MENA Concentrated Solar Power (CSP) Scale-up Initiative

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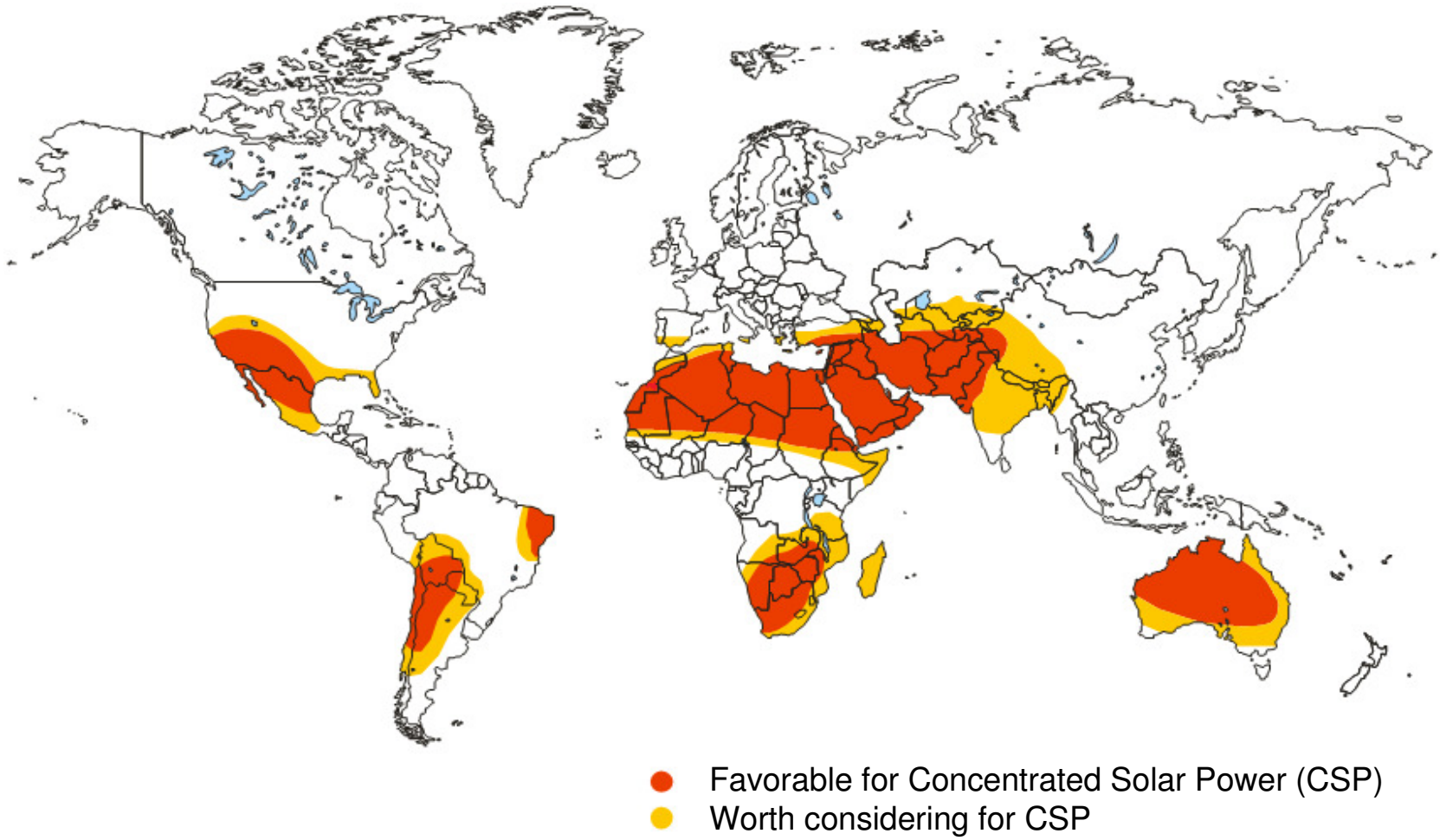
The best regions for CSP



CSP still expensive – but with unexploited economies of scale
Proven technology, transferable to developing countries –for energy and manufacturing

Why CSP Scale-up in MENA has global impacts?

- MENA and South Western USA/Mexico offer best physical resources and market access
- Economies of scale best achieved there, driving cost reduction in the global CSP market
- So major contribution to climate change mitigation
- Major potential for concessional climate financing from UNFCCC/Copenhagen Accord

Why solar energy is important for MENA?

- Oil and gas producers: frees up oil and gas for higher value-added uses/exports
- Oil and gas importers: energy security
- Industrial diversification and job creation
- Entry into global industry starting to take off
- High demand growth for electricity, including for desalination
- Export revenue from high-paying green electricity markets in Europe

Evolving MENA Policy framework

- Strong commitment for CSP Scale-up – e.g. Morocco and Tunisia Solar Plans (2009)
- Institutional development – e.g. creation of MASEN in Morocco
- Strong emphasis on local content
- Tariff reforms to phase out energy subsidies
- Legal framework for renewable energy and energy efficiency
- Increasing private sector involvement in power sector
- Strong interest in solar for desalination
- But MENA market cannot yet afford large amounts of CSP energy

Evolving EU Policy framework

- Mediterranean Solar Plan aims at 20 GW of renewables by 2020 to help integrate economies across the Mediterranean. The MSP instruments are being developed
- EU Renewable Energy Directive (2009) sets a favorable, but still uncertain, policy framework
  - ✓ 20% of renewable energy in consumption
  - ✓ Article 9 allows physical imports from MENA countries
  - ✓ EU countries announce national support schemes ("Action Plans") by June 30 2010
- In case of agreement in UNFCCC negotiations, EU announced increase target to 30% (would make a big difference to MENA CSP)

MENA CSP Scale-up Initiative

- World Bank initiative supports deployment of large-scale CSP and cross-border energy trade projects
- Facilitates critical mass of replicable investments to benefit from economies of scale
- World Bank financing and technical assistance in a number of countries: so far Algeria, Egypt, Jordan, Kuwait, Libya, Morocco, Saudi Arabia, Tunisia and West Bank & Gaza
- Builds on earlier pilot projects with GEF funding

Financing the MENA CSP Initiative – Contribution from the CTF

- Clean Technology Fund (CTF) is a new multi-billion fund ($5 billion pledged so far) for climate change mitigation
- Managed by the World Bank to finance “transformational” projects in developing countries
- Very concessional: 40 year term, 10 yr grace, 0.25 % service fee, zero interest rate

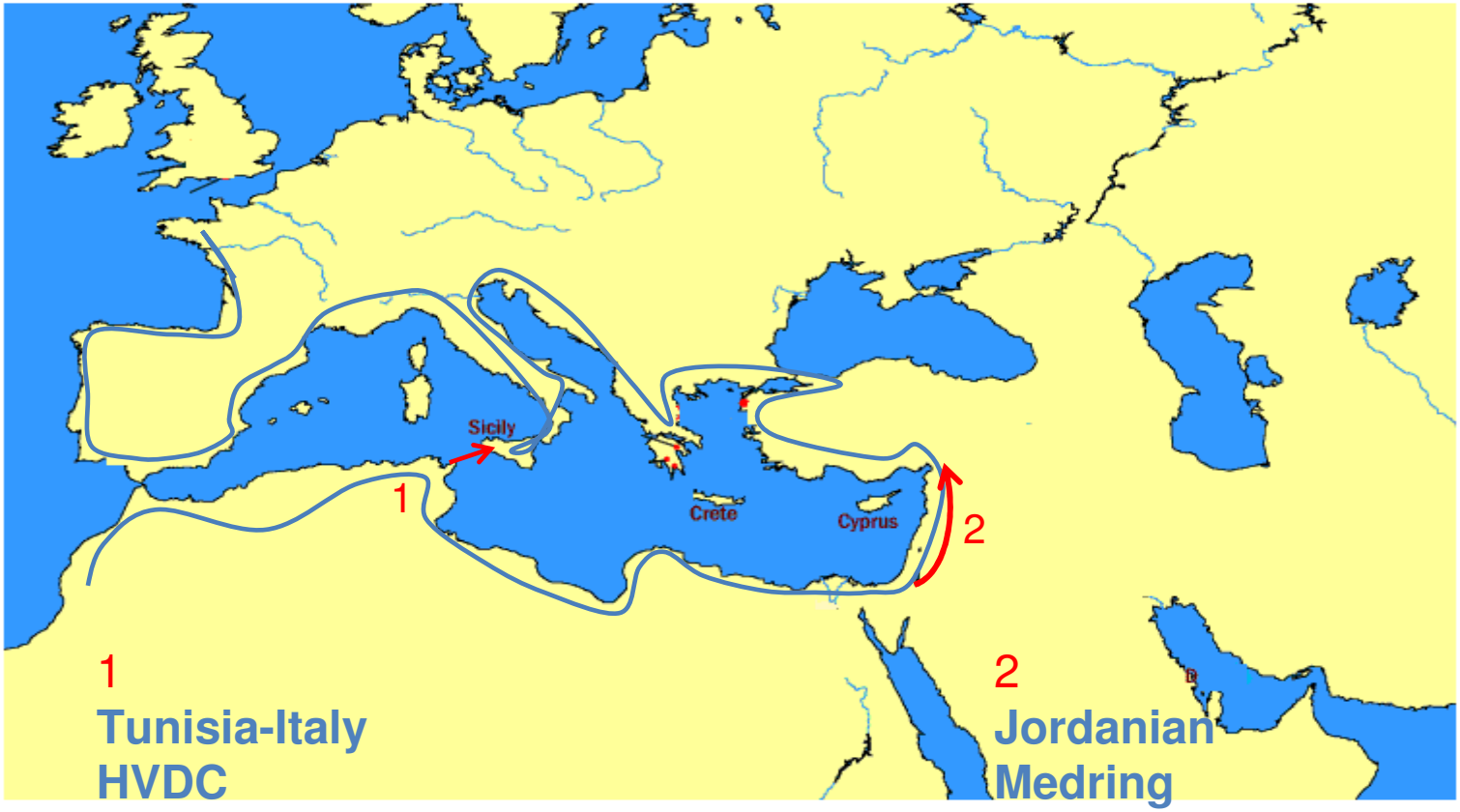
MENA CSP Investment Plan

- US$ 5.6 Billion MENA CSP Investment Plan endorsed by CTF December 2009
- US$ 4 Billion for 1 GW generation, US$ 1.6 Billion for transmission
- Financing from private and public funds, concessional and non-concessional
- Modest CDM revenues expected (~ 1 US ¢ /kWh)
- CTF contribution US$ 750 Million
- **Additional US$ 1.4 Billion of concessional funding is required**

Investment Plan Projects

Country	Location	Capacity (MW)
Algeria	Megahir Naama Hassi R'mel II	80 70 70
Egypt	Kom Ombo Marsa Alam	70 30
Jordan	Maan Province Jordanian Medring (Aqaba-Qatrana transmission)	100
Tunisia	IPP-CSP Project ELMED-CSP Tunisia-Italy transmission	100 100+
Morocco	Ouarzazate	500
Total		**~ 1.1 GW**

Transmission projects are key for CSP scale-up in MENA



Projects create transmission corridors for subregional exports (Maghreb, Mashreq, GCC)

Concessional financing of transmission project may be justified

- Intermittency of solar energy increases transmission cost for CSP generator compared to conventional generator
- Challenge of bringing together CSP generation and reserved transmission capacity:
  - ✓ From transmission developer's side, there is uncertainty whether CSP generator will be able to export to EU
  - ✓ From CSP generator's side, there is risk regarding transmission availability

Morocco is planning for the largest CSP plant in the world

- Moroccan Solar Plan: 2,000 MW by 2020 (10% of the Mediterranean Solar Plan target)
- Ouarzazate project stands out:
  - ✓500 MW
  - ✓Bidding process Q4-2010
  - ✓Beginning of construction Q3/4-2011
  - ✓Commissioning 2015
  - Ouarzazate is good test of MSP and Copenhagen Accord

Key challenges for MENA CSP

- Implementation of policy and regulatory environment in EU and MENA

- Mobilizing financing, including concessional climate financing (will the MSP and Copenhagen Accord succeed?)

Thank you!

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