

# Implementation Strategy of BEC in Pakistan



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# Why Building Energy Code

## Burgeoning urban construction sprawl

- Single glazing, leakages and no insulation
- Little knowledge for energy efficient planning
- Almost no skills for the implementation of the necessary construction techniques
- Bad management and consumption patterns
- Appropriate technology inaccessible

# Target and focus

- Energy demand in the building sector to grow
- No option but to catch the EE/EC full potential
- On the national level
  - policy framework, standards, labels and directives
- On city level
  - local energy planning, bylaws and master plan design
- On building level – planning and management
- On institutional level
  - capacity building, information and training

# Hybrid of Prescriptive and Performance based Codes

- Prescriptive ...easy to follow simple to enforce through software applications for each component (roof, walls, doors, windows)  
Development of checklist mechanism
- Performance based allows for holistic innovations with trade off among different components
- Steering Committee to oversee review & improve

# Energy use in buildings

- heating
  - cooling
  - hot water
  - cooking
  - lightning
  - technical appliances
- > all need to be assessed within a holistic approach

# Building System

# Compliance Options

Envelope

HVAC

Lighting

Electric Eqpt & Systems

Service Hot Water and Pumping

**Mandatory Provisions**  
(required for most compliance options)

**Prescriptive Option**

**Trade Off Option**

**Whole Building Performance**

**Energy Code Compliance**

# A well thought-out public awareness campaign through Media

- Public awareness program
- Building Regulators capacity buildup
- Energy efficiency training...ESCOs
- Education modules for different target groups
- Behavior change in the target groups through suitable incentivisation

# ESCOs

- ❑ ESCOs to help steer the private market
- ❑ ESCOs to have suitable electrical, mechanical, air-conditioning/engineering capacity
- ❑ Promotion and support to such ESCOs now a priority

Regulatory agencies capacity enhancement for implementation through partnership with such ESCOs

# Mandatory BEC incorporation in all Public sector approvals

- All Government buildings to be retrofitted for compliance in phases
- All new buildings to be BEC compliant
- This public sector lead to boost capacity in private sector and provide needed demonstration

# From Voluntary to Mandatory

- BEC Implementation on voluntary basis to begin with.
- Mandatory compliance to follow appropriate development of suppliers market
- Voluntary phase with massive incentives to lead towards the development of such good quality suppliers market e.g. for installers, fixers etc.

# Carrots

- Waiving off on Custom duties on Import of Energy efficient building material
- Awards to Contractors to encourage the healthier competition between Contractors
- Awards and certificates to best professional architect and building construction facilitators
- Tax exemptions to Building owners whose buildings are in compliance
- Govts to rent only those buildings which are BEC compliant

# Carrots

- Special loans and subsidies to be provided by the Govt. on soft basis through banking arrangements so that retrofitting expenditures to be borne through loans which can be returned on installment basis
- Government to lead through demonstration for new buildings, which are fully compliant with BEC.

# Sticks

- Once the Code implementation becomes mandatory, the utility suppliers i.e. WAPDA, KESC, SNGPL, SSGPL to refuse the load demanded for non compliant buildings
- In second step Existing buildings to be revised and assign them a min. value above which they to pay penalty moving towards prescriptive enforcement
- They will be forced to make min. compliance of BEC

# Energy Passports regime

- After BEC Implementation all buildings have to provide its energy usage pattern
- On basis of info provided each building to be provided with *Energy passport* giving information about the building, operation and use
- For newly constructed Buildings a min. ref. value to be assigned according to occupancy area.

# CDM and Green Potential

- Apart from this each building reduction in  $\text{Kwh}_e/\text{day}$  gives enormous reduction in  $\text{CO}_2$  through less dependence on electrical energy that is mostly fossil based
- Pay back period for such an activity being very attractive soft subsidies can be provided to each building to reduce their 70% energy load to transform into a greener one

# Instruments to tap the EE Potentials

- Website for SOPs Standards Documentations/checklist etc.
- Encouraging demand for energy efficiency products
- Improvement and widespread use of consulting firms for outsourcing both monitoring and compliance help.
- Special Diploma Programmes for Human resource for its implementation (Evaluation & monitoring modules)

# Challenges Perceived

- Complexity of Stake Holders
- Governmental organizations
- Architects, engineers
- Facility managers
- Construction workers
- Construction industry
- Developers
- Non governmental organizations
- Universities

# Challenges Perceived

- Complexity of stake holders and market lacking transparency
- Consultancy culture lacking quality, confidence and know-how
- high transaction costs
- competition of crafts and technology instead of systems approach

# Goal of a successful BEC

Successful Code would infuse in

All users (public, private, industry) the

Need to value and the readiness to pay for their energy

use inculcating suitable know how to reduce the

consumption