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مركز الملك عبدالله للدراسات والبحوث البترولية

King Abdullah Petroleum Studies and Research Center

Understanding Renewable Energy in the GCC

International Congress REENCON-XXI “Renewable Energy XXI century: energy and economic efficiency”

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Moscow, October 27, 2015

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Key messages

1. The GCC countries have an increasing interest on renewable technology, despite the fact of having access to a cheap fossil fuel energies.

2. Solar technology is, probably, the renewable energy could integrate better into the existing energy mix.

3. Solar technology can compete with fossil fuel technologies, but we have to make the right cost comparisons.

4. Traditional policy tools used in some developed countries would not be the best alternative

Energy resources in the Gulf Cooperation Council (GCC)* states

- GCC states are rich in oil and natural gas
  - 29% of the total world proven reserves of oil
  - 22% of the total world proven reserves of natural gas
  - 24% of the total world production of oil
  - 12% of the total world production of natural gas
- The cost of production for oil and gas is the lowest in the world
- Oil and natural gas account for almost 100% of the energy mix

* Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

What are the reasons to consider renewable energy in the GCC?

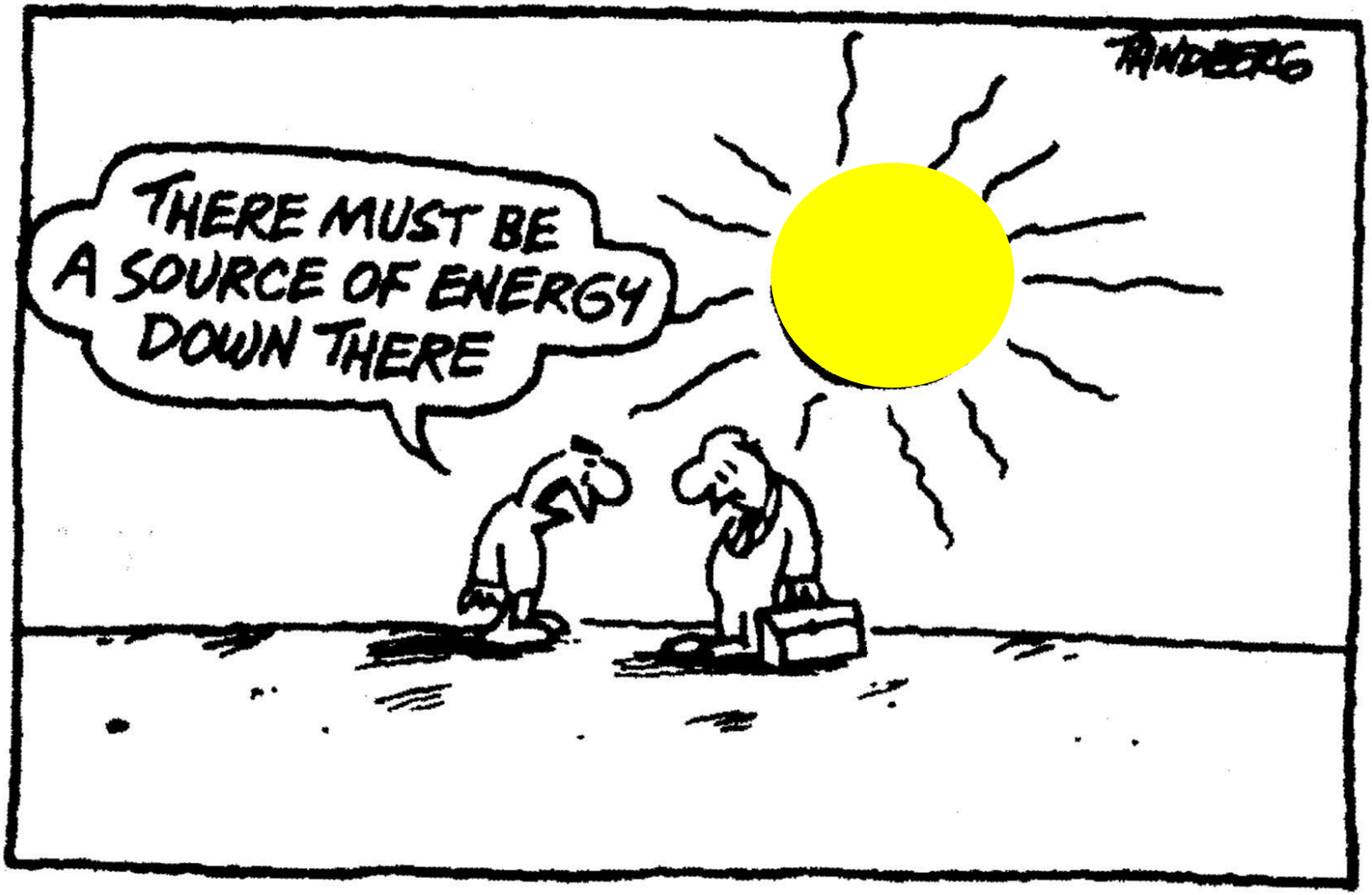
- Strong increase in energy consumption
  - Young population, strong economic growth and low prices of energy explain the increase.
  - In year 2012 Citigroup said: “Saudi Arabia, the world’s biggest crude exporter, risks becoming an oil importer in the next 20 years.”
- Industrial diversification and employment
- Environmental concerns

Targets for renewable energy in GCC states

Country	Target
Bahrain	5% by 2020
Kuwait	10% electricity generation by 2020
Oman	10% electricity generation by 2020
Qatar	2% from solar energy by 2020
Saudi Arabia	50% of electricity from non-hydrocarbon resources by 2040
United Arab Emirates	5-7% electricity generation by 2020

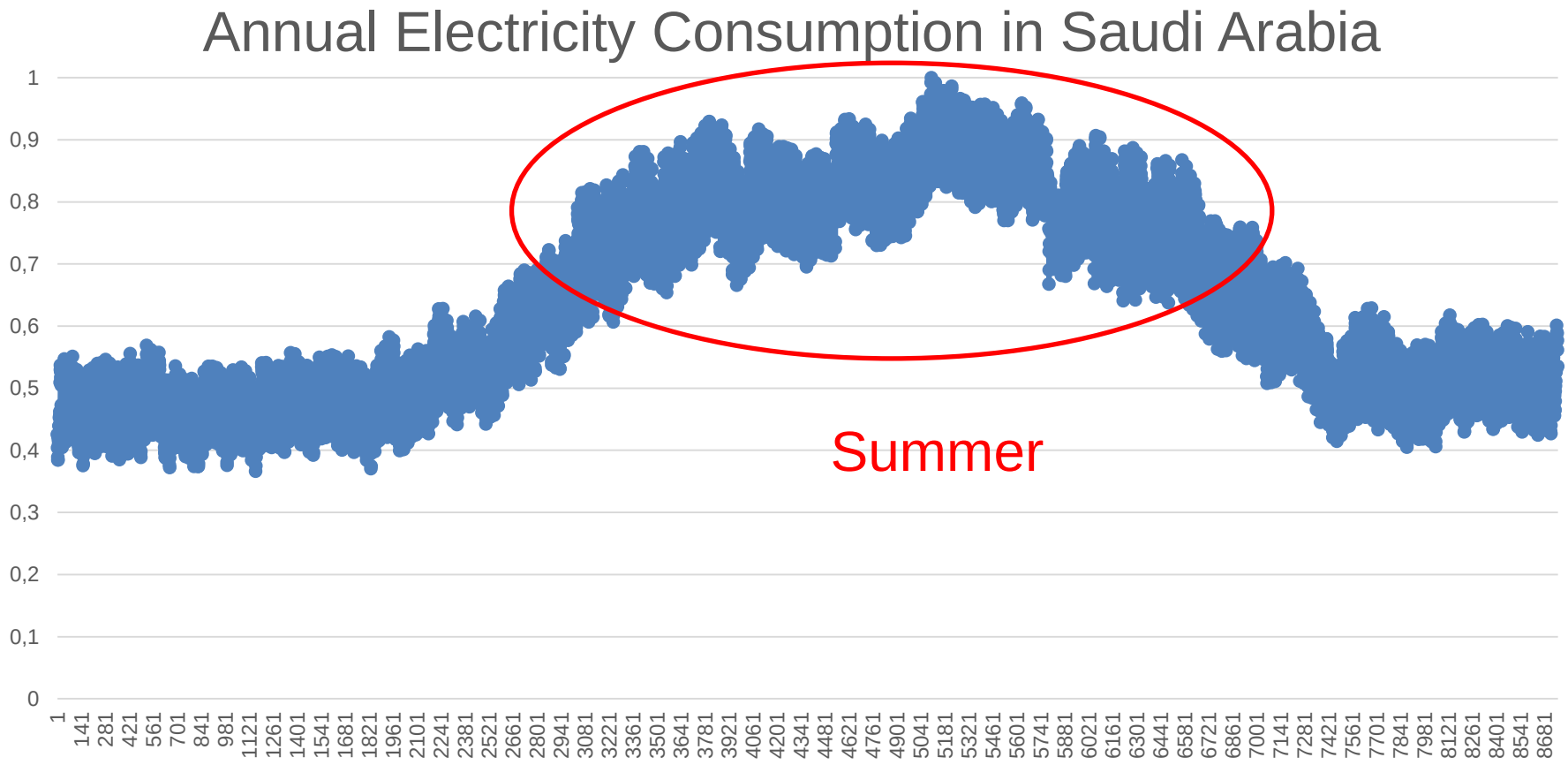
Source: The Oxford Institute for Energy Studies

Which renewable energy is for GCC states?



Which renewable energy is for GCC states?

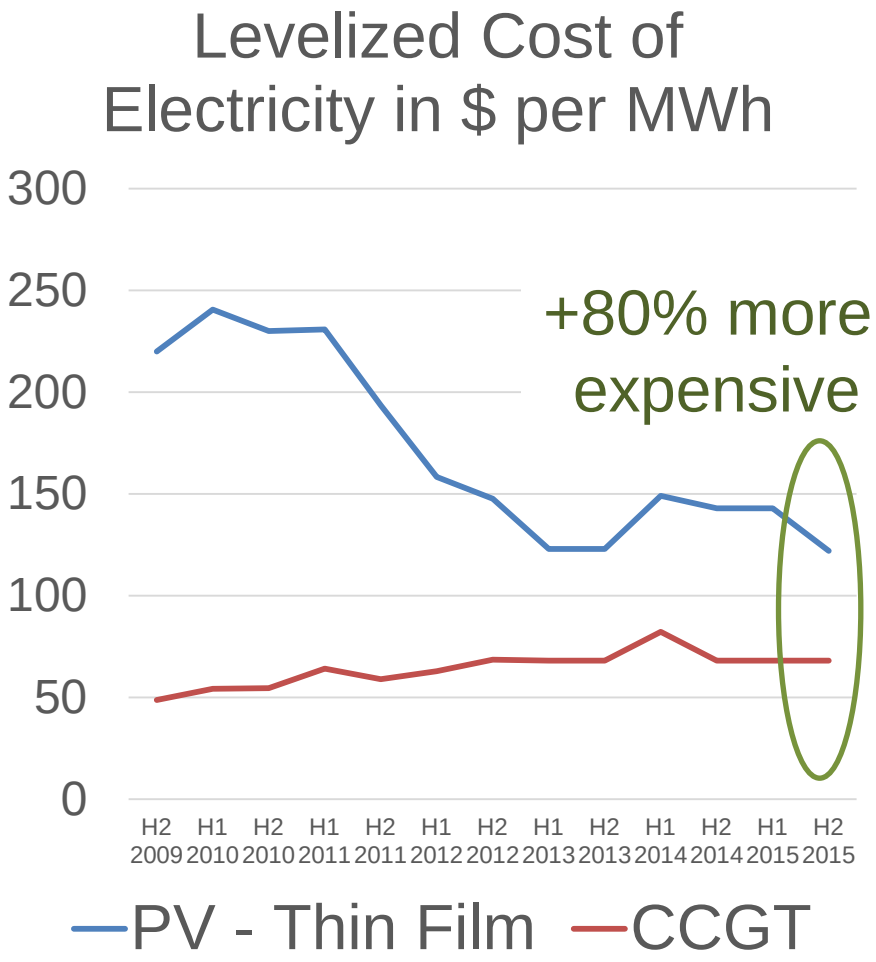
- Annual solar irradaence in GCC states is 2,400 Kwh/m2, while in Europe it is 1,100Kwh/m2.



Is the cost of solar technology in the GCC states similar to that of fossil fuel technologies?

- Dubai Electricity and Water Authority (DEWA) sets a global benchmark for solar power generation, with a tariff of 5.9 US cents/kWh under a 25-year power purchase agreement, similar to that of a combined-cycle power plant.

Can solar power compete with fossil fuel technologies?



- Direct comparison of LCOEs is not that relevant.
- According to some renewable companies in the region, solar technology can compete with incumbent generators.

Q6: What should be the policy instruments to promote renewables energies in the GCC?

- The traditional policy tools used in European countries (the Feed-in Tariff) will not be the best alternative, given the market structure of GCC states and the experience in some European countries. In addition, very long-term contracts could not be credible for some investors.

- Auctions and tenders are gaining popularity among governments as a way to incentivize renewable energy

- Investment credits could be cost-effective, but they are difficult to implement.

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