ENERGY EFFICIENCY: A KEY TO SUSTAINABLE GROWTH

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WHY ENERGY EFFICIENCY MATTERS NOW

Energy efficiency (EE) has re-emerged as a central pillar of development strategy at a time when energy demand, fiscal pressures, and climate risks are converging. The report positions EE not as a peripheral technical measure, but as a core economic resource capable of delivering growth, resilience, and energy security simultaneously. Unlike supply-side investments, EE reduces system stress while enhancing productivity across households, industry, and public services.

Globally, nearly two-thirds of primary energy is wasted, largely due to inefficiencies in production, conversion, transmission, and end-use. This inefficiency represents an annual economic loss exceeding US$4.5 trillion, or roughly 5% of global GDP. For Low & Middle Income Countries (LMICs), these losses directly constrain fiscal space, worsen balance of payments pressures, and lock economies into high-cost energy pathways

The development challenge is intensifying. Energy demand in LICs and MICs is projected to rise by nearly 30% over the next decade, driven by industrialization, urbanization, cooling needs, and digital infrastructure such as data centers. Without aggressive EE deployment, this demand growth will require massive new supply investments that many countries cannot afford.

Energy efficiency directly supports multiple national objectives: reducing energy import dependence, lowering consumer bills, easing infrastructure bottlenecks, and mitigating local air pollution. Importantly, EE delivers these benefits faster and at lower cost than new generation capacity, making it especially valuable during periods of economic or geopolitical stress.

DRIVERS OF ENERGY EFFICIENCY

One of the report's strongest arguments is the macroeconomic case for EE. Every US$1 invested in energy efficiency yields US$3–5 in economic returns, through reduced fuel imports, avoided generation capacity, lower subsidies, and higher productivity. Few public investments demonstrate such consistently high benefit-cost ratios across diverse national contexts.

Energy security considerations further elevate EE's importance. Countries highly dependent on imported fuels, such as Turkey or many South Asian economies can significantly reduce exposure to global price volatility by cutting demand. During recent energy crises, EE measures proved faster to deploy than new supply, cushioning both households and industry.

Employment effects are another compelling driver. Energy efficiency is labor-intensive, creating 2–3 times more jobs per dollar invested than fossil fuel energy and more than renewable generation alone. Jobs span construction, manufacturing, installation, maintenance, and energy services, making EE an inclusive growth strategy.

Finally, EE plays a decisive role in climate and air-quality outcomes. By reducing energy waste, EE delivers up to 50% of required emissions reductions by 2030 in net-zero pathways, while also cutting particulate pollution that causes millions of premature deaths annually in countries such as India, China, and Bangladesh.

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WHY ENERGY EFFICIENCY HAS FALLEN SHORT

Market Failure

high transaction costs

Perception

lack enforcement

Despite its advantages, energy efficiency has consistently failed to scale. The report identifies EE as a classic case of market failure, where economically rational investments do not occur due to structural barriers. These include information asymmetry, split incentives between owners and users, limited access to finance, and distorted energy prices.

EE projects are typically small, dispersed, and heterogeneous. This leads to high transaction costs relative to project size—covering audits, design, procurement, financing, and verification. In many LICs and MICs, these costs make EE unattractive to both commercial banks and private developers.

Institutional fragmentation further undermines scale. EE often falls between ministries—energy, housing, industry, finance—without a clear institutional owner. As a result, policies exist on paper but lack enforcement, budgets, or implementation capacity.

Perception is another major barrier. EE is frequently viewed as incremental or “non-transformational” compared to power plants or transmission lines. This bias is reflected in climate plans: while nearly 90% of NDCs emphasize renewables, only about half explicitly prioritize energy efficiency.

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GLOBAL PERFORMANCE AND INVESTMENT GAPS

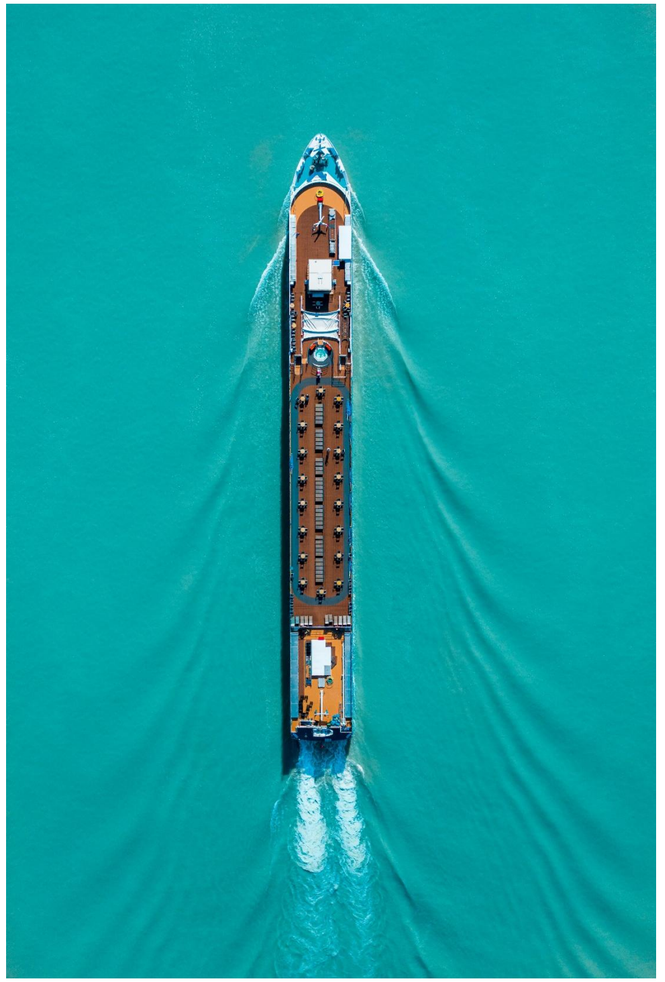
Energy efficiency progress is uneven across regions. High-income countries continue to lead EE scorecards, supported by strong regulation, enforcement, and financing ecosystems.

However, several MICs including India, Brazil, China, Poland, and Türkiye—have made notable regulatory advances, demonstrating that progress is possible at different income levels.

Despite policy improvements, global EE improvement rates remain far below required levels. Current annual gains of ~1–2% fall short of the 4% per year needed by 2030 to align with net-zero pathways. Even if all announced pledges are met, the world remains off track.

Between 2019 and 2023, EE investment in LICs and MICs stagnated at around US$10 billion annually, while renewable generation investment increased by more than 140%. This imbalance risks locking countries into oversized, expensive power systems.

Closing the gap requires tripling global EE investment to US$1.8–1.9 trillion per year by 2030, with the majority directed toward emerging and developing economies.



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BUILDING AN ENERGY EFFICIENCY ECOSYSTEM

A programmatic approach allows countries to move from pilots to national coverage through sequenced phases. Early stages focus on demonstrations, capacity building, and public-sector leadership. Later stages emphasize sustainable financing mechanisms and private-sector participation.

Technology trends strengthen the case for scale. Advances in heat pumps, LED lighting, digital building management systems, and near-zero-energy construction enable countries to leapfrog inefficient technologies rather than lock them in.

Institutional capacity is critical. Dedicated EE agencies or units with stable funding and authority are a recurring success factor across countries that have achieved scale.

Crucially, concessional finance plays a catalytic role, especially in LICs and MICs with high capital costs, by lowering risk, extending tenors, and enabling investments with longer payback periods but higher system-wide benefits.

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PROGRAMMATIC FRAMEWORK TO SCALE UP ENERGY EFFICIENCY BY SECTOR

	PUBLIC	RESIDENTIAL	INDUSTRY
STAGE 1 *Pilots with technical assistance*	• Pilot investments with government units to demonstrate EE and develop institutional capacities	• Pilot investments with grants to demonstrate EE and catalyze supply chain markets	• Public support for audits, financing for energy intensive facilities and SMEs • Pilots to develop case studies • Energy management systems help build databases
STAGE 2 *Sustainable financing mechanisms*	• Sustainable financing mechanisms to demonstrate financial viability • New business models (e.g., ESCOs)	• Sustainable financing mechanisms with phased down grants • Public financing to focus on low-income households	• Scale up commercial financing for industrial EE, introduce benchmarking • Expand to include industrial decarbonization
STAGE 3 *National programs with commercial financing*	• National-level programs with commercial financing • Mainstreamed business models to expand markets	• Scale up local financing and market capacities • Strengthened regulations and processes to lower transaction costs	• Mainstream commercial financing • Strengthen regulatory enforcement and market-based mechanisms

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LEAP FRAMEWORK AND ROLES OF KEY ACTORS

To operationalize scale, the World Bank proposes the LEAP framework in four parts:

- ✓ Leverage,
- ✓ Empowerment
- ✓ Advocacy
- ✓ Programmatic engagement.

Programmatic engagement emphasizes long-term partnerships across governments, MDBs, donors, and the private sector, aligned around National EE roadmaps rather than fragmented projects.

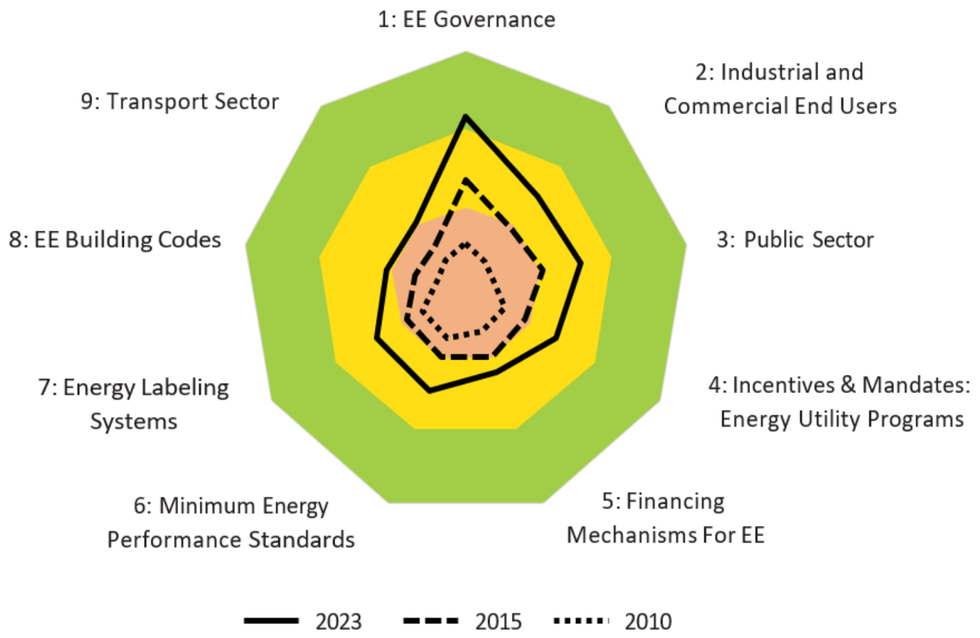
Each participants like Governments, MDBs, Donors, and Private Firms should have a clearly defined role in this coordinated effort.

CONCLUSION

Conclusion is that the technical, economic, and institutional foundations for scaling energy efficiency are already well understood. What is missing is political prioritization and sustained resource mobilization.

Energy efficiency offers a rare convergence of objectives: faster growth, lower costs, improved energy security, better health outcomes, and climate mitigation. Few policy tools deliver such broad benefits at such low cost.

It is essential to meeting development goals without unsustainable debt or environmental damage. Delaying action will only increase future system costs and lock in inefficiencies.



The World Bank Group commits to deepening its programmatic engagement, expanding knowledge platforms, and leveraging private finance to help countries move from pilots to national EE programs.

The call to action is clear: turn plans into implementation, treat energy efficiency as core infrastructure, and unlock the ability to truly power more with less.

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