Locking in Energy Savings through Building Codes

CESC Webinar: Locking in Energy Savings through Building Codes
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Introduction: Building energy codes in the Building Efficiency Accelerator (BEA)

Playbook for cities:
- Assess: resources and information, drivers, benefits and potential barriers, and stakeholders
- Develop: scope, locally-appropriate code, implementation plan, policy, capacity for implementation
- Implement: energy saving actions, celebrate success with stakeholders
- Improve: review and evaluate implementation, impacts and potential, analyze evaluation results to assess next steps

Conclusions
Stage I: Assess resources and information
Step 1. Collect existing resources and information

- Many countries have building energy codes, which simplifies process for cities
  - Difficult to develop a city code from scratch
- Other resources to check:
  - Permit forms and procedures
  - Training materials
  - Software tools
- This step can be quick, but is also a real time-saver
Step 2. Understand drivers, benefits and potential barriers

Benefits of a building energy code:
- New skilled jobs
- Cleaner air
- Improved energy security and resilience

Barriers for adopting and implementing building energy codes:
- Lack of capacity to review building plans and inspect buildings
- Cost or perceived cost of the energy efficiency measures
- Perceived risk of changes in construction techniques
- Lack of understanding of the code

Example: Energy Conservation in Buildings Code 2017 has minimum lighting requirements that are 15% more efficient than the previous code.
Building energy codes involve many stakeholders

- National and regional offices can help
- Local stakeholders are key to success (code officials, developers, owners, suppliers, utilities, etc.)

Many countries have resources available to help cities and local stakeholders

The code should reflect local needs, which makes implementation easier

- Also important to share information on the code in order to build implementation capacity

Additional resource: https://cleanenergysolutions.org/training/adopting-implementating-building-energy-codes
Stage II: Develop
Building energy codes are usually adopted as mandatory requirements
- May start with certain types of buildings, but this also limits savings

The main reason for limiting the scope is to build capacity and acceptance over time

Clarify timetable for expanding the scope so the market understands the intent, and accepts the code as a mandatory requirement for buildings covered
Step 5. Develop or adapt locally-appropriate code

- Countries typically develop building energy codes at the national level
  - Very few cities develop codes from scratch

- When the local government has jurisdiction to adopt the code:
  - Engage local stakeholders to ensure that the provisions meet local needs
  - Seek opportunities to exceed the national code to help devise future standards
  - Identify specific measures that may be hard to implement initially
  - Hold hearings on the code to collect feedback on specific proposals

- Softening requirements may slow adoption of energy efficiency technologies or approaches
Step 6. Develop implementation plan

- Implementation plan provides clarity to all stakeholders and demonstrates seriousness of intent.

- Three key questions to ask in developing an implementation plan:
  - What steps are needed to integrate code compliance into the permitting process?
    - Forms, instructions, and guidance
    - Capacity building for code officials and stakeholders
  - Who will conduct plan reviews and inspections?
    - Government officials or private third-parties
  - What kinds of incentives and penalties will help ensure success with compliance?
    - Largest incentive is the permission to build
    - Relaxed zoning requirements
Details of adoption process can vary by jurisdiction. Typically determined by overarching construction laws. In many cases, cities adopt the national code to bring it into force.

Example of city-level adoption: City Council or Mayor’s office:
- Seeks feedback from knowledgeable agency or technical review committee
- Releases a public notice of intent with information on the code
- Interacts with stakeholders and collects feedback
- Sets an effective date for the new code
Step 8. Building capacity for implementation

- Capacity building needs to be aligned with the planned implementation framework
  - Consider near-term and long-term needs

- Capacity building tips:
  - Assess available resources and identify gaps
  - Prioritize code officials, building designers and construction companies
  - Organize train-the-trainer programs for maximum outreach
  - Hold the trainings after the code is finalized but BEFORE it enters into force

- Training and capacity building will take time
  - …but they are critical to achieving the desired results in energy efficiency

Example:
Codes 101 Training in India
Stage III: Implement
Step 9. Implement energy saving actions

- Two stages of compliance checks
  - Plan review and construction inspection

- Human capacity
  - Local code officials or certified third-parties under the supervision of local government offices

- Useful tools
  - Compliance check software and checklists

- Compliance checks could be viewed as a learning opportunity in the early stages and more punitive in later years.

<table>
<thead>
<tr>
<th>Plan Review</th>
<th>Construction Inspection</th>
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<tbody>
<tr>
<td>• Review of construction documents and building plans</td>
<td>• Inspection of the building and its systems during construction</td>
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<tr>
<td>• Review of products, materials, and equipment specifications</td>
<td>• Evaluation of materials substituted in the field</td>
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<tr>
<td>• Review product listings</td>
<td>• Inspection immediately prior to occupancy.</td>
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<tr>
<td>• Review of tests and certification reports (if applicable)</td>
<td>(Source: BECP 2010)</td>
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<td>• Review of supporting calculations</td>
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Step 10. Celebrate success with stakeholders

- Communicate with stakeholders and the public on the progress and benefits of building energy codes
- Make efforts to collect and maintain data on code compliance
- Other options for sharing success:
  - Publish implementation status report periodically
  - Develop case studies highlighting success stories and innovations
  - Develop building energy efficiency awards recognizing leaders in energy code implementation
Stage IV: Improve
Step 11. Review and evaluate implementation and impacts

Compliance evaluation benefits:
- Ensures the code achieves its intended savings
- Builds trust and market confidence among stakeholders
- Instills confidence in the market
- Identifies potential improvement areas

Compliance evaluation options:
- Reviewing permit database
- Conducting periodic compliance surveys during construction
- Leveraging other energy efficiency evaluations
- Conducting stakeholder surveys

Bogota Example
Bogota has set up a working group to determine how it will assess progress with its code implementation. The group reviewed existing data and is working through possible evaluation approaches. The city has a robust database of newly constructed buildings and building occupancy.
Step 12. Analyze evaluation results to assess next steps

- Evaluation can help improve local building energy code programs
  - Identify training needs or other ways to improve capacity
  - Highlight where to strengthen compliance

- Assess options for future code:
  - Provisions that are easily met and can be strengthened
  - Areas where the code may need greater clarity
Conclusions

► Building energy codes can lock in significant energy savings

► Important to develop a comprehensive strategy to integrate code development, adoption, implementation, and evaluation

► Stakeholders are critical to success