Enabling Policies to Support Industrial Energy Productivity in the GCC

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Energy productivity is about maximizing economic value and welfare for society...

- Labor
- Financial capital
- Physical capital
- Energy

Economic activities and outputs

- Buildings
- Industry
- Transport
- Power & water

Strategic use of oil:
- Export
- Domestic use

Maximizing value created from energy use

Energy efficiency

Energy productivity

Social and environmental benefits

Source: KAPSARC
GCC countries could extract more value out of their industrial energy consumption
Strong transition towards services will also help lift energy productivity...

Composition of Value Added by Sector 2014

Source: UNSTAT
Providing an evidence base for target setting and.....

*Economy scale indicators:*
*Economy aggregate energy productivity: GDP / (cost of domestic energy production + earnings from exports – cost of energy exports)*

*Sectoral scale indicators:*
*Sector value add / (cost of energy consumed or purchased by the sector)*

*Subsectoral scale indicators:*
*Sub-sector value add / (cost of energy consumed by the sub sector)*

*Unit specific energy consumption:*
*Plant energy consumption / (physical units produced)*

Source: Adapted from IEA energy indicators pyramid
Data gathering to enable benchmarking performance is an important first step...

Notes: *GCC benchmarks sample needs to be expanded
EAF: Electric Arc Furnace BOF: Basic Oxygen Furnace

Sources: UNIDO 2010 and UNESCWA
IHS Industrial database
Energy management systems at the organisation level and a centralised energy efficiency benchmarking platform at the industry level

Energy Performance Indicators (EnPIs) for each process/sub process

Anonymised aggregated cluster indicators on CEEDR sourced from EnPIs from EIMAS

Centralised Energy Efficiency Data Repository

- Government
- CEEDR
- Designated Consumers
- EIMAS
- Energy Auditors

- Offline Reports in Standard Formats
- Sectoral Benchmarking
- EE Target Setting
- Reports in Excel File
- Updated EnPI
- Energy Audit Reports in Excel File

KAPSARC
## Industrial energy efficiency policy pathways

<table>
<thead>
<tr>
<th>Five Phases</th>
<th>Ten Steps</th>
<th>Twenty Actions</th>
<th>Five Tools</th>
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</thead>
<tbody>
<tr>
<td><strong>Policy Definition</strong></td>
<td>1. Formulate industrial EP regulations in legislative framework</td>
<td>- Analyze legislative framework and regulatory drivers</td>
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<td></td>
<td>1. GAP analysis</td>
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<td>2. SEC norms</td>
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<tr>
<td><strong>Program Planning</strong></td>
<td>2. Define program role in policy framework</td>
<td>- Analyze policy framework and industrial context</td>
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<td></td>
<td>- Define Energy Management System (EnMS)</td>
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<td>4. Establish Action Plans and mobilize resources</td>
<td>- Establish Management</td>
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<td>- Information Systems (MIS)</td>
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<td></td>
<td>- Create Action Plan</td>
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<td>- Secure resources</td>
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<td><strong>Program Implementation</strong></td>
<td>5. Provide Institutional support</td>
<td>- Conduct energy audits; ESCOs performance contracts</td>
<td>4. Energy audit tools &amp; practices</td>
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<td>- Develop training strategy: institutional and human capacity</td>
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<td>- Follow-up with companies and assist in implementation</td>
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<td><strong>Monitoring &amp; Evaluation</strong></td>
<td>6. Establish M&amp;E protocols</td>
<td>- Establish verifiable indicators and data sources</td>
<td>5. Benchmarking</td>
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<td>- Meter &amp; sub-meter facilities</td>
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<td>- Establish baselines</td>
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<td>7. Assess compliance</td>
<td>- Use transparent &amp; predefined criteria</td>
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<td>- Establish rewards or penalty mechanisms</td>
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<td>8. Evaluate program</td>
<td>- Define evaluation objectives</td>
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<td>- Select evaluation approach and indicators</td>
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<td><strong>Reporting</strong></td>
<td>9. Promote program</td>
<td>- Address challenges and failures</td>
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<td>10. Revise and adapt prog.</td>
<td>- Adjust program design and consider up-scaling</td>
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Saudi Arabia’s INDC identifies two potential pathways for development

INDC Target:
130 million tCO₂-e by 2030
“Only possible” under scenario 1

- **Scenario 1:** High energy productivity
  - Oil allocated for export
  - Energy export revenue and investment into energy efficiency, RE, and high value services

- **Scenario 2:** Low energy productivity
  - Oil used domestically
  - Accelerated industrialization based on low cost abundant energy resources
Thank you and further information

Project research publications

Energy Productivity in the GCC: Evidence From an International Kuznets Curve Analysis
Marzio Galeotti, Nicholas Howarth and Alessandro Lanza

Investing for Energy Productivity in the GCC: Financing the Transition
Kankana Dubey, Steven Fawkes, Nicholas Howarth, Moncef Krarti and Srinivasan Padmanabhan

Evaluating building energy efficiency investment options for Saudi Arabia
Kankana Dubey, Nicholas Howarth and Moncef Krarti

Publications available at www.kapsarc.org

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ANNEX
Energy productivity policy presents a coherent agenda for both economic productivity and the environment.
Without a change in policies, GCC countries will remain on a low energy productivity growth path.

Energy productivity Kuznets Curves for GCC and Selected Advanced Countries