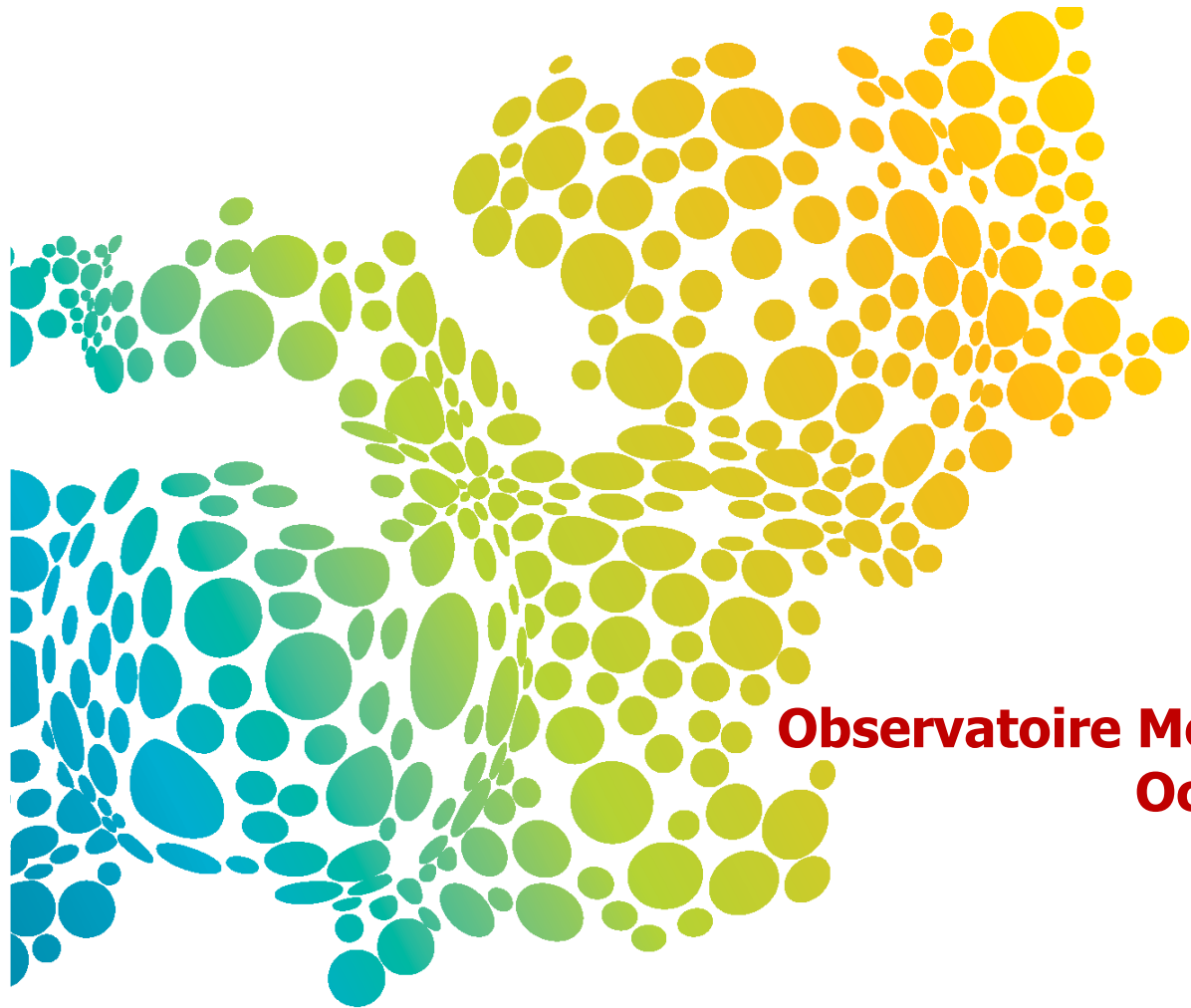


Renewables Deployment in the Mediterranean region: potential, initiatives, critical factors



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1-Promising outlook for RE in MENA

Substantial potentials for renewables

- Electricity: solar (CSP, PV), wind
- Heating & cooling: *e.g.* solar hot water systems and solar air-conditioning (RD&D needed)
- Desalination: coupled with CSP generation
- *Longer-term: solar transport fuels*

Continued strong electricity demand growth

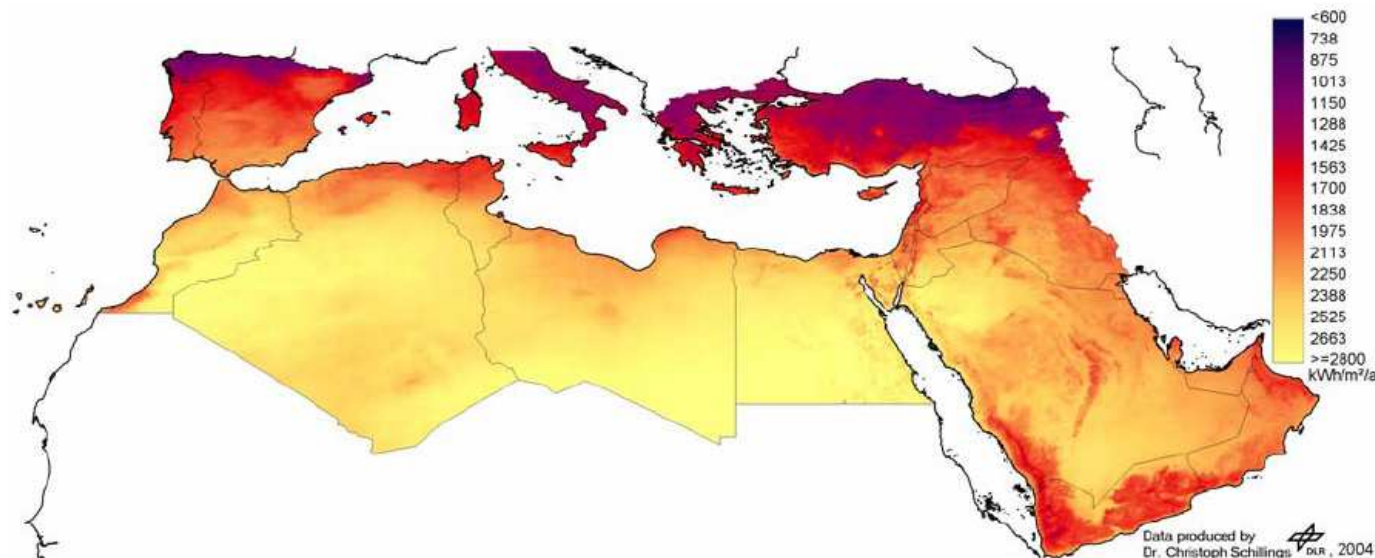
Renewable energy policy frameworks in some countries

- Algeria, Egypt, Israel, Jordan, Morocco, Tunisia, Liban, UAE

Status of RE technologies

Renewable energy technologies are part of the solution under climate mitigation policies, with a high potential in Mediterranean region

They allow/ require **to invest in turnkey manufacturing units locally** (*jobs, economic development, transfer know how, capacity building*)



Very large areas of desert or arid land available

....but barriers remain to overcome

Market barriers

- Lack of broad **information** and **awareness** by decision makers
- Subsidies for conventional energies create market distortion
- Very little **technology transfer** and **capacity building**

Regulatory/ administrative barriers

- Lack of adequate **institutional and regulatory framework**

Financial barriers

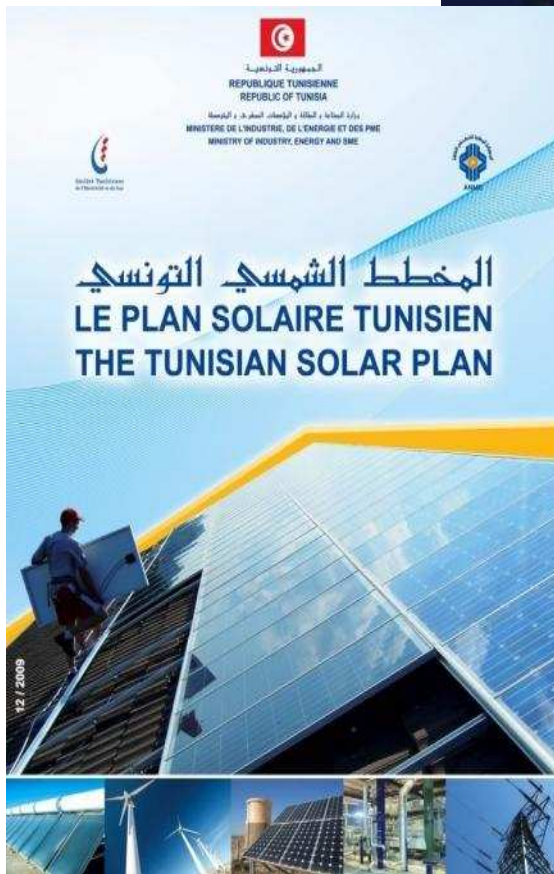
- **High up-front costs** for investors – especially relevant for off-grid applications
- High **cost of capital for RET** investments

Other barriers

- **Grid infrastructure & access**
- Social acceptance, etc.

2-Several initiatives ongoing in the region

The Mediterranean Solar Plan Union for the Mediterranean



Royaume du Maroc

PROJET INTEGRÉ
DE PRODUCTION
ÉLECTRIQUE SOLAIRE

The image shows the logo of the Kingdom of Morocco at the top, followed by the text 'Royaume du Maroc'. Below this is the title 'PROJET INTEGRÉ DE PRODUCTION ÉLECTRIQUE SOLAIRE' in bold, blue capital letters.

CLIMATE INVESTMENT FUNDS

CIF BASICS CLEAN TECHNOLOGY FUND STRATEGIC CLIMATE FUND PARTNERSHIP

The image shows the logo for 'CLIMATE INVESTMENT FUNDS' in a large, white, serif font. Below the logo is a horizontal bar divided into four segments, each containing a different fund name: 'CIF BASICS', 'CLEAN TECHNOLOGY FUND', 'STRATEGIC CLIMATE FUND', and 'PARTNERSHIP'.

The Mediterranean Solar Plan

- One of the key projects proposed within the Union for the Mediterranean, and intends to **increase the use of solar energy and other renewable energy sources** for power generation, **improve energy efficiency** and energy savings, **develop electricity grid interconnections** and foster and encourage **the transfer of know-how and technology** towards developing countries.
- The final target is the development, by **2020, of 20 GW of new renewable energy installed** capacity in the Southern and Eastern Mediterranean countries..

Med Solar Plan and Paving the way for it

- The MSP is at a standstill because of the slowing down of the political process of the Union for the Mediterranean, and thus **not sufficient results have been achieved** so as to attract a decisive attention from investors;
- To accompany the MSP the **EC ENPI** (European Neighbourhood and Partnership Instrument) issued the **service procurement program “Paving the way”, (5 million €)** in order to set the conditions favourable to the increased use of renewable energy in Southern Mediterranean partner countries. The project shall **support and coordinate activities among various stakeholders**, targeting e.g. ministries in charge of **energy** , finance and social affairs; industry; the research community; and international financing institutions.

Desertec Industries

Launched in July 2009 by 12 leading companies –mostly Germans- with the objective to **analyze and develop the technical, economic, political, social and ecological framework for carbon-free power generation in the deserts and arid areas of North Africa.**

Among its main goals are the drafting of **concrete business plans and associated financing concepts**, and the initiating of industrial preparations for **building a large number of networked solar power plants distributed throughout the MENA region.**

Today there 16 full partners and 20 associated partners from a broad international spectrum.



Dii: Power generation from sun and wind energy in the deserts of the Middle East and North Africa

low

Solar potential
(based on direct normal irradiation)



Indicative solar sites



Indicative wind sites



Indicative transmission routes to local and European markets



Ultimate goal: supply 15% of electric energy needs of EU by 2050 (100 GW).

Transgreen

- To create **a network of enterprises** in the field of energies with the **objective of realizing a large network of underwater electric connection in the Mediterranean** has been launched early July 2010 by France

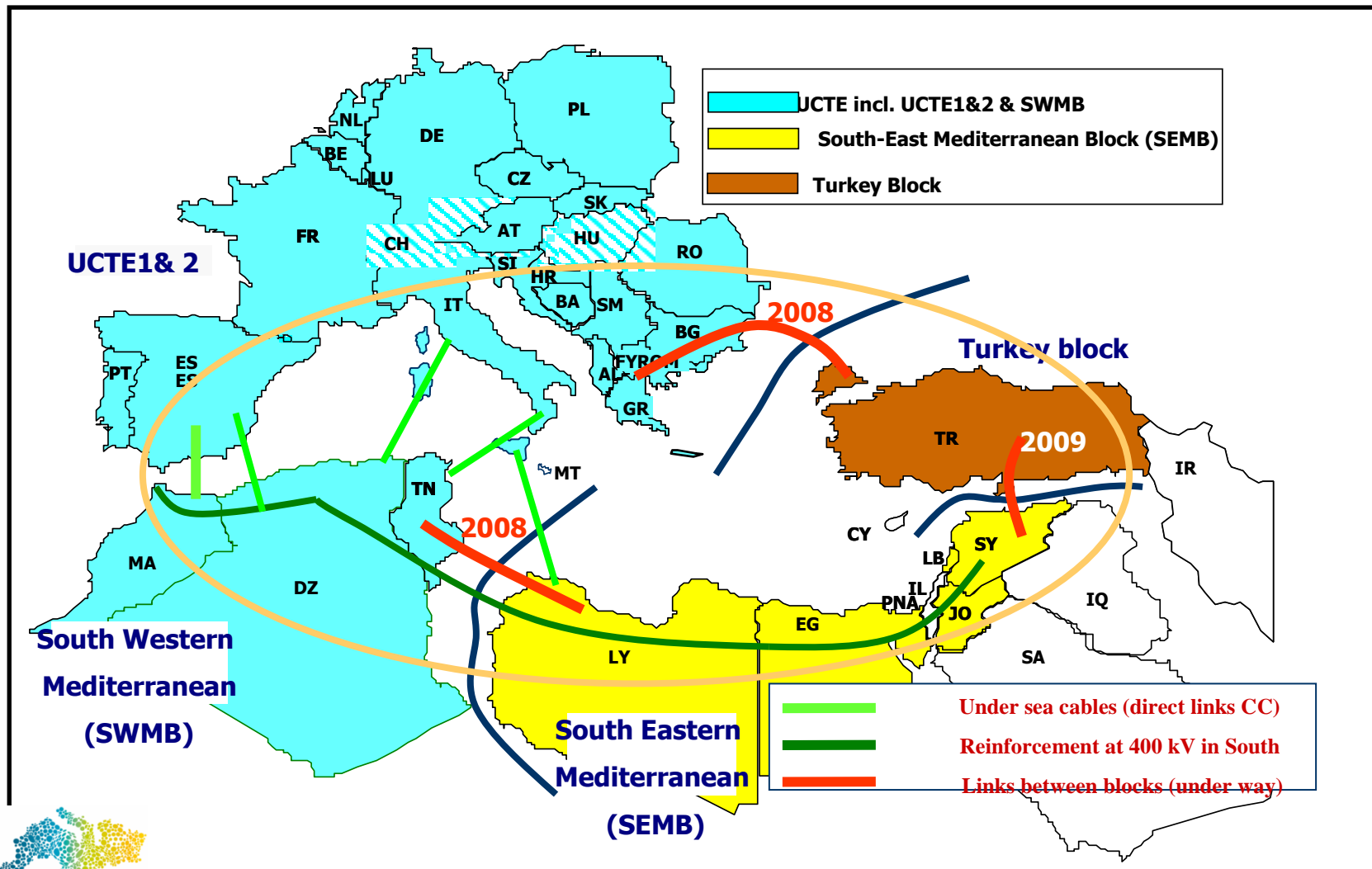


- Thirteen industrial groups create a common legal entity devoted to the set up of **a technical and economic conceptual framework**, to **develop technical and technological cooperation activities**, and to **promote an institutional framework favorable for the investments** and the profitability of the projects proposed in the South

3-Infrastructure for transmission and grid integration



Electricity Interconnections & Mediterranean Ring



MSP and cross-border interconnections

The development of a Mediterranean Solar Plan will have a strong impact on the electrical interconnections around the Mediterranean ring, both between the different Southern countries and the South/North electric systems.

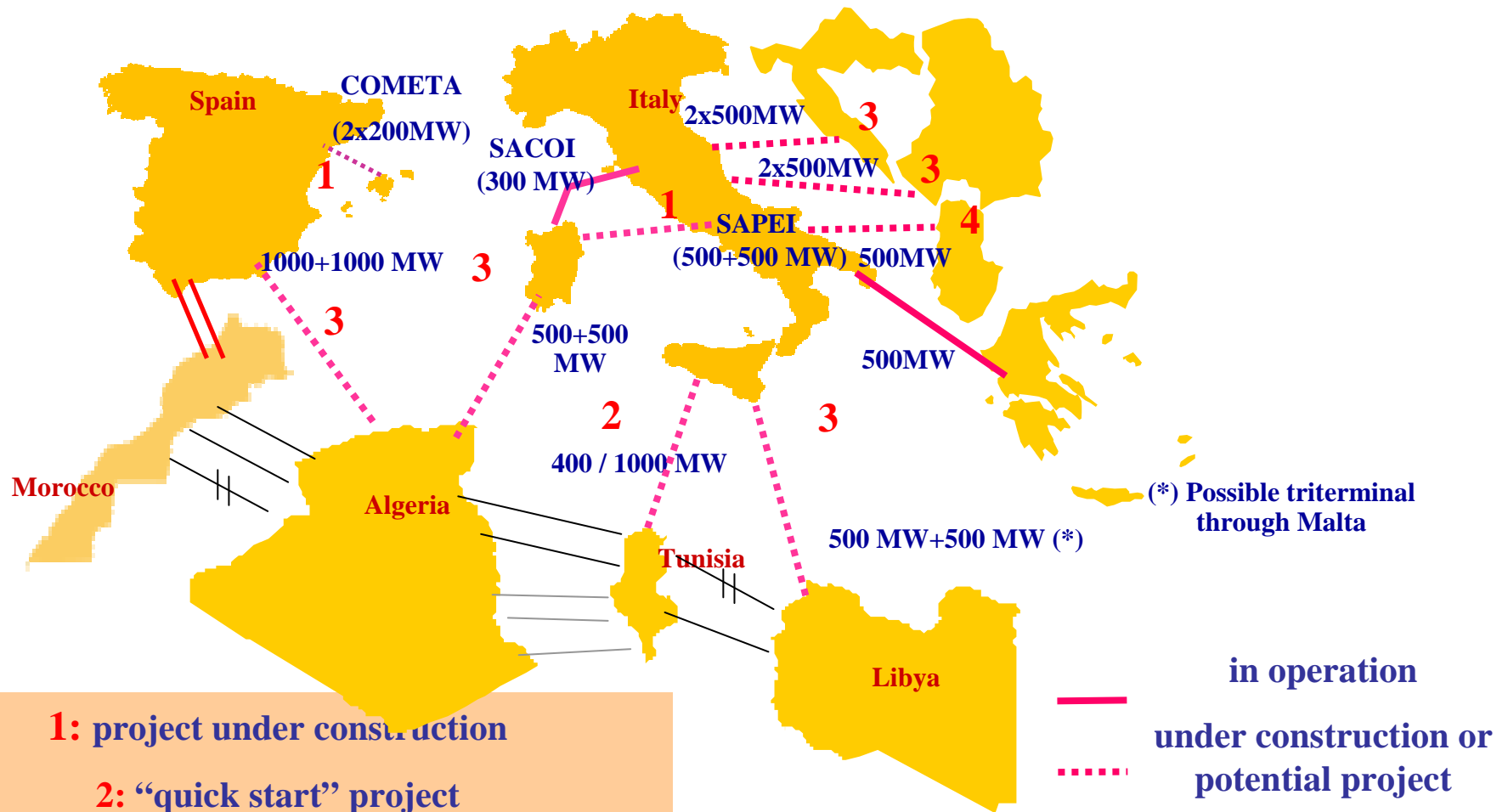
The completion of the Mediterranean electrical loop and of South-North interconnections will contribute to the bankability of several RES projects.

Two main strategies seem possible up to 2020:

1.Add submarines interconnections in the middle of the Mediterranean Sea

2.Reinforce the present connections: Morocco/Spain and Turkey/UCTE.

the Mediterranean HVDC links



Interconnections planning: needs, risks...

Needs

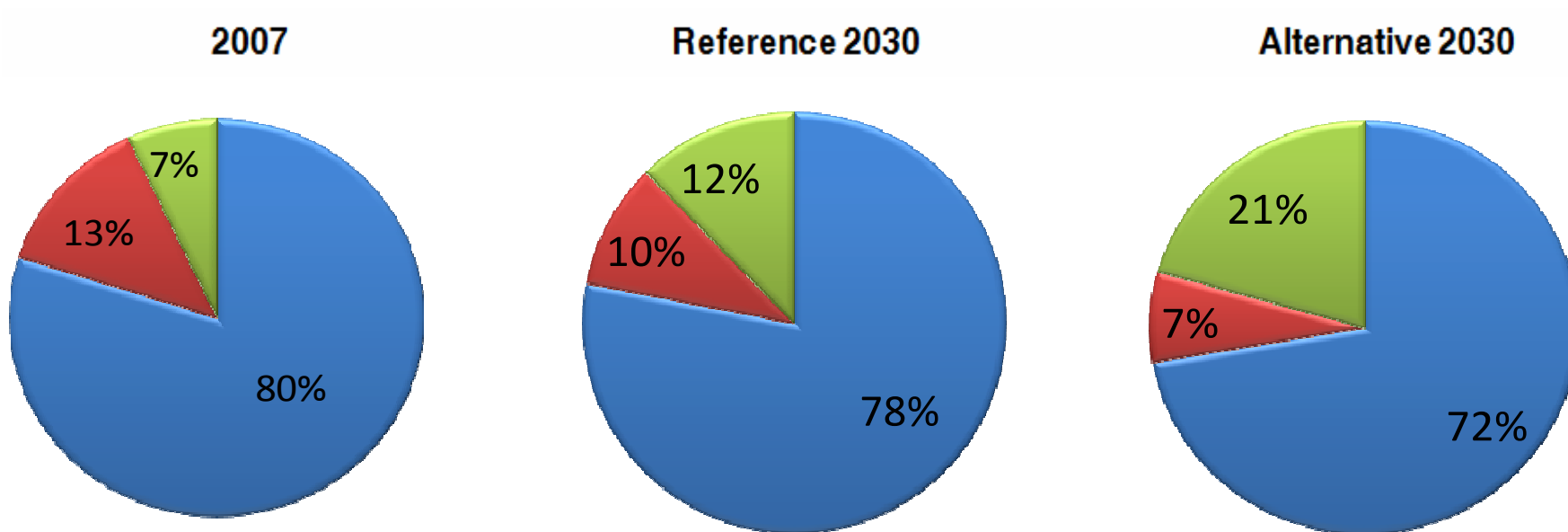
- System **adaptation** to integrate RES
- A firm **regulatory framework**
- Regional **governance**

Risks

- What **regulation** for the network access?
- What **price** for electricity?
- Return on the investment: **who pays?**
- What **financing framework** and what **business model?**
- What kind of **technology?**

4-PRIORITY TARGETS OF THESE INITIATIVES

OME SCENARIOS



■ Hydrocarbons ■ Nuclear ■ Renewables

Regulatory and legal framework-1

- Regulation is a key aspect of the Plan, especially its implications for long term investments.
- It is necessary to **establish a credible, predictable and incentivising framework**, which **reduces the regulatory risk** and **encourages necessary investments** (both national and foreign)
- Renewable energies still require notable stimuli, which must be provided in a **stable institutional context bringing legal security**: the analysis of the incentivising and legal measures adopted by some of the countries of the South show progress at different rates

Regulatory and legal framework-2

- The Mediterranean Solar Plan must achieve a **regulatory integration**, through the design of **credible mechanisms** that incentivise a real incorporation of renewable energies into the Euro-Mediterranean energy system.
- The main challenge of this initial stage of adapting the regulatory context is the **balanced definition of the economic support system**. There are two main variables to be defined: **who will bear this cost** and the **level of support** offered
- EU countries could analyse how to benefit from the **opportunities offered by Directive 2009/28/EC in terms of flexibility measures**, with a view to achieving national objectives of energy generation through renewable sources by 2020

Expected benefits for the southern countries: economic, social and sustainability dimension-1

- **Generate a substantial part of the energy necessary for sustainable economic growth of the Southern countries**
- Improvement of energy efficiency would have a significant economic impact. To increase efficiency, it is necessary to **raise society's awareness of the high cost of producing energy and the enormous advantages of generating it efficiently**
- The Mediterranean Solar Plans can contribute to controlling the emission of greenhouse gases in the region, as well as **encouraging the use of Clean Development Mechanisms (CDM)**. These mechanisms are still not used much in the region, and the opportunity to use them can **stimulate the interest of possible investors in potential projects**

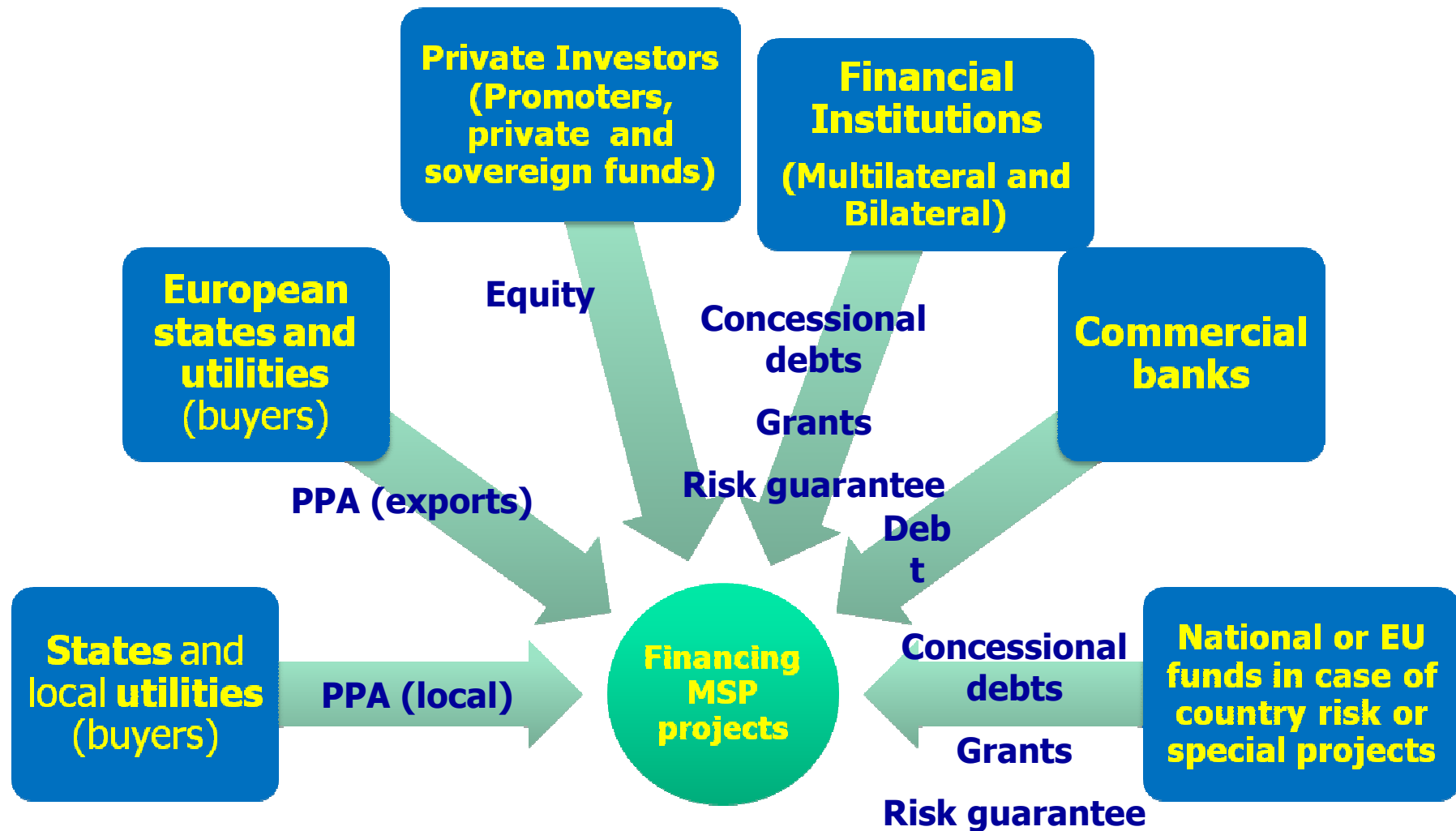
Expected benefits for the southern countries: economic, social and sustainability dimension-2

- **create new economic activities that generate employment and income.** One way of doing this could be through the development of knowledge clusters, located in specific geographical areas
- **training and cooperation**, both technical and technological, **and transmission of knowledge** must be enhanced, and local qualified employment created
- **modernisation of the energy services:** a transition is desirable towards electricity as it is one of the main elements of energy modernisation and has direct effects on social development and living standards
- help in the **fight against poverty and, especially, against energy poverty**, one of the great challenges of this century

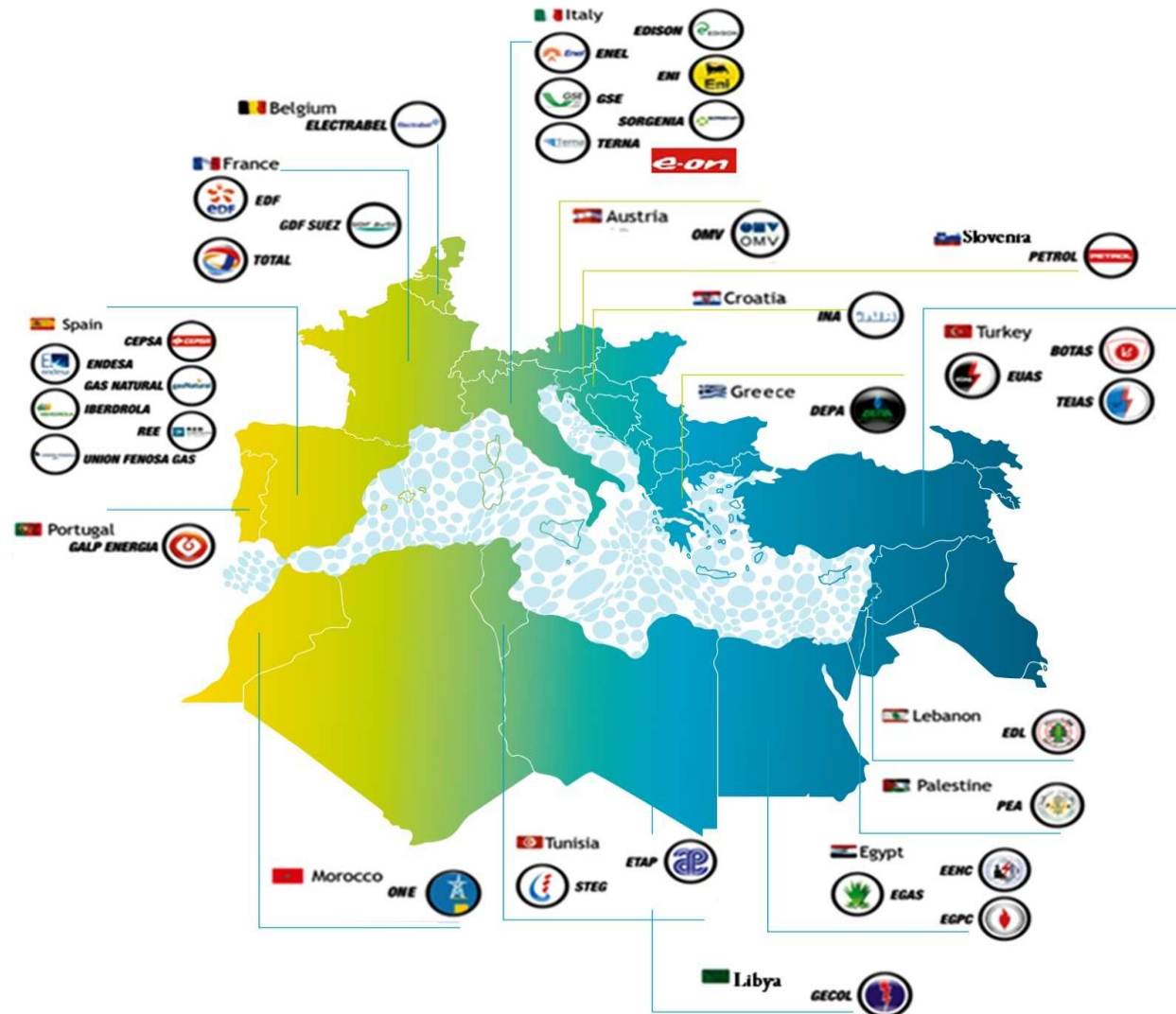
Funding requirements for the bankability of early projects

- The financial markets of developing countries are characterised by : **insufficient funds, inappropriate terms and conditions, and lack of availability of financial instruments**, which prevent them from mobilising the necessary funding resources for the development of renewable energies.
- Therefore, the **funding of the Solar Plans** must be based on the **concurrence of public and private funds**, and Community funds and instruments, EIB loans and those from the international and regional funding bodies but it will not be enough without a broad participation of foreign direct investment.
- The response, therefore, is a **combination of loans** for the transformation of Med Partner Country markets, partial **guarantees to share the risk, funds to promote investment** (debt or equity) in innovative, structured and scalable projects and, in general, to **create a climate favourable for investment** and to establish transparent conditions in the funding mechanisms.

Bridging the financial gap



5- Position of OME Companies



Position of OME-1

- Since the beginning **OME supported** in a determinant way **the Mediterranean Solar Plan**, and has been involved along with other partners in the setup in 2008 of a broader ***Initiative in support of the MSP***, a strong and credible network of key stakeholders from all the **Mediterranean Basin** capable and open to get involved on ongoing and additional actions and to link with other partners,(among them MEDELEC, Desertec, DLR, Pik, PWC, Uned, IAASA, ADEME, MEDENER, Fraunhofer, Transgreen, MEDREC, EPU)
- Many companies of the Association are strongly considering investing in large scale projects and are thus very interested in the success of all above mentioned initiatives. OME Member companies are in a position to give a **unique input in many critical tasks of the initiatives and projects** on RE under way, and will offer their availability to **check the quality of the deliverables** and **comment on the recommendations** that will be drawn.

Position of OME-2

OME thus keeps its Med Solar Initiative, and the Consortium composed by so many strong and credible key stakeholders in order to:

- **Monitor progress of on going initiatives and contribute to create a *network of networks***
- **Assess lessons learned** from ongoing projects in the South
- **Benchmark of policies and measures** for market integration
- **Propose criteria for project selection:** technical, industrial, financial, social and environmental
- **Outreach to South Med political decision makers**
- **Define innovative business model** to increase bankability and the involvement of the **private investors**
- Evaluate **local industrial requirements** and relevant **social impacts**

The Way Forward

- **Current energy paths** in the Mediterranean **are clearly unsustainable**
- Inverting these trends requires a **concerted action by a plurality of actors**
- **Mediterranean countries** have a common interest in **preparing together their long-term future**
- **The Mediterranean Solar Plan, Desertech, Transgreen, Paving the way, all National RE Plans** - if properly implemented and effectively coordinated- can further stimulate the **cooperation at policy, industrial and financial level** in order to turn the Mediterranean region into a **platform for sustainable development**

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