



**UN-ESCWA**

UNITED NATIONS - Economic and Social Commission for Western Asia



# Activities and Policies on Energy Efficiency And Renewable Energies in the ESCWA Region

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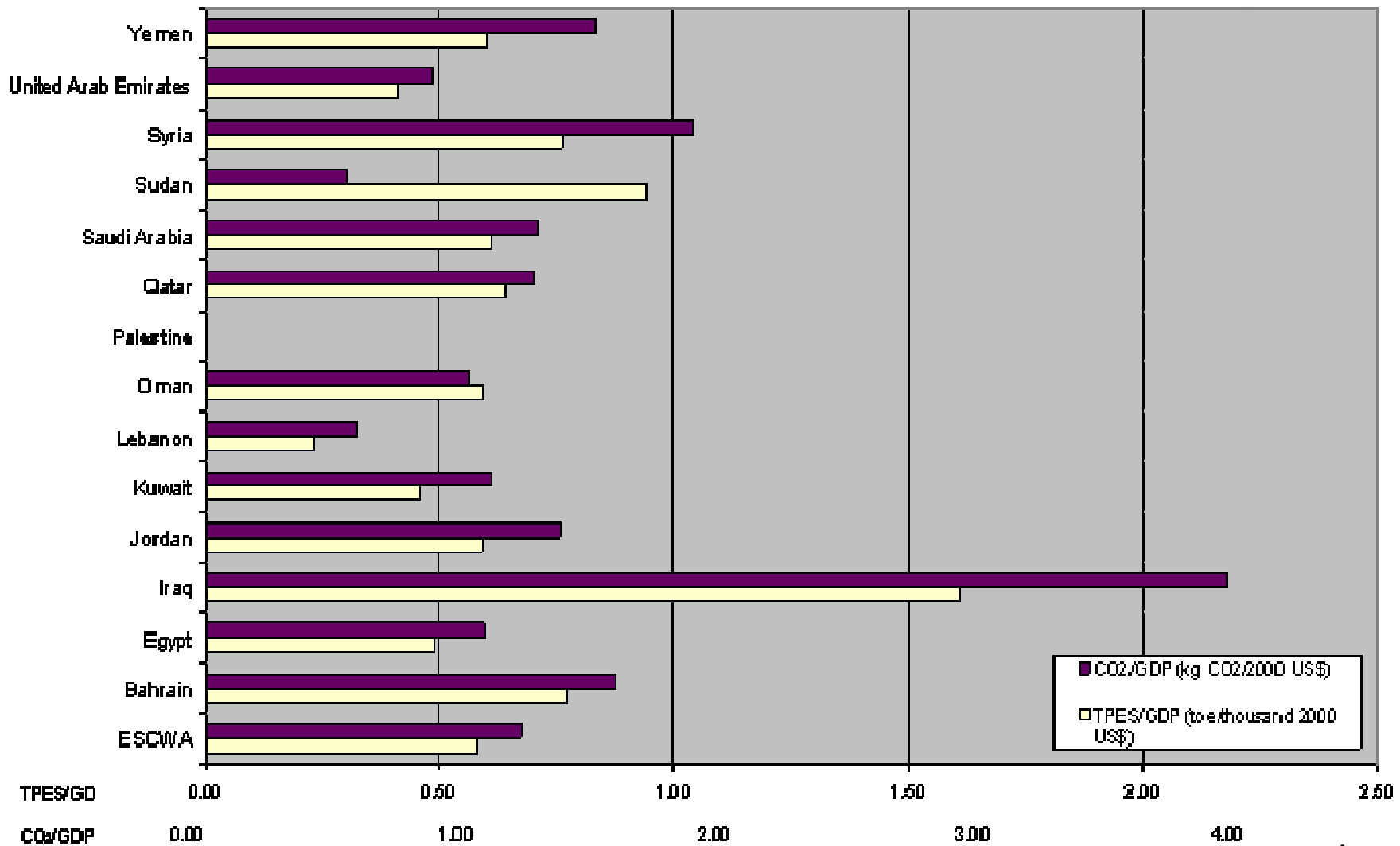
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# 1-Overview of the energy sector in the ESCWA Region



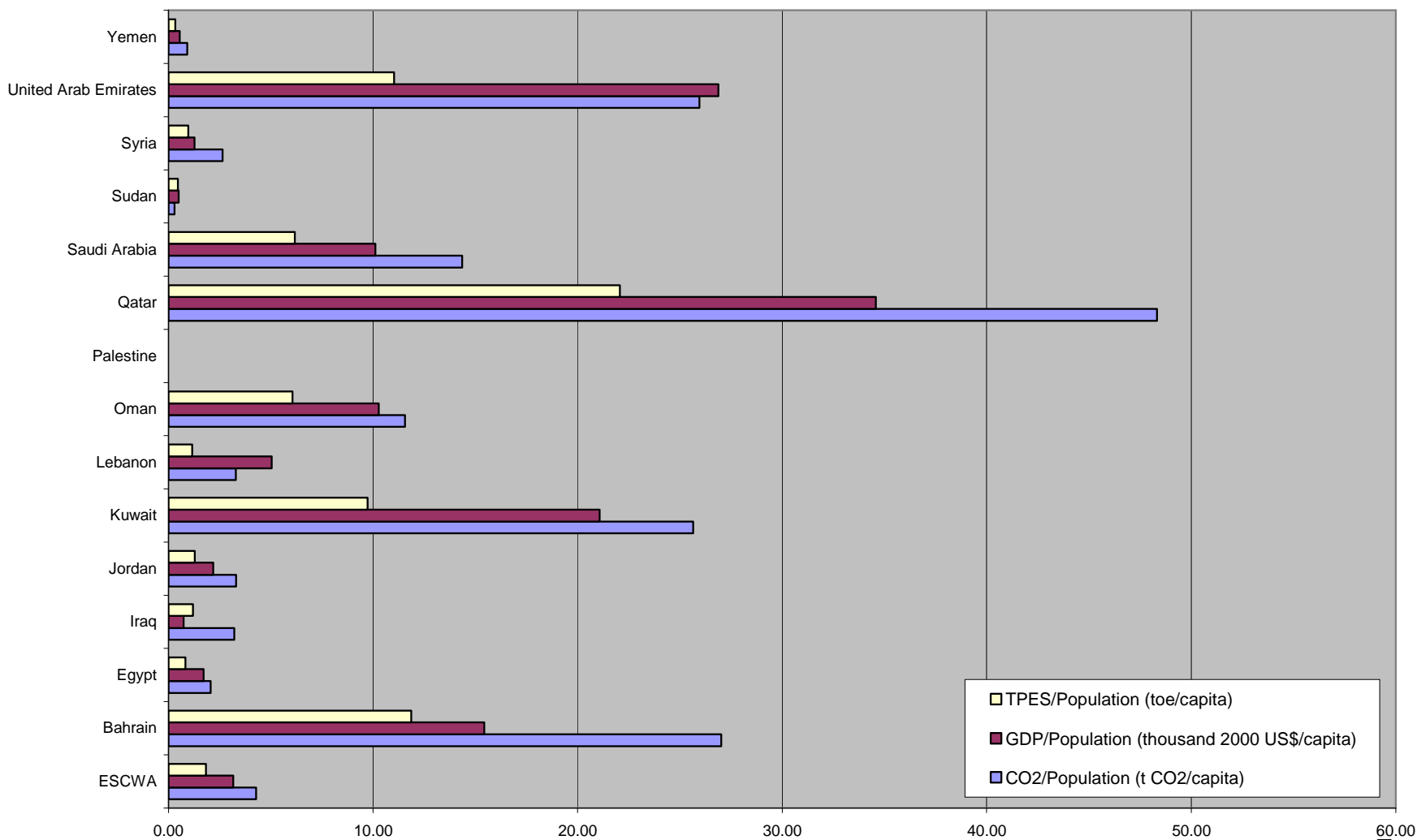
- Oil and gas sector is the largest economic sector in the Region.
- Proved reserves: oil 53% and NG 27% of the world reserves.
- Oil and gas exports represent more than 90% in some ESCWA countries GCC countries.
- Other ESCWA countries are energy importers (Jordan, Lebanon, Palestine....).
- There are still energy access problems: more than 20% of the population do not have access to energy services, especially in the Electricity sector: (Sudan: only 30% and Yemen only 47% electrification rate).
- There are very low electricity consumption per capita (144 Kwh/capita in Sudan and 202 Kwh/capita in Yemen in 2008).
- But there are very high electricity consumption per capita (13 142 Kwh/capita in Kuwait in 2008).
- The Electric Power Sector is dominated by thermal power generation (more than 95%).

# Energy intensity and carbon intensity (toe/US\$; kg/US\$)



Source: ESCWA, based on IEA data

# Per Capita emissions, GDP and TPES (kg/pop; US\$/pop; toe/pop)



Source: ESCWA, based on IEA data

# 1-Overview of the energy sector in the ESCWA Region



- RE resources: Solar 1460-3000 Kwh/m<sup>2</sup> per year, wind are available and utilizable in some countries.
- CO<sub>2</sub> Emissions from ESCWA Region (ESCWA's population represents about 3.7% of world's population) represented 3,58% from world emission in 2007 and was 0,67% in 1971 (IEA).
- ESCWA countries will suffer from climate change impacts.
- Energy intensity is not significant because the high value of GDP is due to the increasing in oil prices.

# 1-Overview of the energy sector in the ESCWA Region



- There is a problem of Energy Efficiencies in production and consumption( which requires improvement )and Renewable Energies uses in ESCWA Region. Main reasons are:
  - Financial: high investment needs/ Subsidised Electricity Tariffs and oil-gas Prices.
  - Social: weakness of awareness.
  - Institutional
  - Technical: needs for technologies and knowledge transfer.

## 2-Activities and Policies in EE and RE in the ESCWA Region



- Thirteen countries out of 14 ESCWA member countries have ratified the Kyoto Protocol (Palestine is the exception).

### 2A- At the Regional Level

- At the League of Arab States (LAS) level\*, and in close collaboration with UNEP and ESCWA:
  - The establishment of an Arab Roundtable on Sustainable Consumption and Production (SCP) in order to continue the exchange of expertise and knowledge, the carrying out of capacity building activities, the review of case studies, and the overall development of an Arab SCP network.
  - The development of a Strategic Arab Regional Framework for SCP.

\* *The UN General Assembly Resolutions 57/46 in 2002, and 61/14 in 2007 urged UN organizations to enhance their cooperation with LAS.*

## 2-Activities and Policies in EE and RE in the ESCWA Region



- The establishment of the Arab Ministerial Council for Electricity which includes two committees:

- The Experts Committee for Electricity
- The Experts Committee for RE and EE

ESCWA provides technical assistance to the work of those two committees.

- The establishment of a Working Group of experts from LAS organizations, Arab countries, RCREEE (MED-EMIP) and ESCWA to develop:

- The draft of the Arab Strategy for the development of RE uses.
- The draft of the Arab guiding framework for improving EE in the electricity sector at the end-users level.

## 2-Activities and Policies in EE and RE in the ESCWA Region



- The Arab Summit which was held in Libya in March 2010 has decided to (Decision No:524):

- Reconfirm the need for Arab countries to join the International Renewable Energy Agency, and to ratify its status.
- Invite Arab countries to exchange expertise and studies conducted in the area of RE uses, and to benefit accordingly through undertaking practical applications in the field.

## 2-B At the National Level EGYPT



-Plans to produce 20% of Electricity from RE till 2020 including 12% from Wind Energy (existing 400 MW+145MW in progress+7200MW before 2020).

-New projects financed by the Clean Technology Fund in the World Bank:

- Grant for preparing the tender documents related to 250 MW wind energy power plant (B.O.O)
- 50M \$ contribution for solar thermal Power plant 140 MW.

-The private Sector will play major role in investment 400 MW/year.

-The NREA (New and Renewable Energy Authority) Government Institution will invest for 200 MW/year.

## 2-B At the National Level EGYPT



- Establishment of a new electricity law including RE and EE issues:
  - The establishment of power plants using RE for electricity generation by:
    - a) Bidding system,
    - b) BOO (min 15 years span).
  - The creation of a Fund for Developing Electricity Generation from RE to support Egyptian Electricity Authority for purchasing electricity generated from RE.
- Investments of USD 450 M/Operation: German counterpart /production capacity : 3000 tons of poly-silicon per year for photovoltaic cells/

## 2-B At the National Level JORDAN



- Master Strategy of Energy sector in Jordan (2007-2020):
  - (i) Development of a legal framework for promoting RE and to achieve the 10% target for RE in 2020. It allows the tariff for RE to be governed by power purchase agreements, following competitive bidding of a project developer.
  - (ii) Establishment of Jordan RE/EE Fund (JORDAN REEF):
    - The core of RE development in Jordan.
    - The government committed to provide around USD 7 million/year from the general budget during the 2008-2010 period
    - Succeeded in attracting international funding from the French Development Agency (AFD), the French Global Environment Fund (FFEM), the World Bank/GEF and the EU.

## 2-B At the National Level JORDAN



- (iii) In 2008, the Jordanian Council of Ministers approved to exempt :
- Many EE and RE devices and equipment from customs duties and the general sales tax;
  - Other equipment from custom duties. This decision will contribute to the reduction of the prices of the locally manufactured solar heating units by 20%, and that of the imported units by 30%.
- Funds: 60 M\$ in grants of soft credit lines extended directly to Jordanian Banks for EE and RE investments.
- EU/Jordan Strategy for 2007-2013 financing 2 Pilot projects: Wind Power and CSP.

## 2-B At the National Level SUDAN



- ESCWA is providing during the period 2009-2010 technical assistance and training in conducting an energy balance for the country for :
  - Better energy conservation and energy efficiency at the sectoral and national levels.
  - Better energy planning.

## 2-B At the National Level SUDAN



- Sudanese Investment Law, article (9) including RE and EE issues.
- RE investment projects to be financed not less than 450M \$ including:
  - Assembly and installation of solar PV, wind turbines, Biogas units for electrical and mechanical power generation.
  - Assembly and manufacturing of batteries for solar/wind applications.
- Utilization of waste and agricultural residues (such as from sugar cane factories) for the production of biofuels-second generation ethanol.

## 2-B At the National Level SUDAN



- Some major regional funding agencies are financing the “Merowe Dam” project/hydropower plant (1250MW) in Sudan: the Arab Fund for Economic and Social Development (201M \$), the Saudi Fund for Development (56M \$), the Abu Dhabi Fund for Development (47M \$) , and the Kuwait Fund for Arab Economic Development (52M \$).

## 2-B At the National Level SYRIA



- Energy Conservation Law No.3 (2009) aims at reducing electricity consumption and production. Mechanisms for public and private sectors cooperation to enhance RE/EE.
- Law 18/2008 provides for electrical energy consumption measures for household appliances and Energy Efficiency Labeling.
- Thermal Insulation Code of 2007 regulates building designs, permits and execution.
- Draft law for promotion and enhancement of the use of solar water heaters.
- A new Electricity Law under preparation: encourage private sector (domestic and foreign) investments in RE.

## 2-B At the National Level UNITED ARAB EMIRATES



- ESCWA will be providing during the period 2010-2012 technical assistance and training in conducting an energy balance for the country for:
  - Better energy conservation and energy efficiency at the sectoral and national levels.
  - Better energy planning.
- The UAE's largest Emirate, Abu Dhabi, has launched the MASDAR Initiative and committed more than \$15 billion in RE programs.
- The MASDAR Initiative focuses on the development and commercialization of technologies in RE, EE, carbon trading, water usage and desalination, and its partners include some of the world largest energy companies and most prestigious institutions.

## 2-B At the National Level UNITED ARAB EMIRATES



- MASDAR is characterized by key elements:
- MASDAR City: the world's first carbon-neutral, waste free, car-free city.
- An innovation center to support the demonstration, commercialization and adoption of sustainable energy technologies.
- The MASDAR Institute of Science and Technology with graduate programs in RE and sustainability.
- A development company focused on the commercialization of emissions reduction and CDM solutions as provided by the Kyoto Protocol.
- A Special Economic Zone to host institutions investing in RE technologies and products.
- Starting 2013, the capture of 5 million tons of Carbon per year from three emission sources for injection into oil wells to boost production.

## 2-B At the National Level UNITED ARAB EMIRATES



- Torresol Energy, which is a joint venture between Masdar, and Sener, a leading multidiscipline engineering company, has developed Gemasolar:
  - (i) The first Torresol Energy project (2008-2011) with central tower and heliostat technology (plant situated in Andalusia, Spain).
  - (ii) This plant incorporates a molten-salt thermal storage system that is able to provide electricity for 15 hours without sunlight.
  - (iii) The first commercial plant in the world to apply this type of technology.

## 2-B At the National Level YEMEN



- Electricity Law issued in 2009. The proposed strategy for EE/RE focuses on:
  - (i) Decreasing the usage of fossil fuels;
  - (ii) Increasing the share of RE (wind farms, geothermal, waste biogas, sewage gas and off-grid stand-alone systems) in electricity generation (15% of total generation by 2025);
  - (iii) Supporting decentralization of access to RE technologies;
  - (iv) Enhancing Energy Efficiency and Conservation (15% increase by 2025);
  - (v) Establishing an electricity market and encouraging investors, through incentives, to produce RE in rural areas (electrification of 110,000 rural households).

## 2-B At the National Level

### Other National Activities in ESCWA MCs



- Saudi Arabia: USD 15 million financing to enable solar energy cost become competitive with coal energy cost.
- Kuwait: Studying the possibility of using solar energy for meeting the needs of refinement and production in the national oil sector.
- Lebanon: Diesel subsidy alternative plan through free distribution of energy saving bulbs and providing loans for solar water heaters manufacturing.

## 2-C National legislation for energy efficiency



Energy efficiency legislation	Countries
Dedicated frameworks or programs	Syria
Provisions from other regulatory frameworks	Egypt, Jordan, Qatar, Sudan, Yemen
Policy directives or guidelines but no legislative framework	Iraq, Palestine, Saudi Arabia, United Arab Emirates
Dedicated legislation to be approved	Lebanon
No legislation	Bahrain, Kuwait, Oman

Source: ESCWA.

## 3-Interregional Development Account Energy Project



### **Project on “Capacity-building on climate change mitigation for poverty alleviation in Western Asia”**

- Amount: USD 547,200
- Project’s Executing Agency: ESCWA
- Project’s Partners: Economic Commission for Africa (ECA), Economic and Social Commission for Asia and the Pacific (ESCAP) and Department of Economic and Social Affairs in addition to UNESCO’s regional office in Cairo.
- Objectives:
  - To build the capacity of policymakers, civil society and the private sector in the field of renewable energy technologies.
  - To enhance energy security and improve access to energy services in the poor rural areas:
    - Alleviating poverty
    - Enhancing productivity and social and economic conditions.

- **Project's Components:**
  - Training workshops at the national and regional levels
  - Expert Group Meeting
  - International conference
  - Regional technical capacity-building conference
  - Educational material and training modules.
  - A showcase location: a Clean Technologies Park (CTP)/Technological Innovations Centre (TIC).

# 4-Conclusions



1. EE and RE policies have been adopted in the majority of ESCWA member countries, however, further efforts are needed.
2. ESCWA Member Countries are currently updating and strengthening legislative and regulatory frameworks in favor of EE and RE.
3. Several initiatives are being undertaken for fund raising for RE and EE projects, with increasing national and regional contributions.

## 4-Conclusions



4. A number of constraints are facing the rapid deployment of energy efficiency and renewable energy applications, including the subsidized electricity tariffs and oil-gas prices.
5. There are needs for awareness raising and capacity building.
6. Technology transfer is crucially needed taking into account enhancing relevant national capacity/contribution.
7. There is need for promoting private/public partnership in the field.

**Thank you**