Financing urban energy efficiency

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Annual Energy Intensity Improvements (between 2010-2030)

Source: IEA, WB, *Global Tracking Framework 2015*
Current Policies Scenario - cumulative additional investment of $4.8 trillion are needed from 2014-2030 (or $280 billion per year, on average). Investment in EE is anticipated to increase more than fourfold from today to 2030 in the central scenario, but needs to increase a further 60% in 2030 to stay within a two degrees trajectory.

Source: IEA, WB, *Global Tracking Framework 2015*
## Investment Gap

### Table 1. Annual global investment—actual and required ($ billion)

<table>
<thead>
<tr>
<th>Annual investment</th>
<th>Universal access to modern energy services</th>
<th>Universal access to modern energy services</th>
<th>Doubling the global rate of improvement in energy efficiency</th>
<th>Doubling the share of renewable energy in the global mix&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Electrification</td>
<td>Cooking</td>
<td>Energy efficiency</td>
<td>Renewable energy</td>
<td></td>
</tr>
<tr>
<td>Actual for 2012&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9</td>
<td>0.1</td>
<td>130</td>
<td>258</td>
<td>397</td>
</tr>
<tr>
<td>Required to 2030&lt;sup&gt;c&lt;/sup&gt;</td>
<td>45</td>
<td>4.4</td>
<td>560</td>
<td>442–650</td>
<td>1,051–1259</td>
</tr>
<tr>
<td>Gap</td>
<td>36</td>
<td>4.3</td>
<td>430</td>
<td>184–392</td>
<td>654–862</td>
</tr>
</tbody>
</table>

Source: IEA, WB, *Global Tracking Framework 2015*
Who will fill this gap?
Roles and capacity of public and private finance

- No shortage of investment capital
- Limited public/climate funds
- Private capital is key
EE Financing Mechanisms

Market Maturity

Commercial Financing

Advanced commercial or project financing (ESCOs)

Vendor credit, leasing

Commercial financing, bonds

Partial risk guarantees

Credit line with commercial bank(s)

Credit line with municipal (development) bank

Public ESCOs (Super ESCOs)

EE Funds (Revolving)

Utility financing (DSM)

MOF financing w/ budget capture

Budget financing, grants w/ co-financing

Grants

Factors Determining Choice of Mechanism

- Country/city context
- End-use sector
- Maturity of financial markets
- Legislative/regulatory framework
Typical Structure of EE Fund

Funding Sources
- Donor agencies (IFIs)
- Government budget allocations
- Tariff levy on electricity sales
- Petroleum taxes
- Revenue bonds

Energy Efficiency Revolving Fund

Public Agency

Energy Efficiency Projects

Energy Service Providers

EE Funds - Examples

- Bulgaria Energy Efficiency Fund
- Romania Energy Efficiency Fund
- Armenia Renewable Energy and Energy Efficiency Fund
- Thailand - Energy Conservation Fund (ENCON)
- Korea – Korea Energy Management Fund
- India – State Energy Conservation Funds
- Sri Lanka – Sustainable Energy Fund
- China - National incentive fund based on coal savings
- South Africa – Central Energy Fund
- Create interest on the part of commercial banks in financing EE projects
- Enhance technical capacity of banks to scale up EE lending
- Leverage parallel financing from the participating banks for EE financing
- Strengthen the participating bank’s capacity in identifying and managing project risks
- Assist banks in exploring business opportunities in other low carbon lending businesses.

## EE Credit Line - World Bank Examples

<table>
<thead>
<tr>
<th>Country</th>
<th>Launch year</th>
<th>Close year</th>
<th>Number of PFIs</th>
<th>Is the line specific to energy efficiency?</th>
<th>Target sector</th>
<th>World Bank financing (US$ millions)</th>
<th>Cofinancing (US$ millions)</th>
<th>Cofinancing (percentage of World Bank financing)</th>
<th>Total financing (US$ millions)</th>
<th>Disbursement rate (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>2008</td>
<td>2013</td>
<td>2</td>
<td>Y</td>
<td>Large and medium industry</td>
<td>200</td>
<td>200</td>
<td>100</td>
<td>400</td>
<td>89</td>
</tr>
<tr>
<td>China</td>
<td>2010</td>
<td>2014</td>
<td>1</td>
<td>Y</td>
<td>Large and medium industry</td>
<td>100</td>
<td>500</td>
<td>500</td>
<td>600</td>
<td>20</td>
</tr>
<tr>
<td>China</td>
<td>2012</td>
<td>2016</td>
<td>1</td>
<td>Y</td>
<td>Industry, buildings, SMEs and ESCOs</td>
<td>100</td>
<td>200</td>
<td>200</td>
<td>300</td>
<td>0</td>
</tr>
<tr>
<td>China</td>
<td>2011</td>
<td>2016</td>
<td>3</td>
<td>Y</td>
<td>Industrial</td>
<td>133</td>
<td>134</td>
<td>101</td>
<td>267</td>
<td>11</td>
</tr>
<tr>
<td>China</td>
<td>2012</td>
<td>2018</td>
<td>2</td>
<td>Y</td>
<td>Buildings</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td>Tunisia</td>
<td>2009</td>
<td>2014</td>
<td>2</td>
<td>Y</td>
<td>Industrial</td>
<td>40</td>
<td>80</td>
<td>200</td>
<td>120</td>
<td>18</td>
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<tr>
<td>Turkey</td>
<td>2009</td>
<td>2014</td>
<td>2</td>
<td>N</td>
<td>Industrial</td>
<td>600</td>
<td>550</td>
<td>92</td>
<td>1150</td>
<td>100</td>
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<tr>
<td>Turkey</td>
<td>2012</td>
<td>2016</td>
<td>2</td>
<td>N</td>
<td>Industrial</td>
<td>500</td>
<td>150</td>
<td>30</td>
<td>650</td>
<td>44</td>
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<tr>
<td>Ukraine</td>
<td>2011</td>
<td>2016</td>
<td>1</td>
<td>Y</td>
<td>Industrial, commercial and municipal</td>
<td>200</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>32</td>
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<tr>
<td>Uzbekistan</td>
<td>2010</td>
<td>2016</td>
<td>2</td>
<td>Y</td>
<td>Industrial</td>
<td>24</td>
<td>4.8</td>
<td>20</td>
<td>28.8</td>
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<tr>
<td>Turkey</td>
<td>2013</td>
<td>2018</td>
<td>3</td>
<td>N</td>
<td>Energy-intensive SME subsectors</td>
<td>201</td>
<td>50.25</td>
<td>25</td>
<td>251.25</td>
<td>7</td>
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<tr>
<td>Uzbekistan</td>
<td>2013</td>
<td>2016</td>
<td>3</td>
<td>Y</td>
<td>Industrial</td>
<td>99</td>
<td>43</td>
<td>43</td>
<td>142</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: Limaye 2013.
Note: PFIs = participating financial institution; SME = small and medium-size enterprise; ESCO = energy service company.

a. Excludes financing from end users.

India PRSF for Energy Efficiency
(World Bank, approved 2015)

Partial Risk Sharing Facility
GEF $12 M + CTF $25 M

Technical Assistance
(GEF $6 M)

Risk Sharing Facility

EESL

SIDBI

Independent M&V Agency

Lenders - Participating Financial Institutions (PFIs)

Energy Service Companies (ESCOs)

Host Entity (Municipalities, Large Industries, MSMEs, and Commercial Buildings)

Access to Risk Sharing

Monitoring & Verification

Participants in Energy Efficiency Lending under PRSF

Source: Ashok Sarkar, World Bank
THANK YOU