Draft Report

# "FTA for Enabling Readiness for Up Scaling Investments in Building Energy Efficiency for Achieving NDC Goals in Thailand"

# Deliverable 2.1 : Overview of Instituional Arrangement for enforcing BEC

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## Overview of Institutional Arrangement for Enforcing BEC:

Under the Energy Conservation Promotion Act (ECP Act) of Thailand, Building Energy Code (BEC) was established for large commercial buildings in 1995. It is **a mandatory prescriptive code** to improve the energy performance of **large buildings in commercial sector**. The code sets the minimum energy performances of the three main systems of building envelope, lighting,air conditioning systems, hot water system and renewable energy systems. A number of promotion and supportive voluntarily measures were formulated in the EEDP and AEDP to support the BEC in enhancing energy performance of large buildings. Currently, the BEC is not fully enforced due to **resource constraints**, **lacking of institution capacity and management.**

### Actors in Building Energy Sector:

There are various governmental and private entities responsible for enforcing BEC mandatorily in the country. **The Department of Energy Development and Efficiency (DEDE)** under the **Ministry of Energy (MoEN)** acts as a regulator and is responsible for implementing, supervising and regulating policies and provisions to designated consumers and buildings.

The code enforcement process is defined as follows:

DEDE has developed the handbook, training program and toolkit for BEC. Any engineer/architects can apply for the training program and receive the status of certified engineer for checking compliance to BEC standard.

The building designer appointed by the owner, share the design and calculation intent for the building with the **certified engineer,** who checks the compliance of the design intent with that of BEC and shares a certificate with the owner if the building complies to the code. The owner is now responsible for sharing the design, calculation and certificates with **local authority** under the **Ministry of Interior (MoI)** to get the approval for building construction.

The local authority only approves for building construction if a compliance certificate with BEC from a certified engineer is attached. Once the building is constructed, again a certificate is required from certified engineer to check if the building is constructed as per the design intent. The certified engineer shares a new certificate with owner if the compliance is met. The owner now shares the new certificate with the local authority to get the approval for occupancy of the building.

The process flow is as explained below.

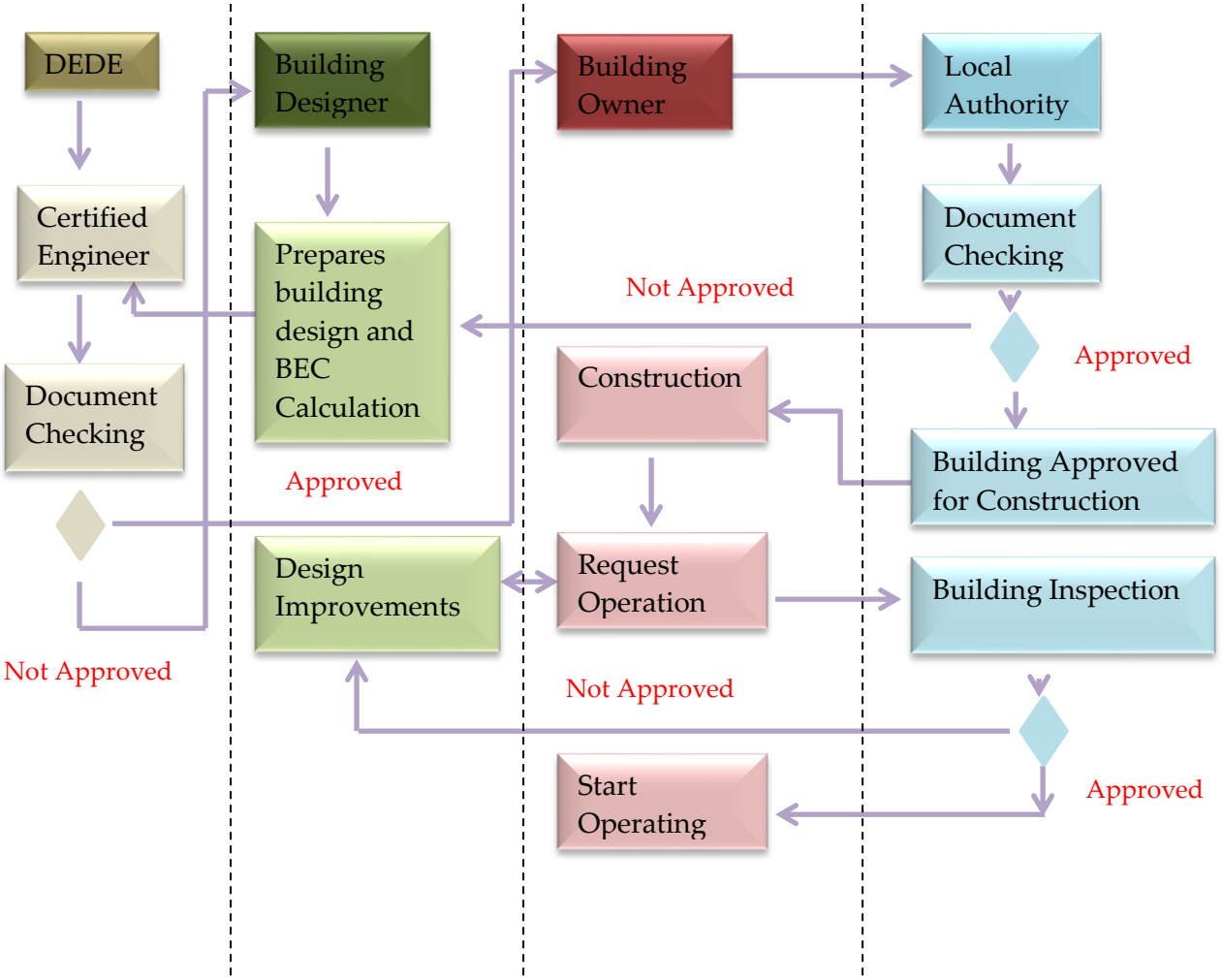


**Figure 1 Enforcement of BEC**

## Barriers to implementation BEC in Thailand's Building Sector:

Barriers to implementation of BEC are as mentioned:

1. DEDE is the regulatory body for enforcing BEC, however building approvals are not part of DEDE mandate
2. The revised BEC specifies all buildings >2000m$^2$ to comply with the minimum requirement of the code, however, local authorities only check compliance for building with area > 10,000 m$^2$
3. Local authorities are not aware of the requirement of the code
4. BEC is yet not made part of local building bye-laws and exist only on voluntary basis.
5. There is not enough capacity available with local authority to check compliance with BEC
6. There is no sinlge authority responsible for giving approvals therefore confusing building developers and owners and discourages them to comply with code.

TERI has a Sustainable Building (SB) Group which has vast experience in the building sector for providing green design assistance to design teams at conceptual stage of projects. CRSBS offer services for enhancing the design of buildings and selection of climate responsive building materials. These interventions optimize the building systems through resource efficiency and reduced operational costs, ultimately improving the environmental footprint of the building. SB group of TERI also conducts building energy audits and recommends retrofit measures for improvement of energy efficiency in existing buildings. TERI has also helped develop an indigenous rating for green buildings called GRIHA, (Green Rating for Integrated Habitat Assessment), which has been adopted by the Ministry of New and Renewable Energy, and supported as a national rating system for India. This rating covers new constructions, large developments and existing buildings. Over the years, SB has contributed to formulation of enabling policies, norms and standards, and providing technical support for implementation of the various codes and standards at the national and sub national levels. Presently, TERI is supporting a number of State governments in the implementation of Energy Conservation Building Code (ECBC) through handholding and amendments in their building bye laws.

Apart from consultancy SB also conducts regular training programs for green buildings, energy conservation & energy efficiency, and sustainable habitats.SB has a dedicated team of professionals from varied backgrounds such as architecture, electrical and mechanical engineering, environmental & energy. It has pan India presence with established offices at Delhi, Mumbai and Bangalore.

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