Arab Future Energy Index (AFEX)

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2. Regional Energy Overview
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What is AFEX?

- AFEX is the first Arab index dedicated to monitoring and analyzing sustainable energy competitiveness in the Arab region (20 countries) and offers both quantitative and qualitative analysis on key renewable energy and energy efficiency markets.

- Based on 28 indictors covering four categories

- Launched in 2013 (3rd publication)

<table>
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<th>AFEX – Renewable Energy</th>
<th>AFEX – Energy Efficiency</th>
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<tr>
<td>Institutional Capacity</td>
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<tr>
<td>Finance and Investment Climate</td>
<td>Utility</td>
</tr>
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</table>
Why AFEX?

- Assess RE & EE progress and Status
- Track regional implementation of SDG 7
- Monitor NEEAPs and NREAPs measures and targets
- Identify possible intervention areas
- Assess Sustainable energy investment climate
- Learn from countries’ success stories

RCREEE
Regional Energy Overview
Primary Energy Consumption
Per Capita Primary Energy Consumption, Electricity Consumption and GDP
CO2 Emissions

1.98 Gt CO₂
average growth 5.32%/year

1.04 Gt CO₂

Average growth 3.43%/year
Pre-tax Subsidies

$168 Billion

$92 Billion
(28% World Subsidies)

2013

2015

68%
32%

- Oil exporting countries
- Oil importing countries
Energy Subsidy Reforms 2016

11 Countries in 2017
6 Countries in 2014
Residential Electricity Prices

- Syria: 0.53
- Iraq: 0.90
- Saudi Arabia: 1.33
- Bahrain: 1.59
- Libya: 1.63
- Kuwait: 1.65
- Qatar: 2.20
- Oman: 2.60
- Algeria: 3.34
- Sudan: 3.66
- Yemen: 4.04
- Lebanon: 4.57
- Egypt: 4.81
- UAE: 8.03
- Jordan: 9.18
- Mauritania: 9.86
- Tunisia: 10.80
- Morocco: 11.57
- Palestine: 13.58
- Djibouti: 26.12

Implied subsidy:
- Based on 500 kWh average monthly consumption
- 96%
- 93%
- 90%
- 88%
- 88%
- 88%
- 84%
- 81%
- 75%
- 73%
- 70%
- 66%
- 65%
- 41%
- 32%
- 27%
- Benchmark: 20%
### Industrial Electricity Prices

<table>
<thead>
<tr>
<th>Country</th>
<th>Price (US cents per kWh)</th>
<th>Implied subsidy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudan</td>
<td>2.89</td>
<td>82%</td>
</tr>
<tr>
<td>Kuwait</td>
<td>3.30</td>
<td>80%</td>
</tr>
<tr>
<td>Libya</td>
<td>3.42</td>
<td>79%</td>
</tr>
<tr>
<td>Qatar</td>
<td>3.57</td>
<td>78%</td>
</tr>
<tr>
<td>Algeria</td>
<td>3.90</td>
<td>76%</td>
</tr>
<tr>
<td>Oman</td>
<td>4.16</td>
<td>74%</td>
</tr>
<tr>
<td>Iraq</td>
<td>4.19</td>
<td>74%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>4.79</td>
<td>71%</td>
</tr>
<tr>
<td>Bahrain</td>
<td>4.91</td>
<td>70%</td>
</tr>
<tr>
<td>Egypt</td>
<td>6.14</td>
<td>62%</td>
</tr>
<tr>
<td><strong>Tunisia</strong></td>
<td><strong>6.87</strong></td>
<td><strong>58%</strong></td>
</tr>
<tr>
<td>Lebanon</td>
<td>7.96</td>
<td>51%</td>
</tr>
<tr>
<td>UAE</td>
<td>10.75</td>
<td>34%</td>
</tr>
<tr>
<td>Palestine</td>
<td>11.64</td>
<td>29%</td>
</tr>
<tr>
<td>Mauritania</td>
<td>12.84</td>
<td>21%</td>
</tr>
<tr>
<td>Jordan</td>
<td>13.32</td>
<td>18%</td>
</tr>
<tr>
<td>Yemen</td>
<td>13.95</td>
<td>14%</td>
</tr>
<tr>
<td>Syria</td>
<td>14.39</td>
<td>12%</td>
</tr>
<tr>
<td>Morocco</td>
<td>16.29</td>
<td><strong>Benchmark</strong></td>
</tr>
<tr>
<td>Djibouti</td>
<td>26.12</td>
<td></td>
</tr>
</tbody>
</table>

Based on 30,000 kWh average monthly consumption.
Diesel Prices (USD/Liter)
Policy Framework
NEEAPs

- Implementing 2nd NEEAP (3)
- Preparing 2nd NEEAP (2)
- Implementing 1st NEEAP (10)
- 1st NEEAP still a draft (2)
- Preparing first NEEAP (2)
- No NEEAP (1)
## Tunisia EE targets

<table>
<thead>
<tr>
<th>Sector</th>
<th>Target</th>
<th>Target year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building</strong></td>
<td>49% or 8Mtoe</td>
<td>2020</td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td>26% or 4.4 Mtoe</td>
<td>2020</td>
</tr>
<tr>
<td><strong>Transport</strong></td>
<td>25% or 4.1 Mtoe</td>
<td>2020</td>
</tr>
</tbody>
</table>
Tunisia EE Policies


For industrial establishments with annual energy consumption exceeding 800 toe
- Mandatory and periodic energy audits
- Mandatory dedicated energy manager
- Mandatory energy reporting system every year

For establishments belonging to the residential, transport and tertiary sectors whose total projected energy consumption exceeds 500 toe
- Mandatory energy audits

For new industrial projects or expansion of existing industrial facilities whose total projected energy consumption exceeds 7,000 toe
- Prior authorization from the ministry in charge of energy

The sale of incandescent light bulbs with power superior or equal to 100 Watt and voltage superior or equal to 100 Volt is banned
## MEPS and Labeling

<table>
<thead>
<tr>
<th>MEPS</th>
<th>Comparative Labeling</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="19" alt="Air conditioner" /></td>
<td>9</td>
</tr>
<tr>
<td><img src="19" alt="Refrigerator" /></td>
<td>4</td>
</tr>
<tr>
<td><img src="19" alt="Light bulb" /></td>
<td>7</td>
</tr>
<tr>
<td><img src="19" alt="Washing machine" /></td>
<td>2</td>
</tr>
</tbody>
</table>
Tunisia Energy Efficiency funds and incentives

**Energy Transition Fund (FTE) previously FNME**

- Subsidy to energy audit (70%)
- Subsidy to EE projects (20%)
- Cogeneration (20%)
- Subsidy to gas switch
- Investment subsidy to SWH (~ 35 €/m²) within PROSOL mechanism that includes loan paid through the electricity bill

**Exemption from VAT tax and reduction of customs duty to for EE equipment**
Institutional Capacity
EE Agencies and Units

EE Department at the Ministry of Energy and Mineral Resources

Planning and Studies Office

Sustainable Energy Unit

Conservation and Energy Efficiency

UAE Department
Generation efficiency
Transmission and distribution losses

- Tunisia
Country Specific Results (Tunisia)

- Energy Subsidies
- Transmission & Distribution Losses
- Power Generation Efficiency
- Implementation Capacity
- Financial Incentives
- Regulatory Framework
- Energy Planning
- Electricity Price Structure

Country

Regional average (2017)
AFEX Energy Efficiency 2017 Results

- Tunisia: 71%
- Jordan: 70%
- Morocco: 69%
- UAE: 63%
- Palestine: 61%
- Egypt: 57%
- Lebanon: 52%
- Algeria: 51%
- Bahrain: 50%
- Saudi Arabia: 50%
- Syria: 50%
- Qatar: 45%
- Djibouti: 38%
- Kuwait: 37%
- Sudan: 35%
- Mauritania: 34%
- Yemen: 27%
- Oman: 26%
- Iraq: 24%
- Libya: 18%
Thank you!