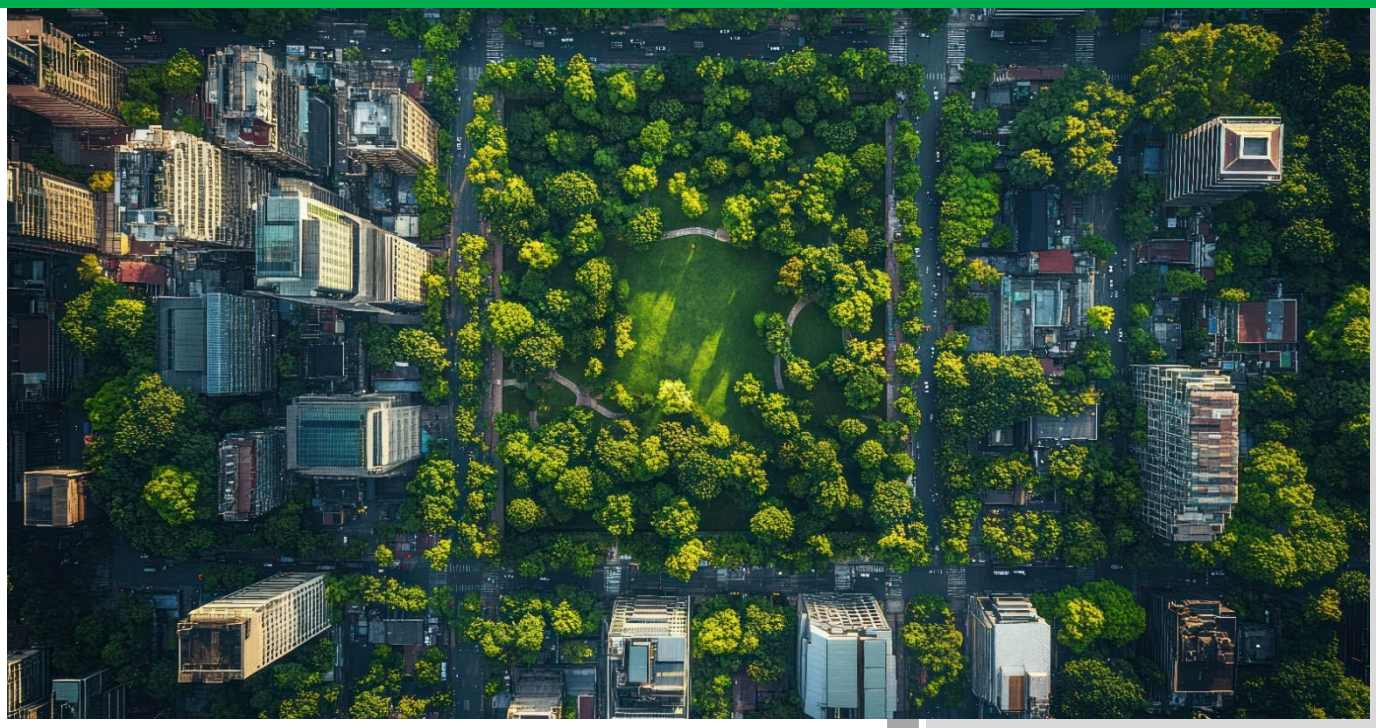
Alliance for an Energy Efficient Economy

Towards Harmonised Green Building Framework in India

Roles, Mandates and Opportunities



1. Introduction and background

India's building sector is a critical and rapidly expanding driver of energy demand, necessitating a robust regulatory framework to ensure energy efficiency and long-term sustainability. The **Energy Conservation Act, 2001** (EC Act), together with its amendments - **the Energy Conservation (Amendment) Act, 2010** and **the Energy Conservation (Amendment) Act, 2022,** provide the statutory foundation for energy governance in India. The Act establishes the **Bureau of Energy Efficiency (BEE) under Section 3** and assigns it the principal mandate of developing policies, standards, and codes to promote the efficient use of energy across sectors, including the built environment.

BEE has operationalised this mandate through the **Energy Conservation and Sustainable Building Code (ECSBC)**, which sets minimum performance standards for commercial buildings and **Eco Niwas Samhita (ENS)** for residential buildings. In parallel, the broader green building ecosystem in India is significantly shaped by voluntary rating systems such as IGBC, GRIHA, LEED, and EDGE, etc. which extend well beyond energy efficiency into multi-criteria sustainability frameworks covering water, materials, ecology, and occupant well-being.

The coexistence of statutory building codes alongside voluntary certification and rating systems presents an opportunity to further examine aspects such as BEE's role and mandate in relation to rating methodologies, the coherence of incentive structures, and the alignment between certification outcomes and actual building energy performance. This concept note seeks to explore these dimensions in a balanced and systematic manner, with reference to the relevant provisions of the EC Act and its subsequent amendments.

2. BEE's authority for enforcement of building energy codes (ECSBC and ENS)

BEE is empowered under **Sections 13(2) clause (a) and clause (d)** of the EC Act to recommend energy efficiency policies, develop norms and standards, and formulate Energy Conservation Building Codes (ECBC/ECSBC). The Central Government is separately authorized under **Sections 14(p) and 14(q)** to prescribe and amend such codes, including **performance-based compliance mechanisms** such as the **Energy Performance Index (EPI)** pathway introduced under ECBC 2017.

Enforcement authority does not lie directly with BEE. **Section 15** assigns **implementation and compliance responsibility to State Governments** and their Designated Agencies. BEE's role is therefore confined to technical standard-setting, capacity building, and policy guidance, **not direct regulatory enforcement.**

This bifurcation between standard-setting and enforcement creates institutional dependencies and significant variability in code adoption across states, several of which have yet to formally notify or adopt ECBC provisions within their building bye-laws. The decentralized architecture also makes monitoring of compliance outcomes challenging at the national level. The **EC Amendment Act, 2022** provides authority to BEE to expand the scope of building codes to include **'sustainability'** and **other green building requirements** potentially broadening the coverage of mandatory standards **though enforcement mechanisms remain structured at the state level and the Act does not alter BEE's enforcement standing.**

3. BEE's role in green building rating systems and their enforcement

The **EC Act does not explicitly empower BEE to develop, accredit, or enforce green building rating framework**. Rating systems such as IGBC and GRIHA operate independently as **voluntary, market-driven, multi-criteria** frameworks managed by non-governmental or semi-governmental bodies, covering sustainability domains well beyond energy efficiency including water management, materials and embodied carbon, site ecology, indoor environmental quality, waste management, and occupant well-being. These domains span the regulatory remit of multiple ministries including MoHUA, MoEFCC, and BIS, placing them beyond BEE's singular institutional jurisdiction.

Importantly, however, BEE is empowered to develop, prescribe (through the Central Government), and periodically amend the national building energy codes. These codes increasingly incorporate elements of **renewable energy integration, building envelope performance, and other green building requirements particularly under the 2022 amendment** thereby embedding key sustainability principles within a statutory framework, even if comprehensive multi-criteria certification remains outside BEE's direct mandate.

Since enforcement under **Section 15** applies exclusively to statutory requirements (ECBC/ECSBC), **BEE has no legal authority to mandate or enforce compliance with voluntary rating systems**. Buildings may achieve high sustainability ratings without adhering to statutory energy performance standards and vice versa.

This structural disconnect has significant policy implications. While only a few states promote building code compliance through regulatory integration and procedural benefits, green building rating systems often offer tangible financial and structural incentives from state government agencies that are capitalized by the developers. This creates a skewed incentive landscape, encouraging developers to pursue rating system certification rather than prioritizing compliance with building energy codes in India.

4. Comparative assessment: Energy codes and green building rating systems

A key distinction between statutory codes and voluntary rating systems lies in how energy performance is weighted relative to other sustainability parameters. Table 1 provides a comparative overview:

Table 1: Priority Weightage Comparison Across Building Energy Codes and Rating Systems

Priority (Weightage) Comparison					
Codes/Rating System	**Code/ Rating**	**Energy**	**Water**	**Materials**	**Other (IEQ, Waste, Innovation, etc.)**
Building Energy Codes	ECBC 2017	Very High (95-100%)	None (0%)	None (0%)	Very Low (0-5%)
	ECSBC 2024	High (50-60%)	Low-Moderate (10-15%)	Low (5-10%)	Moderate (15-20%)
Green Rating Systems	GRIHA	High (30-35%)	Moderate-High (15-20%)	Moderate (10-15%)	Moderate - distributed (~30%)
	IGBC	Moderate (20-25%)	Low-Moderate (10-15%)	Low-Moderate (10-15%)	High (35-45%)
	EDGE	Equal (33%)	Equal (33%)	Equal (33%)	None (0%)

Statutory codes such as ECBC 2017 are primarily energy-centric, while the latest ECSBC 2024 places greater emphasis on broader sustainability parameters other than energy as well. In contrast, green building rating systems allocate nearly 65–80% of their total points to non-energy categories, with energy performance accounting for only around 20–35% of the overall score. This divergence becomes consequential when rating certifications are used as proxies for energy performance in incentive frameworks or national policy reporting.

Further, varying weightages assigned to energy across codes and rating systems may create challenges in establishing equivalency between different compliance and certification levels, such as ECSBC compliance, silver/gold/platinum or 3/4/5-star ratings, as these benchmarks may represent substantially different performance priorities and outcomes.

5. Critical review of point-based rating methodology and weightage allocation

The dominant methodology across green rating systems relies on a point-based additive framework. While this approach offers breadth, it presents four structural concerns:

5.1 Disproportionate weighting relative to energy impact: Building envelope performance which fundamentally determines cooling demand, HVAC sizing, and lifecycle energy use may receive lower weightage comparable to categories such as wastewater management or landscaping, despite far greater long-term energy implications.

5.2 Score optimization over performance optimization: The flexibility to substitute credits across categories enables projects to compensate for weaker performance in high-impact areas (envelope, HVAC) through lower-effort credits in water, site planning, or documentation. Certification outcomes may thus diverge from actual building energy performance.

5.3 Absence of mandatory thresholds for non-substitutable parameters: Passive design features, envelope thermal performance, glazing specifications, and shading have long-term, non-substitutable impacts on operational energy demand. Treating these as tradable categories rather than mandatory minimums poses a critical gap in green building performance alignment.

5.4 Misalignment with India's cooling priorities: In India's climate context characterised by rapidly rising cooling demand and peak electricity stress, envelope efficiency and passive thermal performance are especially critical. A broadly distributed point structure can dilute focus from these high-priority parameters, particularly in hot climatic zones.

Any harmonised framework should adopt a hybrid approach that combines **mandatory minimum performance thresholds** for high-impact parameters (such as envelope U-values, EPI, and cooling efficiency) with **clear performance-based criteria based on actual building operations**. This includes metrics like **annual energy use (kWh/m²/year), peak demand reduction, and renewable energy share**, verified through at least one year of post-occupancy data.

To improve clarity and usability, these may be organised into **tiered performance levels (e.g., EPI bands or star ratings)** that signal different levels of achievement. Alongside this, **weighted sustainability credits** can be retained for broader environmental aspects - but calibrated to measurable impact. This approach reduces score optimisation and ensures that certification is firmly anchored in real-world performance rather than design intent alone.

6. Emerging approach toward operational performance disclosure and EPI-based data collection

An emerging policy direction under BEE's building energy harmonisation framework contemplates requiring large commercial buildings above a specified threshold area (20,000 m²) to demonstrate mandatory ECSBC compliance at the design stage, while also disclosing post-occupancy operational energy performance through Energy Performance Index (EPI) reporting.

It is understood that the purpose of such disclosure is not limited to determining whether a building continues to remain ECSBC-compliant after occupancy, but also to establish a national repository of measured operational performance data. This would help enable better understanding of the actual building energy use patterns, develop benchmarks across building typologies and climatic zones, and support evidence-based policy refinement over time. Such an approach would also help address the long-recognised gap between predicted and actual building energy consumption.

While Section 13(2) clause (d) empowers BEE to take suitable steps to prescribe guidelines for the ECSBC under clause (p) of Section 14, the extent to which BEE can mandate post-occupancy operational data collection from private buildings without additional subordinate legislation, rules, or state-level notification remains an area requiring legal and administrative clarity. The EC Act primarily establishes BEE's authority in relation to code development, standards, and designated consumers, but does not explicitly create a comprehensive nationwide operational disclosure regime for buildings outside notified regulatory mechanisms.

An important feature of the proposed approach is that operational performance validation need not be restricted solely to BEE-administered mechanisms. Performance disclosure and verification could potentially be undertaken through existing certification/rating systems, provided reporting methodologies can be standardised and made comparable. The primary policy intent is to enable reliable national building performance levels rather than establishing another compliance certification pathway.

Several implementation challenges may arise in operational performance disclosure frameworks:

• Operational stabilisation period: Newly occupied buildings may require significant time to achieve stable occupancy and operational patterns. Energy performance during early years may not accurately reflect long-term building efficiency.

• Occupancy variability: EPI values are heavily influenced by occupancy density, operational schedules, tenant behaviour, plug loads, and maintenance practices, making direct comparison across buildings difficult **without reasonably robust normalization methodologies.**

• Jurisdictional and enforcement limitations: Since enforcement responsibility under Section 15 lies with State Governments and Designated Agencies, implementation of operational disclosure requirements may vary considerably across states unless supported through harmonised notification mechanisms.

• Risk of misinterpretation of EPI data: Operational EPI values can reflect both building design efficiency and operational behaviour. Without contextual interpretation, poor operational management may incorrectly be attributed to deficiencies in code compliance or building design itself.

A carefully designed disclosure framework with phased implementation, normalization methodologies, and clear distinction between design compliance and operational benchmarking would therefore be essential to ensure that performance disclosure supports evidence-based policymaking without creating regulatory ambiguity.

7. BEE's authority to design or recommend financial incentives

BEE's authority on financial incentives is explicitly advisory and enabling in character. Under Sections **13(k) and 13(l),** BEE may recommend policies and programmes to promote energy efficiency, which can include suggesting incentive mechanisms for code adoption and implementation. **Section 13(m)** further enables BEE to provide financial assistance to institutions for promoting efficient use of energy and its conservation indicating a limited but direct enabling role in capacity-building and pilot initiatives.

The EC Act does not grant BEE authority to design, notify, or implement fiscal incentives for building compliance. Incentives such as property tax rebates, additional FAR, or expedited approvals fall within the jurisdiction of State Governments and Urban Local Bodies. This decentralized incentive architecture has produced non-uniform incentive structures nationally, with eligibility criteria often tied to voluntary rating certifications rather than to verifiable, measurable energy performance metrics. This misalignment between incentive triggers and statutory compliance benchmarks can weaken ECBC/ECSBC uptake by making certification a more visible and rewarded pathway than code adherence. It may also enable buildings to access incentives through rating scores without commensurate improvements in energy performance, undermining the policy intent. **BEE's most effective role lies in developing model incentive guidelines within its advisory mandate for voluntary adoption by states, with incentive thresholds explicitly tied to demonstrable energy performance benchmarks rather than certification categories or star ratings alone.**

8. Conclusions

BEE occupies a well-defined but bounded statutory role in India's building energy governance. Its authority is strongest in energy code development, but enforcement is decentralized to states, and its mandate does not extend to mandating voluntary rating systems, designing fiscal incentives, or prescribing national green building certification frameworks.

The coexistence of statutory codes and voluntary rating systems without structured performance alignment represents a significant governance gap enabled by divergence in methodologies, weightages, and incentive structures. In particular, the relatively lower emphasis on energy performance within several rating systems can create inconsistencies when such certifications are used as proxies for building energy performance or linked to public incentives.

Any future harmonisation framework should therefore be clear on mandatory minimum energy performance requirements under statutory codes and green ratings. A balanced approach may involve defining mandatory high-impact thresholds related to energy performance and operational carbon emissions - areas that fall within BEE’s statutory ambit - while continuing to preserve the autonomy of green rating systems to address wider sustainability priorities, innovation pathways, and regional adaptation.

The emerging focus on operational performance disclosure and EPI-based benchmarking also marks an important transition toward evidence-based policymaking and real-world performance assessment. However, effective implementation would require robust institutional arrangements, normalization methodologies, and potentially additional legal or regulatory mechanisms to enable reliable operational data reporting, interpretation, and comparability across buildings and climatic contexts.

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