

The status and potential issues of the Mandatory EE&C Building codes in Myanmar



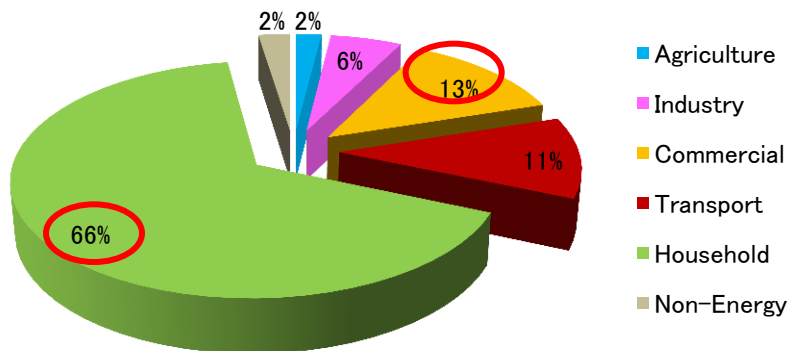
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Ministry of Industry (MOI)
Myanmar

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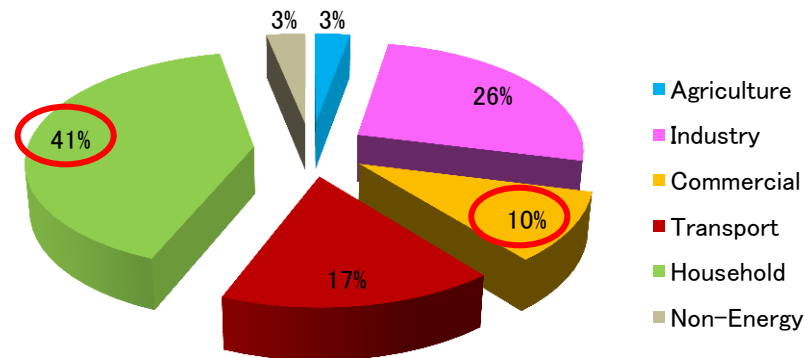
Energy Demand Projection By Sector

Consumption in 2012 (Mtoe)



12.7 Mtoe

Consumption in 2030 (Mtoe)



21.9 Mtoe

Source: Myanmar Energy Master Plan, MOEE

Current status & future plan related to EE&C Building Code

Current Status

- Developed EE&C Policy, Strategy and Roadmap including building sector
- Implementing Minimum Energy Performance Standard (MEPS) adoption for Air-con and Lighting
- Drafting EE&C Law
- Developing Energy Manager Course
- Published and instructed to comply Myanmar National Building Code (MNBC) 2016 (lead by MOC)

Future Plan

- Develop EE&C Guideline for Building
- Implement Standard and Labelling Program for equipment and home appliances
- Promote Renewable Energy technologies for buildings
- Conduct Energy Manager Training
- Conduct EE awareness campaign through media, Trainings, Seminars and workshops

Current Status and Future Plan

Sr. No.	Plan	2016-17			2017-18			2018-19			2019-20		
I	Establishment of EE&C Law and Regulations												
	- Data Collection (Total energy consumption per unit production or per unit area)												
	- Periodical Report Format for annual reporting system												
II	Standard and Labeling System												
	- Adopting Minimum Energy Performance Standard for Air-con												
	- Adopting Minimum Energy Performance Standard for Lighting												
III	Energy Manager Training												
	- Developing Energy Manager Course												
	- Certification system and accreditation body												
	Conducting Energy Manager Training												
IV	EE Building Guideline (Commercial and Public)												
V	Conducting EE awareness campaign												
VI	Promoting Renewable Energy technologies for buildings												

EE Policy Targets

(baseline demand in 2012)

<i>Sector</i>	<i>Weighted Average Saving Potential (%)</i>	<i>Achievable Target by 2020 (%)</i>	<i>EE Policy Target – 2020 (%)</i>	<i>Achievable Target by 2025 (%)</i>	<i>EE Policy Target – 2025 (%)</i>	<i>Achievable Target by 2030 (%)</i>	<i>EE Policy Target – 2030 (%)</i>
<i>Industry</i>	8.84%	40	3.54	60	5.31	75	6.63
<i>Commercial / Public</i>	4.97%	40	1.99	60	2.98	80	3.98
<i>Residential</i>	9.70%	55	5.36	70	6.82	80	7.80
<i>Other</i>	1.7%	40	0.68	60	1.02	80	1.36
<i>Total</i>	25.26%		11.7		16.1		19.77
<i>EE Policy Targets</i>			12		16		20

EE Activities (9) – Commercial Sector

Strategic Objectives		Activities	
#	Objective	#	Description
1	Energy Efficiency is incorporated in new building design and refurbishment of existing buildings	1	Establishment of an Energy Efficiency Building Code
		2	Capacity building of architects/engineers in EE building design
2	Energy Efficiency technologies are implemented in the Commercial sector	1	Prepare Energy Efficiency Guidelines for Commercial Buildings
		2	Training in the conduct of detailed energy audits
		3	Provide financial incentives for implementation of EE measures
		4	Support local manufacture of EE equipment
3	Renewable Energy technologies are promoted in the Commercial sector	1	Promotion of Solar Water Heating systems in hotels and buildings
		2	Promotion of PV systems for supplementing on-grid supply
4	The awareness of EE and capacity building amongst key stakeholders is increased	1	Increase awareness of technology best practices in the region

EE Activities (9) – Residential Sector

Strategic Objectives		Activities	
#	Objective	#	Description
1	Household energy costs are reduced through energy performance standards for appliances	1	Introduce EE performance standards and labeling for appliances
		2	Testing and certification facilities for appliances
		3	Introduction of incentives for EE equipment
		4	Phasing out of inefficient appliances from the market
		5	Promote efficient biomass cook stoves
2	Increased used of LPG is adopted by urban households	1	Increase consumer awareness of benefits in LPG for cooking
		2	Introduce EE labeling scheme for LPG cook stoves
3	Awareness of EE technologies are increased in the residential sector	1	Conduct of regular EE awareness campaigns in national media
		2	Training programs targeting educational institutions

EE Activities (5) – Public Sector

Strategic Objectives		Activities	
#	Objective	#	Description
1	Use of EE technologies in public buildings are increased and overall energy costs are reduced	1	Implementation of energy audit program for public buildings
		2	Adoption of standard procurement guidelines for equipment
2	The awareness of EE is increased amongst public sector employees	1	Introduction of a Public Sector Energy Management Program
		2	Prepare Energy Efficiency Guidelines for public buildings
3	Capacity building of maintenance staff in EE&C is increased	1	Conduct organized training for maintenance staff

Draft Outline of EE&C Law of Building Sector

	Commercial sector	Residential sector
EE on business activities , etc.	<p><u>To business operator in commercial sector:</u></p> <ul style="list-style-type: none"> - EC Guideline - Reduction efforts of energy intensity by 1% in annual average in mid-long term [Specified business operators(Energy intensive)] (e.g 1GWh/yr, 10000m²/yr) - Appoint Energy Managers - Periodical report - Med-long term plans 	<p><u>To residential constructor:</u></p> <ul style="list-style-type: none"> - EC Guideline on design [Specified business operator] (e.g. 100 house/yr) -EC Guideline on design [Specified building size] (e.g. ≥ 500 m²)
EC on products, etc.	<p><u>To manufacturer , importer & retailer of appliance and building materials:</u> →</p> <ul style="list-style-type: none"> -Standard (MEPS) -Labeling 	<p>Leading to EE&C in Building sectors</p>

Myanmar National Building Code (MNBC)



- **Technical Working Group**
- Ministry of Constriction (Leader)
- Myanmar Engineering Society (MES) ,
- Association of Myanmar Architects (AMA),
- International experts and concerned ministries and organizations
- is established with **7 Sectors**:
 - 1. Planning, Environment, Administration and Legislation**
 - 2. Architecture and Urban Design**
 - 3. Structural Design**
 - 4. Soil and Foundation**
 - 5. Building Services**
 - 6. Building Materials**
 - 7. Construction Practices and Safety**



National Consultation Workshop on Myanmar National Building Code (MNBC) on 5th Oct 2016

Myanmar National Building Code (MNBC) Cont:

Scope

The provisions of this code shall apply to the **construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition** of every building or structure or any appurtenances connected or attached to such buildings or structures

• Relevant Law

- Urban & Regional Planning Law
- respective City Development Committee Laws
- local, state/region or union law
- land bylaws of the regional authorities

Naypyitaw City Development Committee – NCDC
Yangon City Development Committee - YCDC
Mandalay City Development Committee – MCDC
Township Development Committees in other Towns

PERMIT AND INSPECTION

- ✦ Building Construction Permit
- ✦ Fencing Construction Permit
- ✦ Building Demolition Permit
- ✦ Building Major Repair Permit
- ✦ Building Minor Repair Permit
- ✦ Building Completion Certificate (BCC)

Myanmar National Building Code (MNBC) Cont:

Sector 2 : Architecture and Urban Design

- Use and Occupancy Classification
- Architectural Requirements and Special Detailed Requirements
Based On Use and Occupancy
- General Building Heights and Areas
- Special Buildings and Construction
- Interior Environment
- Means of Egress
- Accessibility
- Exterior Walls
- Roof Construction, Roof Covering and Roof Top Structures
- Regulations for Historical Buildings
- Urban Design and Environment
- Architecture for Energy Efficiency and Green
- Regulations for Existing Buildings and Structures

Myanmar National Building Code (MNBC) Cont:

Use and Occupancy Classification

- a) Group A: Assembly (A1 to A5)
- b) Group B: Business
- c) Group E: Educational
- d) Group F: Factory and Industrial (F1 & F2)
- e) Group H: Hazardous
- f) Group I: Institutional (I1 to I5)
- g) Group M: Mercantile
- h) Group R: Residential (R1 to R6)
- i) Group S: Storage (S1 & S2)
- j) Group U: Utility and Miscellaneous (U1 to U3)



Review on Myanmar National Building Code 2016

- ▶ **Architecture for energy efficiency and green (100,000 sq-ft or more)**
 - ▶ It is described the requirements for EE and green building.
 - ▶ This section is optional section under Architecture and Urban Design.
 - ▶ It will be later directed for compliance by the Authority .
- ▶ **Building Materials Standard** are temporarily referring to the **ASTM** and **IS** in this Myanmar National Building Code during preparation of the National Standards and Specifications by cooperating Ministry of Construction and Ministry of Education
- ▶ EE related instructions is not included as mandatory.
- ▶ Envelop Thermal Transfer Value, Roof Thermal Transfer Value, Natural Light usage, and so on is not specified.
- ▶ Need to develop EE guideline for building

Barriers and Countermeasures

Barriers

- No regulations related to EE Buildings
- scarcity of qualified trainer for Energy Manager and Energy Auditor Training
- Market share of Energy inefficient Appliance is big.
- limited Budget

Countermeasures

- Encourage EE&C laws and regulations development rapidly and carefully step by step under the guidance of experts not only in technology aspect but also in legislation processes
- Training for Trainers of Energy Manager Training
- Cooperate among concerned ministries and organizations for implementation on Standard and Labelling Program
- Formulate financial mechanism

Request of support by ECCJ and SE4All

- To assist for preparing EE Building Guideline
- To provide On-Job Training for Building Energy Management System and Training for Trainers of Energy Managers
- To share EE Technology for building
- To support technical assistance on implementation of Standard & Labeling system for Machinery, equipment and home appliances

Your kind suggestions, comments and cooperation
are welcome.

Thank you!

