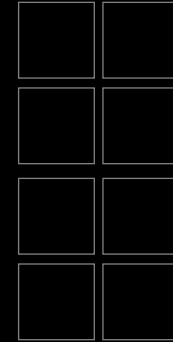


EC-ASEAN Energy Facility (EAEEF)



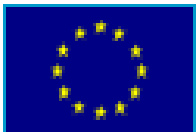
Projects 64 and 68 2nd Project Meeting



Development of a Business Model for Building Energy Performance Services in the ASEAN Region (Project 68) - On-Line Benchmarking Tool

A/Prof Lee Siew Eang
Energy Sustainability Unit
National University of Singapore



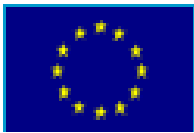


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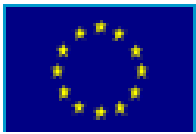
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About BEPB 1.0

1. What is the BEPB 1.0?
What can BEPB 1.0 do for you?
Through BEPB 1.0 we provide you with a simple evaluation of your building energy performance. Using BEPB 1.0 you can compare your buildings energy use against 93 commercial office buildings in Singapore!

Who developed the benchmarking tool?
ESU-NUS

Data source
The benchmarking tool is developed based on a unique database of building energy performance in Singapore and the region!

What are the building types?
Commercial office building

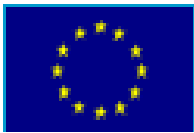
2. Target user groups
Building owner, building developer, energy services company, property manager, building designer, government agency, energy researcher.

3. How to use this tool?

Done Internet

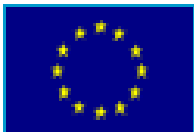
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Disclaimer

Please read the following disclaimer. Use of the benchmarking tool signifies your acceptance of these conditions:

DISCLAIMER

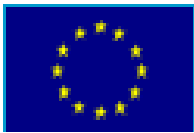
This BEPB 1.0 (refer to as Tool) is made available free of charge for the sole purpose of non-commercial, private use in carrying out unofficial benchmarking ratings for your information only. It is not to be reproduced, sold, let for hire, sub-licensed or otherwise distributed, and is available "AS IS" without any warranty of any kind. To the fullest extent permitted by law, ESU expressly disclaims all warranties, whether express or implied. In no event will the ESU be liable for any indirect, special, incidental, tort, economic or consequential damage or damages for negligence or any loss of profit, whether arising out of the use or inability to use the Tool, any outcome produced by the Tool or any reliance thereon, or otherwise. ESU does not warrant or represent that any outcome produced as a result of the use of the Tool is accurate, or will be the same as, or is indicative of the outcome of any official rating by ESU. You must not make any representation to third parties based on any outcome produced as a result of the use of the Tool, and no license is granted to the use or reproduction of any ESU or trade marks or those . ESU does not warrant that the Tool is free of computer viruses or other conditions that could damage or interfere with data, hardware or software with which it might be used. The Tool is made available on the strict condition that the user assumes all risk of use and absolves ESU administering the benchmarking rating of all responsibility for any consequence of its use.

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Address <http://new.esu.com.sg/register.php>

Registration

Create User ID

Password

Confirm Password

Title Please Choose

First Name

Last Name

Job Designation

Email Address

Company Name

Address

City

Country Please Choose

Postcode

Phone (optional)

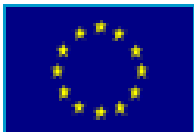
Would you like to receive E-newsletter from ESU-NUS regarding new developments of building energy efficiency and total building performance?

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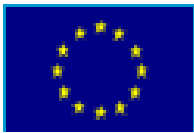
Home User Profile Contact ESU Useful Info Logout

My Facility	EUI (kWh/m ² /yr)	Percentile Rating (%)	Period Ending	Last Modification	Summary
URA Centre	1080.83	100	December 2001	2005-09-16 15:00:04	View

[Add New Facility](#)

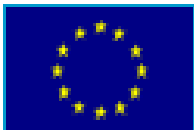
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*** Essential**

Building Characteristics

* Principle Building Activity

* Sub Building Activity

* Building Ownership

* Building Type

* Type of Major HVAC

* Gross Floor Area m²
(For the definition of gross floor area, click here)

* Floor Vacancy Rate of Office Area %

* General Operating Hours of Office Hours/Week

No. of Occupants During Typical Work Day

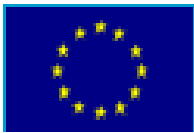
No. of PCs and Other Office Equipment
(e.g. copier, printer, fax machine)

Date of TOP
(Temporary Occupancy Permit)

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No. of PCs and Other Office Equipment
(e.g. copier, printer, fax machine)

Date of TOP
(Temporary Occupancy Permit) -- ----

Year of Last Major Renovation ---- On Please Choose

No. of Storey (Above Ground)

No. of Basement Floor

Space Distribution of Building

Gross Office Area	<input type="text"/> 0.00 m ²	---- <input type="text"/>	% of GFA		
Common Area	<input type="text"/> 0.00 m ²	---- <input type="text"/>	% of GFA	General Operating Hours	---- <input type="text"/> Hours/Week
Air Conditioned Area	<input type="text"/> 0.00 m ²	---- <input type="text"/>	% of GFA	General Operating Hours	---- <input type="text"/> Hours/Week
Gross Retail Area	<input type="text"/> 0.00 m ²	---- <input type="text"/>	% of GFA	General Operating Hours	---- <input type="text"/> Hours/Week
Data Centre Area	<input type="text"/> 0.00 m ²	---- <input type="text"/>	% of GFA	General Operating Hours	---- <input type="text"/> Hours/Week
Indoor Car Park Area	<input type="text"/> 0.00 m ²	---- <input type="text"/>	% of GFA	General Operating Hours	---- <input type="text"/> Hours/Week

General Operating Hours of Major Energy Consuming Systems

Air Conditioning ---- Hours/Week

Lighting ---- Hours/Week

Office Equipment ---- Hours/Week

Mechanical Ventilation
(e.g. MV in car park, plant room) ---- Hours/Week

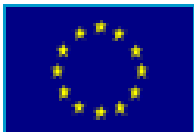
Lift & Escalator ---- Hours/Week

Next (click Next to save your information and proceed)

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Enter the annual energy consumption of your building for each fuel type used for the gross floor area.

*** Essential**

Energy Consumption Data

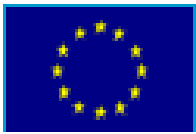
Fuel Type	Period Starting	Period Ending	Energy Consumption	Cost (Optional)	Power Demand (Optional)
* Electricity	Jan 2001	Dec 2001	466778 kWh/Year	0.00 S\$	0.00 kW
Gas	--	--	0.00 m ³ /Year	0.00 S\$	
Diesel	--	--	0.00 Liter/Year	0.00 S\$	
Purchased Cooling	--	--	0.00 kWh/Year	0.00 S\$	
Other	--	--	0.00 kWh/Year	0.00 S\$	

Submit (click Submit to save your information and see the summary and results)

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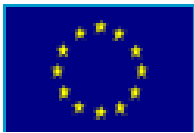


Energy Sustainability Unit - Summary and Results - Microsoft Internet Explorer

Address: <http://new.esu.com.sg/user/summary.php?enid=11>

Energy Usage Intensity (EUI) Summary		
Your Building	EUI	1080.83
Industrial Ave		220.49
Best Practice		103
Classes	EUI	Percentile Rating
Class A	<=177	0% to 25%
Class B	>177 and <=244	25% to 75%

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Energy Sustainability Unit - Summary and Results - Microsoft Internet Explorer

Address: <http://new.esu.com.sg/user/summary.php?enid=11>

0 50 100 150 200 250 300 350 400 450 500
EUI (kWh/m²/year)

Energy Usage Intensity (EUI) Summary

EUI	
Your Building	1080.83
Industrial Ave	220.49
Best Practice	103

Classes	EUI	Percentile Rating
Class A	<=177	0% to 25%
Class B	>177 and <=244	25% to 75%
Class C	>244	75% to 100%

Input Summary

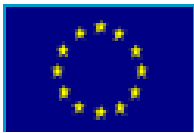
Building Name: URA Centre	Building Address: 45, Maxwell Road	Postcode: 069118
Principle Building Activity: Office	Sub Building Activity: General Office	Building Ownership: Sole Owner Occupied
Building Type: Public Sector	Type of Major HVAC: Central Air-Conditioned	Gross Floor Area: 43187.00
Floor Vacancy Rate of Office Area: 90%	General Operating Hours of Office Area: 30 Hours/Week	

Benchmarking Results

Your whole building EUI is **1080.83 kWh/m²/year** and the percentile rating is **100%**, which means that generally in Singapore about 100% of commercial office buildings have equal or better energy efficiency

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Energy Sustainability Unit - Summary and Results - Microsoft Internet Explorer

Address: <http://new.esu.com.sg/user/summary.php?enid=11>

Principle Building Activity: Office	Sub Building Activity: General Office	Building Ownership: Sole Owner Occupied
Building Type: Public Sector	Type of Major HVAC: Central Air-Conditioned	Gross Floor Area: 43187.00
Floor Vacancy Rate of Office Area: 90%	General Operating Hours of Office Area: 30 Hours/Week	

Benchmarking Results

Your whole building EUI is **1080.83 kWh/m²/year** and the percentile rating is **100%**, which means that generally in Singapore about 100% of commercial office buildings have equal or better energy efficiency than your building.

As a result, we evaluate your building energy performance at Class C. The energy saving retrofit is recommended for your building!

Application Notes

However, a low energy use does not necessarily mean your building is efficient and a high energy use does not always mean that it is inefficient. Many other factors need to be taken into account for an accurate evaluation, such as large number of computers, high floor vacancy rate, long operating hours, presence of special building use (e.g. large ratio of retail area), etc. In any event, there are probably cost effective energy-saving measures suitable for your building. Get an energy audit done by a qualified energy engineer (CEM), Accredited ESCOs or ESU-NUS to learn more about building energy performance and potential saving measures.

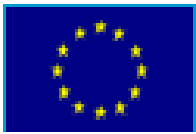
This tool is intended to be a starting point in assessing building energy usage and savings potential. It provides you with a direct comparison to other similar facilities, which can help you identify position of your facility, and to set energy use and efficiency targets.

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Singapore Weather Evaluation Report

Data Collection Methods

Terminology

Data Collection Forms

NEA Building Energy Label Program

Referenced Benchmarking Tools Links

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