



Finance & Investment Opportunities in the Renewable Energy Sector

Has the time come for Middle East Renewables?

Dubai

18th - 19th September 2012



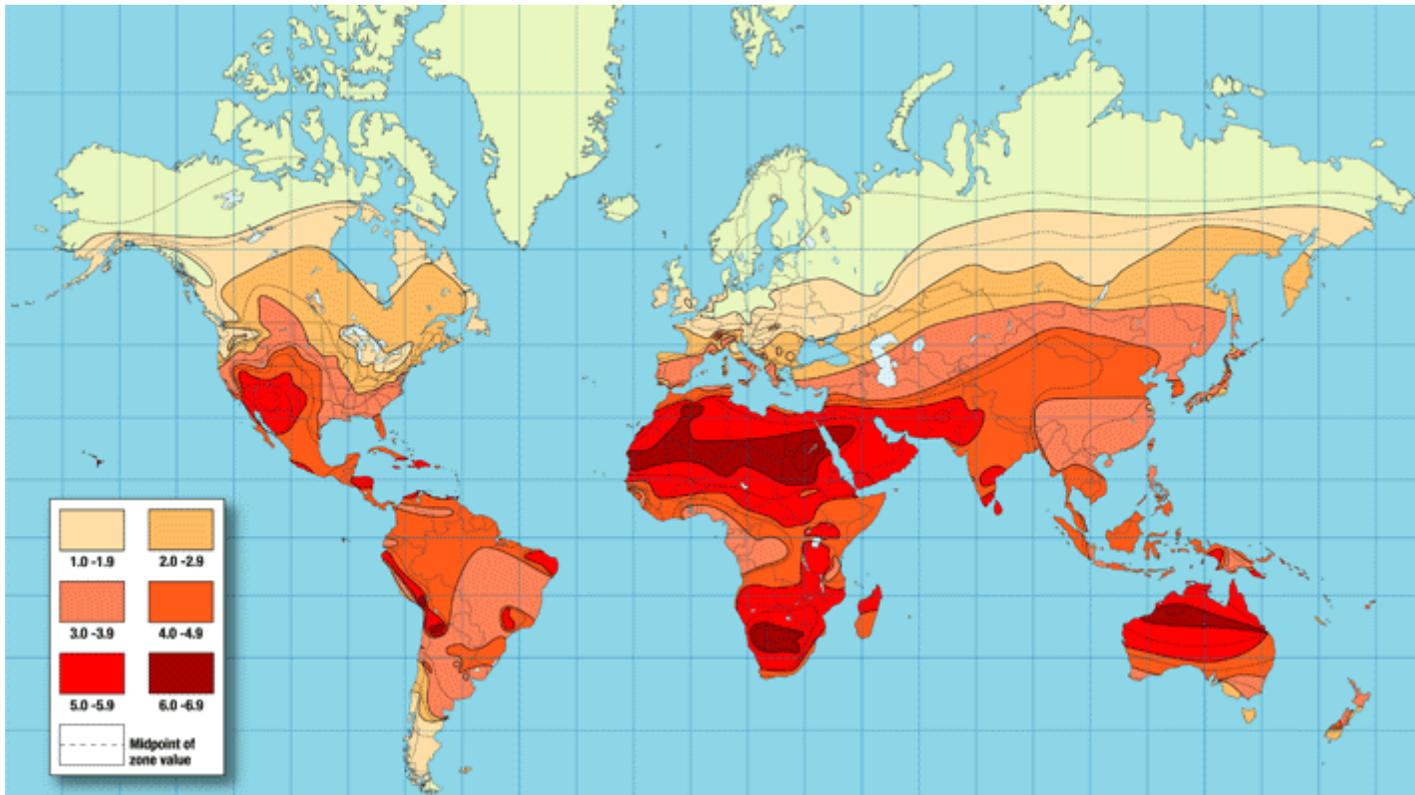
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MIDDLE EAST - THE LAND OF OPPORTUNITY



Source: Pew Charitable Trust

- ▶ The swathe of red across the Middle East says everything on potential
- ▶ Development to date in regions inferior in resource to the Middle East
- ▶ A similar map for wind shows significant potential to North and South of region

■ **MASSIVE GLOBAL GROWTH IN SOLAR**

■ **Drivers:**

- ▶ **Environmental – GHG reduction, clean energy.....**
- ▶ **Policy – clear legal and regulatory framework for renewable development**
- ▶ **SUBSIDY – renewable generation not economic without significant support**

■ **Impact:**

- ▶ **Development driven from Europe due to clear policy objectives and subsidy**
- ▶ **Substantial expansion in other areas such as the US and increasingly Asia**
- ▶ **Huge technical developments and rapidly reducing cost curve**

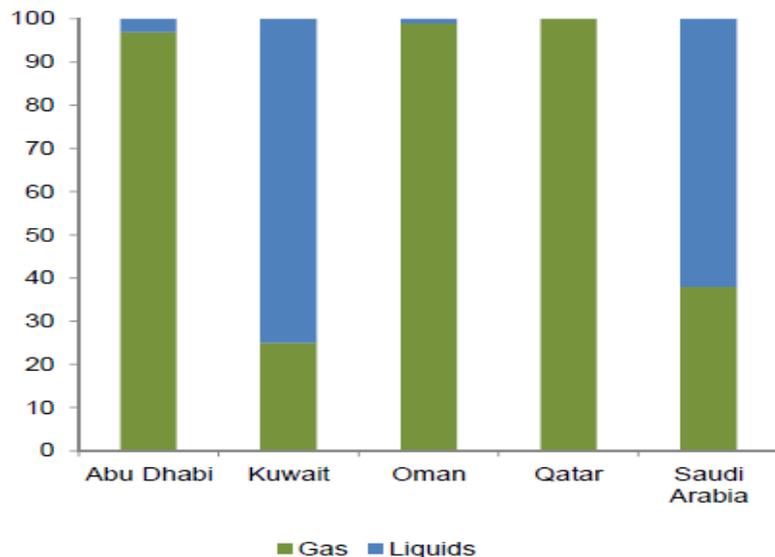
■ **Middle East?**

- ▶ **Substantially better resource than Europe for solar projects**
- ▶ **Positioned to benefit from technical and cost improvements**
- ▶ **Rationale?**

MIDDLE EAST DEVELOPMENT TO DATE?

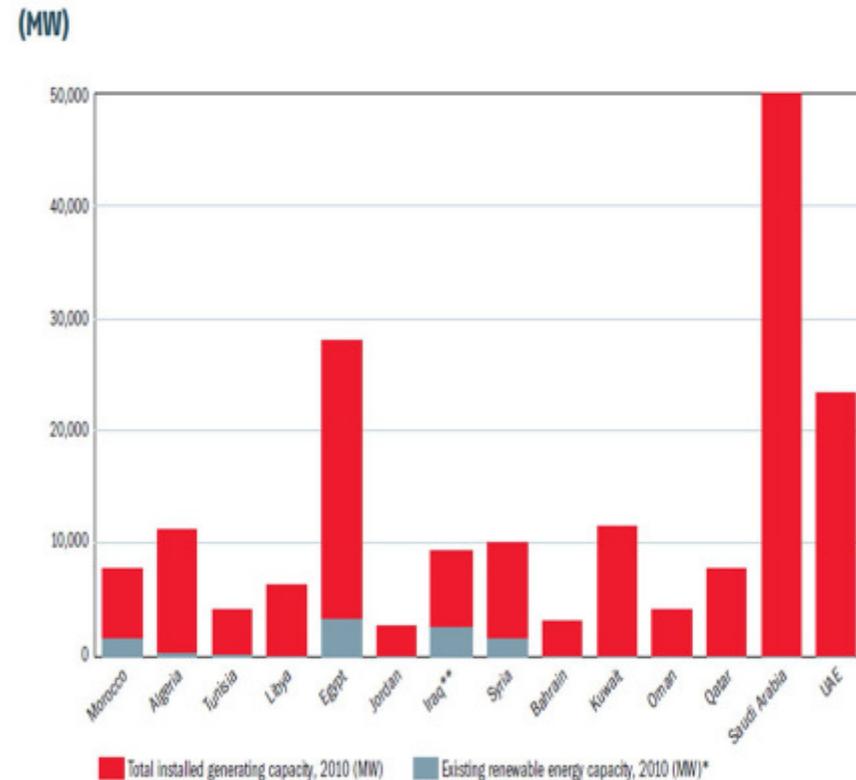
Reliance on hydrocarbons for power and water

The fuel breakdown in selected GCC utility sectors, 2009



Source: MEED Insight

Installed capacity in MENA region



*=includes hydroelectric. **=total installed capacity figure is for available capacity. Source: MEED Insight

Key messages:

- ▶ Very low renewable capacity installed
- ▶ Hydro is 90% of capacity
- ▶ Recent solar installation but not sufficient to register

■ **RENEWABLE ENERGY – GROWTH, SCALE AND COMMITMENT**

■ **Rapid growth Potential:**

- ▶ **Strong year-on –year growth in power and water demand**
- ▶ **High level of solar radiation over large part of the year**
- ▶ **Significant land availability**
- ▶ **Rapidly reducing global cost per unit**

■ **Huge scale of opportunity across the region:**

- ▶ **Developers see the potential for large scale installation – compared to patchwork of Europe for example**
- ▶ **Panel suppliers recognise the potential of the region**

■ **Commitment?**

- ▶ **Huge demand for new capacity – can renewable energy make a difference?**
- ▶ **Most MENA countries have defined 2020 targets (5-20% of capacity) – approx 20,000MW**
- ▶ **Can the cost be justified vs thermal generation?**

■ **WHAT WILL KICK START MIDDLE EAST INVESTMENT?**

■ **Clear Rationale:**

- ▶ **Supplement rather than replace thermal capacity**
- ▶ **Contribution to water production – solar desalination**
- ▶ **Reduced consumption of indigenous oil & gas resources - diversification**
- ▶ **Environmental**

■ **Regulation and Contractual Structures:**

- ▶ **Is there a need for complex regulatory frameworks?**
- ▶ **Could existing contractual structures could be adapted ?**

■ **Ambition into Action:**

- ▶ **Huge plans need to be back by commitment to implement**
- ▶ **Need to provide environment where renewable can compete with subsidised gas / oil**
- ▶ **Strategy – PV vs CSP, Investment in the whole supply chain etc?**

■ ARE THE BANKS READY FOR THE ME RENEWABLE REVOLUTION ?

■ Large pool of institutions comfortable with ME projects

- ▶ Many years experience of IWPP development for global sponsors
- ▶ Established country envelopes and financing models
- ▶ Strong local lending capacity

■ Strong group of institutions focussed on Renewable Energy

- ▶ Increasing number of banks focussing on renewable financing in US & Europe
- ▶ Increasing presence of global developers in the renewable space

■ Is the sub-set of banks with renewable and ME financing experience sufficient?

■ ■ ARE BANKS READY TO FINANCE AT ALL - TRENDS?

▶ **Market Liquidity:**

Financial institutions still have issues and are dedicating capital to the safe haven of core clients and standard projects

▶ **Risk Appetite:**

Safety first so why commit to a new sector where in many cases the fundamental economics are not obvious?

▶ **Knowledge:**

Middle East low carbon focus is nascent and market structures are largely undefined so will financial institutions take time to evaluate the potential

▶ **Vision:**

What are we being asked to finance going forward – policy, politics or necessity?

■ **FINANCING ME RENEWABLES – BUSINESS AS USUAL?**

■ **Project finance structures prevail:**

- ▶ **PF banks comfortable with construction risk**
- ▶ **Likely to build on successful IWPP models**
- ▶ **Flexibility to adapt as the industry develops**

■ **Refinancing in the bond markets:**

- ▶ **Clear potential for bond refinancing on completion**
- ▶ **Structures need to be “bond friendly”**

■ **Other players in financing the sector:**

- ▶ **Bilateral and multilateral agencies - clear role depending on source of equipment**
- ▶ **Sukuk**

■ ■ **LESSONS FROM OTHER MARKETS?**

■ **Cost reduction is the key to viability – drive to grid parity**

- ▶ Taxing emissions
- ▶ Technology advancement – solar in particular
- ▶ Volume deployment & economies of scale – solar and wind

■ **Pace of change leading to increased risk in the field**

- ▶ Inherent risk of technology advances
- ▶ Performance risks over life of the assets

■ **Tariff regimes under pressure**

- ▶ Rapid growth in response to rich subsidies has put pressure on structures
- ▶ Tightrope between encouraging development and cost
- ▶ Questions over cost of green energy – consumer pays directly or indirectly

■ **Very easy to destroy confidence of investors and financiers**

WINNERS AND LOSERS IN ALL NEW DEVELOPMENTS

Renewable technology

- ▶ Shake out in solar panel manufacturers – consolidation inevitable
- ▶ Cost vs reliability
- ▶ Technology selection key to debt financing

Mobility of capital and debt

- ▶ Regulatory framework and incentive key to attractiveness
- ▶ Hero to zero – debt and equity is highly mobile and will switch

Rank ¹	Country	All renewables
1	(1) China	71
2	(2) USA ³	67
3	(4) Germany	64
4	(3) India	62
5	(6) UK	58
5	(5) Italy	58
7	(7) France	56
8	(9) Canada	53
9	(8) Spain	52
10	(11) Sweden	50

August 2012 update.....

- ▶ Morocco entered the top 10
- ▶ ME not yet featuring

E&Y Country Attractiveness index Aug 2011

■ **BARRIERS TO LENDING IN THE ME RENEWABLE SECTOR?**

■ **Shifting landscape causing uncertainty in global markets:**

- ▶ **Market reviews – European markets being modified to deal with renewable capacity**
- ▶ **Taking time to understand which technologies will be winners**
- ▶ **Why take a chance on new markets**

■ **Traditional regulatory frameworks are not there (yet):**

- ▶ **Contractual structures can be complex**
- ▶ **Learning curve for new entrants against a changing developing background**

■ **Regional targets have different drivers**

- ▶ **Need to understand the rationale for developing the market**
- ▶ **Key is clarity, consistency and commitment**

CONCLUSIONS

- **The Middle East has excellent solar resource and some wind potential**
- **Drivers in the Middle East may be different from Europe**
- **Financial institutions have simple needs:**
 - **Regulatory / policy clarity**
 - **Consistency**
 - **Profitability**
- **Renewables remains an attractive sector for project finance banks despite global pressure on liquidity**
- **The future investment requirement is potentially huge – debt markets will respond if the correct environment is created but other pools of liquidity will be needed to build out the market**

SOCIETE GENERALE - SELECTED SOLAR CREDENTIALS



Masdar
A MUBADALA COMPANY

ABENGOA SOLAR TOTAL

Shams 1 CSP
109 MW Concentrating Solar Power Plant

USD 700m

Mandated Lead Arranger, Facility Agent, Technical Bank, Hedge Provider

2011 UAE

GE **NEXTERA ENERGY**

US\$1,799,000,000

Senior Credit Facilities Participant

2011 USA

AES Solar

17.5 MW solar PV
AES Silistra Portfolio

Term loan and VAT facility

Sole Arranger

2011 Bulgaria

GDF SUEZ

EUROFIDEME 2 **SITIP**

Curbans, Provence
PV Solar Power Plant
33 MWp

Mandated Lead Arranger, Hedging Bank Agent

2010 France

Shams 1 CSP

100 MW photovoltaic and solar power plant

US 600,000,000

MLA, Facility Agent, Technical Bank, Hedge Provider

2010 Middle East

AES Solar ENERGY

EUR 172,200,000

MLA, Technical Bank, Modelling Bank, Coordination and Documentation Bank and Hedging coordinator and provider

2010 Italy

Landes

PV Solar Power Plants
24 MWp

Mandated Lead Arranger, Original Commercial Lender

2010 France

ABENGOA e-on

HELIOENERGY 1 & 2
50 Mw Solar Thermal Plants (Eclija, Sevilla)

EUR 316 M

MLA & Swap Provider

2010 SPAIN

AES Solar

3.9 MW solar PV
AES Kalipetrovo

Term loan and VAT facility

Sole Arranger

2010 Bulgaria

SunRay Renewable Energy

Montalto 24 MW Photovoltaic plant

Term Loan Facility and VAT Facility

EUR 120,000,000

Mandated Lead Arranger, Coordination & Documentation bank, hedge provider

2009 Italy

energies EDF nouvelles

Manosque
PV Solar Power Plant
4.1 MWp

EUR 14,000,000

Mandated Lead Arranger, Tax Investor & Hedging Bank

2009 France

acciona

Palma-Saetilla & Majadas
3 thermal-solar plants 150 MW

EUR 542,700,000

Mandated Lead Arranger

2009 Spain

energies EDF nouvelles

Saint-Tulle
PV Solar Power Plant
5.2 MWp

EUR 19,000,000

Mandated Lead Arranger, Tax Investor & Hedging Bank

2009 France

Photovoltaic Portfolio

EUR 50,000,000

Mandated Lead Arranger and Bookrunner

2008 Italy

ABENGOA

Abengoa
Renewable Energy (solar-thermal)

EUR 217,000,000

Mandated Lead Arranger, IRS Provider

2008 Spain

ISOLUX CORSÁN

Tuin Zonne
116 MW Photovoltaic Portfolio

EUR 862,000,000

Mandated Lead Arranger and Bookrunner

2008 Spain

ABENGOA SOLAR

Solnova 3 & 4
2 * 50 MW CSP plant

EUR 252,500,000 & EUR 248,000,000

Mandated Lead Arranger and Bookrunner

2008 Spain

ABENGOA SOLAR

Solnova 1
50 MW CSP plant

EUR 258,900,000

Mandated Lead Arranger and Bookrunner

2007 Spain