

Energy and Climate Policies in the Mediterranean

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Brief State-of-Play

The battle of three RE technologies over the last 20 years in the MENA region has a clear trend winner(PV) with dramatically dropped production costs and (CSP) on the retreat in terms of market shares and non-competitive production cost even if power dispatchability is taken into account. Wind is highly competitive and cost-effective in only a few countries.

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CSP



ON THE RETREAT

WIND



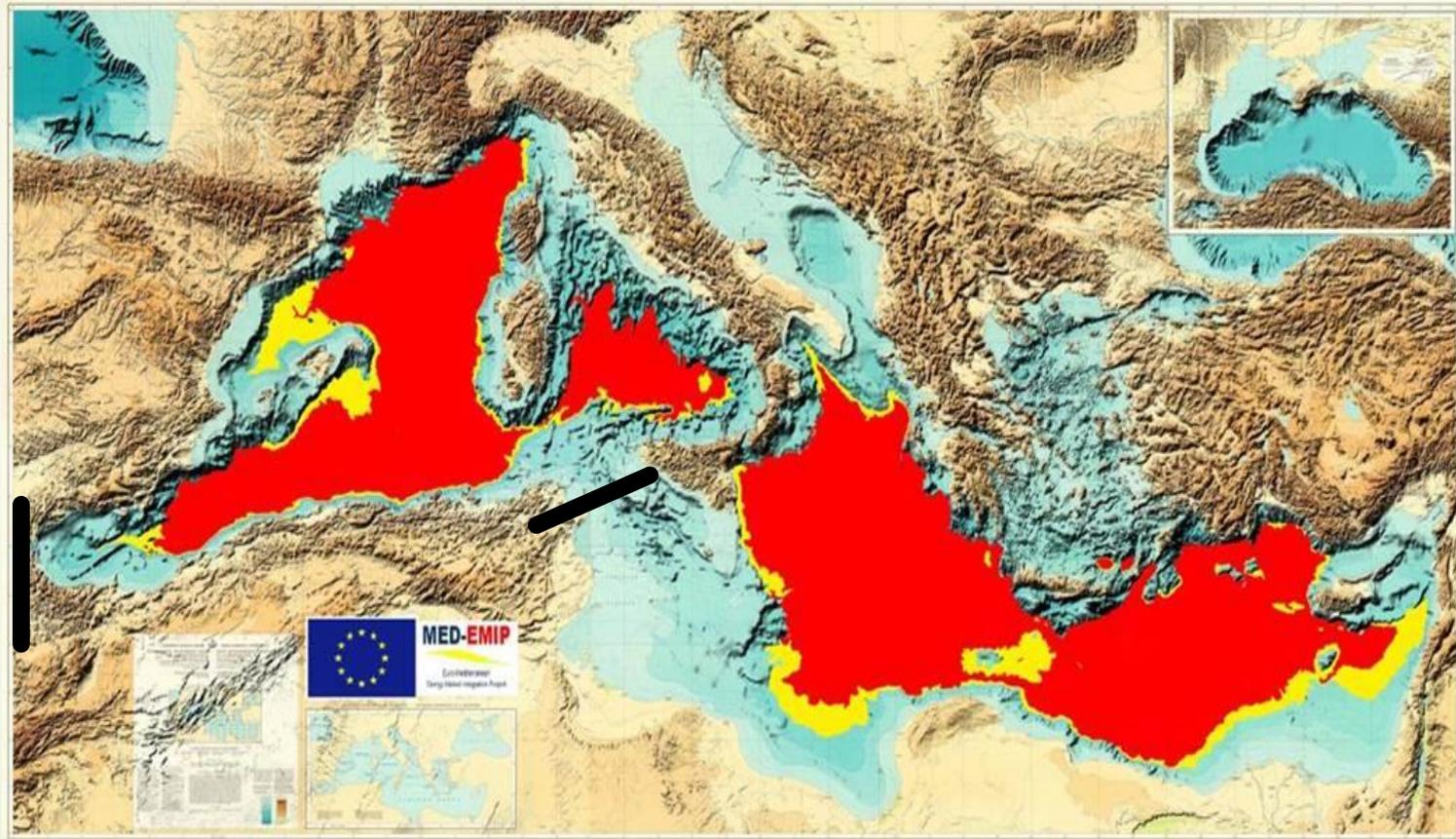
PV



WINNER

15 May 2017

The 2008 solar power exporting strategy to the EU failed for mostly political disagreement between three EU states



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Red areas are depth of more than 2,000 meters that make submarine interconnectors a technical challenge

Adaptation of the EU directives for RE and EE by members of the league of Arab states (LAS) in 2010 and 2013

1. DIRECTIVE 2009/28/EC “On the promotion of the use of energy from renewable sources” (RES)
2. DIRECTIVE 2006/32/EC “On energy end-use efficiency and energy services repealed by DIRECTIVE 2012/27/EU “On energy efficiency”
3. LAS Member States have also prepared National Energy Efficiency Action Plans (NEEAP) and National Renewable Energy Action Plans (NREAP). Some did it already before adaptation of the EU directives.
4. LAS members have set % benchmarks for EE and RE contribution to the electricity mix.

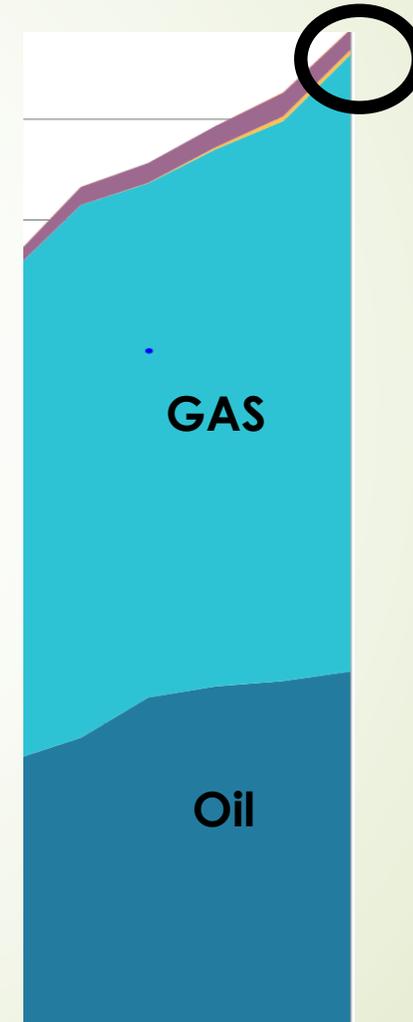
Legal status and present coordination of NEEAPs and NREAPs

1. The LAS RE and EE Directives are not “Directives”. These are guidelines and frameworks since the LAS Council has not the powers comparable with the EU Parliament and the Council under the EU aquis.
2. The Energy Department of LAS and its technical arm the Regional Centre for renewable energy and energy efficiency (RCREEE) in Cairo have been and are the caretaker of the EE Guidelines and the RE Framework since 2010.

We are still talking about marginal EE and RE contributions to the energy resource mix in the MENA region

1. Energy efficiency below 1%
2. Solar and Wind below 1%

The significant acceleration of solar PV and Wind deployment in the MENA region in the last 10 years is literally “eaten up” by unusual high electricity consumption growth rates between 4% and 8%.



Can you “sense” the yellow line in the IEA statistics?

Some innovative energy policies missing in the MENA



Regulators or Legislators should set clear expectations that **energy efficiency** should be considered as a new source of energy and should be traded as other energy resources such as coal, oil, gas, and renewable energy are traded.

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Treasury of South Africa procures 1 kWh of "energy saved" for 25 \$/MWh

Utilities tendering for delivery of energy savings instead of procuring new capacity for the last 20 years



██████████ “Distribution hereby announces the **tender for delivery of energy savings** in 2015 and 2016. We are tendering for approximately 100 GWh as a mixture of monthly e-auctions of 5 GWh and an additional 3 e-auctions every fourth month of 15 GWh.”

Non-subsidized source of electricity (ball park figures)



Technology	\$ Cents/kWh
Negawatt power plant (electricity savings)	1 - 4
Solar PV > 100 MW, sunny location, low WACC	3 - 5
Wind parks, good location	4 - 6
Coal power plant	5 - 8
Combined cycle gas turbine	6 - 12
Diesel generator set	15 - 35
Nuclear power plants+ 20 years dismantling cost	>15

Amory Lovins in 1985, "Saving Gigabucks with Negawatts"

Punchline

Energy Efficiency is and will always be the “First Fuel” meaning the least expensive. However it will also always be the most difficult energy resource to trade since one cannot meter it like electricity, put it on a scale and weigh it like coal, or sell it by the barrel like oil.

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SANS 50010 South Africa
M&V Experience 2010-2017

The experimental approach of some MENA countries to procure solar and wind power

1. Feed-in-Tariff (FIT) mostly for small and highly distributed but also utility scale facilities.
2. Unsolicited proposals for financing reasons
3. Competitive tender to compare with FIT
4. Net-Metering with a risk to Utilities' balance sheet

Two countries test all four strategies in parallel

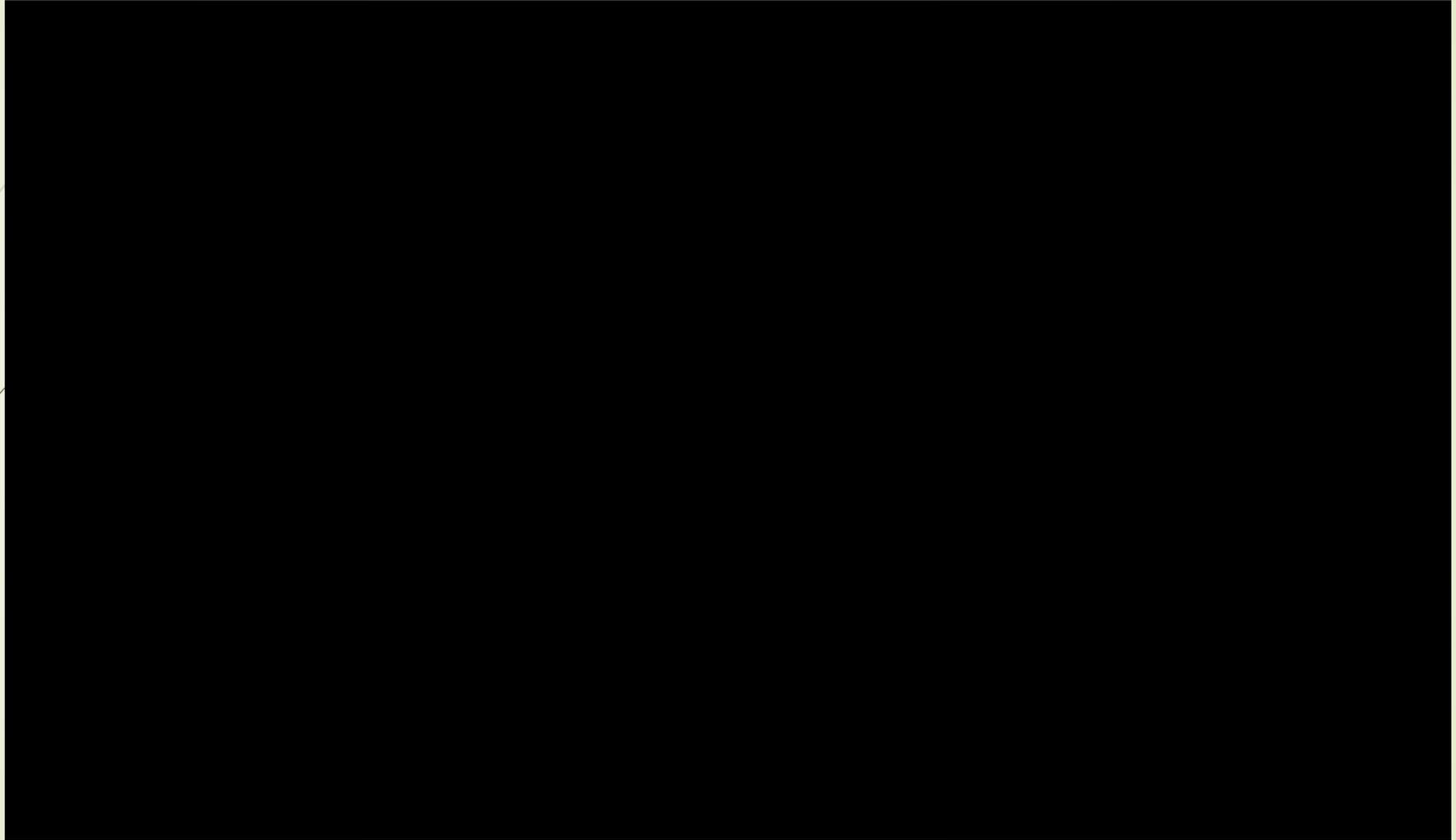
Intended nationally determined contributions (INDCs)

Mitigation Measures

Adaptation Measures

1. Much more work is needed to go from INDCs to NDCs until 2020
2. INDCs are asking for about 80 USD/tCO₂ mitigated. Compare that with the price of 12 USD/tCO₂ during the heyday of CDM and 1 USD/ tCO₂ today.
3. As a policy matter the national NEEAPs and NREAPs may provide better and more detailed information about the intended mitigation measures than the submitted INDCs

For all of us having trouble to understand ADAPTATION



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