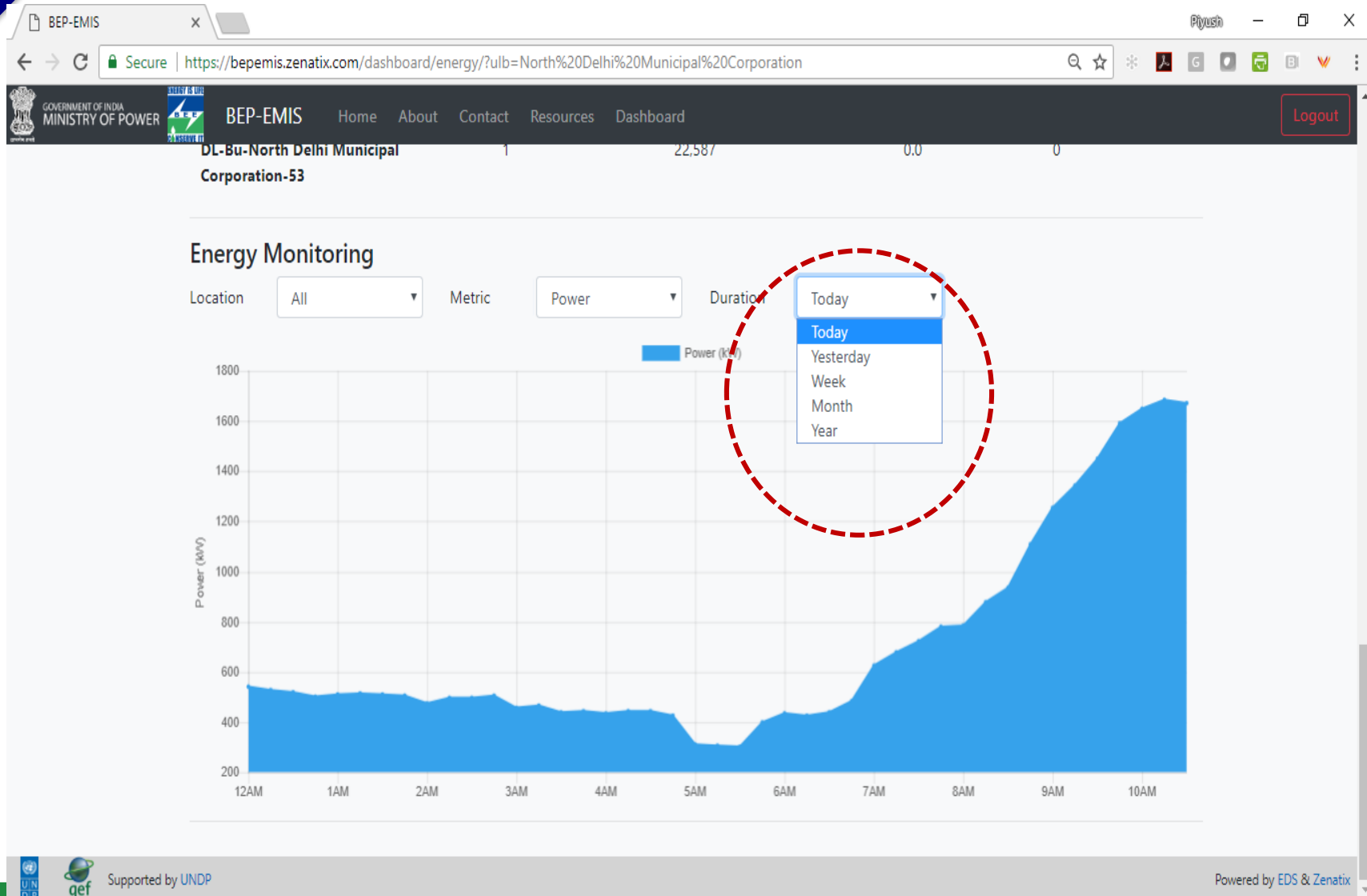


ENERGY USE MATRIX





TIME PERIOD WISE: ENERGY USAGE





ENERGY USE DASHBOARD



BEP-EMIS x

Secure | https://bepemis.zenatix.com/dashboard/energy/?ecbc_id=4

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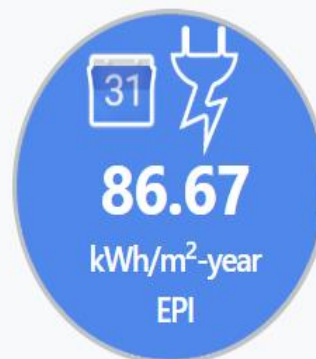
Logout

UNDP | DL-Ho-North Delhi Municipal Corporation-4



Typology	Star Hotel
Approving Authority	North Delhi Municipal Corporation
Area Built (Conditioned)	10001 m ² (8000 m ²)
Occupants (Time)	200 people (8 hrs / day)

Apply for Label





Thank You

For further information please contact:

sdiddi@beenet.in

Project official website

<http://ace-e2.eu/>