Leveraging Financial Mechanisms for Increasing Investment in Energy Efficiency

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1. Energy Efficiency in Sustainable Development Goals
2. Investment & Savings Potential of Energy Efficiency
3. Challenges & Risks to Growing Investment
4. Financing Mechanisms
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Goal 7: ensure access to affordable, reliable, sustainable, and modern energy for all

**Target 7.3**
Double the global rate of improvement in energy efficiency by 2030

**Target 7.a**
Enhance international cooperation on clean energy and energy efficiency technology

**Target 7.b**
Increase supply of energy services in developing countries
Energy Efficiency and the SDGs
Energy Efficiency and the SDGs
Achieving Net Zero by 2050

(Source: IEA, Energy Efficiency 2021)
$1.4 \text{ tn}

Expected clean energy investment in 2022

(Source: IEA, Energy Efficiency 2021)
Energy Savings Potential

1,500 TWh
Savings from energy efficiency standards across nine largest countries, 2018

3,500 TWh
Potential savings if all countries implement similar standards
Energy Savings Potential

20-30% Potential energy savings from standard building retrofits

75%+ Potential energy savings from deep building retrofits
Defining Energy Efficiency Investment

**Pure: energy efficiency services market**
- Energy efficiency companies (ESCOs)
- Energy efficiency service utilities
- Energy efficiency in capacity markets

**Quasi-Pure: energy efficiency goods**
- LED lighting, insulation, building energy management systems, net-zero energy buildings

**Incremental: new and replacement capital stock**
- Good manufacturers: vehicles, appliances, motors
- Design and construction of building to or above code

**Systemic: productivity improvements**
- Public transport investments
- District energy co-generation
- Supply chain optimization

(G20 Energy Efficiency Finance Task Group, 2017)
Challenges & Risks to Growing Investment
High upfront costs and long payback periods
Lack of access to financing & Competing investment priorities
High perceived risk & Lack of trust in new technology
Lack of knowledge and awareness
Split incentives
Price of energy
Small project scale & Lack of recognized asset class
# Challenges

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
<th>Mitigation(s)</th>
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<tbody>
<tr>
<td>Split Incentives</td>
<td>One of the more complicated challenges to energy efficiency is that of split incentives, wherein the entity responsible for implementing efficiency upgrades is not the one responsible for utility payments or other costs. This is common in the residential and commercial real estate sectors, where tenants are often responsible for utility payments, but capital projects remain the responsibility of the property owner. In this case neither entity has the incentive to invest in energy efficiency projects. This challenge is pervasive globally as rental arrangements make up a large portion of building occupancy around the world.</td>
<td>Programs that benefit building owners beyond reduction in utility bills, such as green mortgages and demonstration of higher rent potential, higher occupancy rates, and increase in property value. Energy-as-a-Service models that incentivize a third-party entity to maintain maximum system performance and energy efficiency (see Section 5. Financing Mechanisms)</td>
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## Project Risk Types

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<tr>
<th>Performance Risk</th>
<th>Credit Risk</th>
<th>Financial Risk</th>
<th>Regulatory Risk</th>
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<tr>
<td>Project, product or service will not perform as intended</td>
<td>Borrower's failure to repay a loan or financial contract</td>
<td>Ability to manage debt and fulfill obligations</td>
<td>Changes in regulation and legislation governing a project</td>
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Financing Mechanisms
Financing Mechanisms

- Established Mechanisms: 6
- Emerging Mechanisms: 10
- Investment models: 3
Energy Efficiency Mortgages

- Preferential financial conditions mortgages linked to energy efficient buildings

- Buildings designed and constructed or retrofitted to high energy efficiency standards

- Lenders recognize the verified energy savings, combine project cost into existing mortgage & improve mortgage conditions
Property Assessed Clean Energy (PACE)

- Enables investment in energy efficiency & distributed renewable energy to be repaid through property tax
- Asset-based financing system enables owners to sell property without carrying over the debt
- Required engagement and policy implementation with local government
- De-risks investment by tying payment to property taxes as a “senior lien”
Energy Savings Insurance

• Novel risk reduction mechanism that insures energy cost savings against non-performance

• Project owner is assured that promised financial savings will be realized

• Incentivizes project developers to be accurate in their estimates and project execution

• Increasing overall financial certainty of the project, improving FI’s willingness to lend and paving the path toward securitization of debt

• Useful for encouraging energy efficiency projects among SMEs
Advanced Market Commitments

• “Demand-pull” mechanism to encourage development of new technologies and services through agreement to purchase

• Highly effective in products and services with positive externalities not reflected in customer demand alone

• Works best when technology development has clear milestones, challenges, strong R&D base, and a healthy competitive environment providing multiple venues to success

• Governments with large purchasing power can encourage private sector to take on the risk of developing new technologies, leveraging private market capital and fostering healthy competition
Conclusion
Abundant Co-Benefits of Energy Efficiency

Increase Value
25-77% rent premium for LEED-certified buildings; reduction in mortgage defaults, tenant turnover, vacancy rates

Energy Resilience
Reducing demand allows resilience measures to go further

Macro-Economic
Increasing disposable income, poverty alleviation, air pollution, etc.

(Barkhausen, Hirzel & Durand, 2021)
Engaging Stakeholders

- Policy Makers
- Regulators
- Standardization Bodies
- Public & Private Financial Institutions
- Insurance Companies
- ESCOs
- Utilities
- Individual End Users (owners, renters)
Addressing The Entire Energy Trilemma
Thank You