

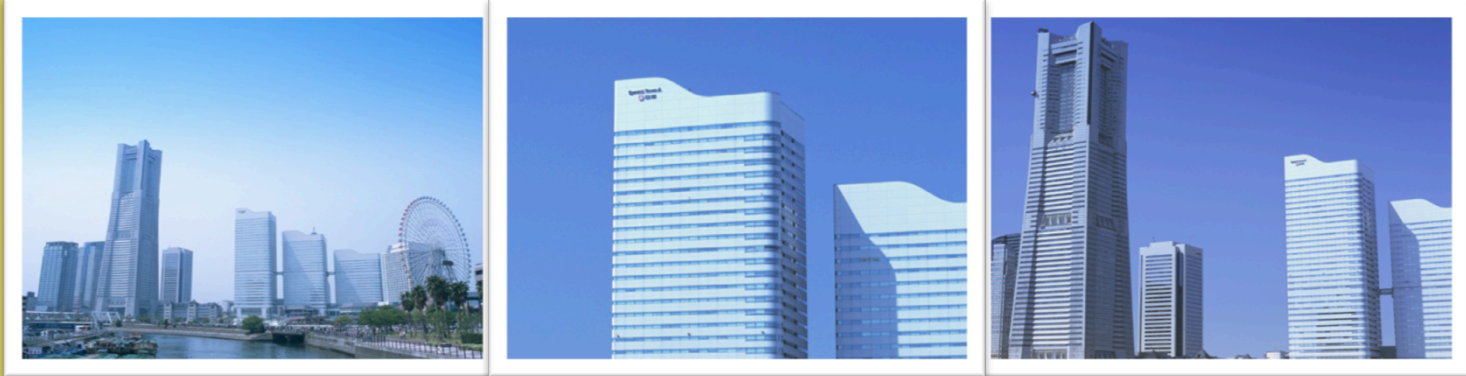
Mega Solar Power Development

Toru Shiota
General Manager
Business Development Sales Department
Global Marketing

1. Introduction
2. Oita Mega Solar
3. Rumah Demonstration
4. Proposition for Saudi Arabian Mega Solar

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Corporate Overview

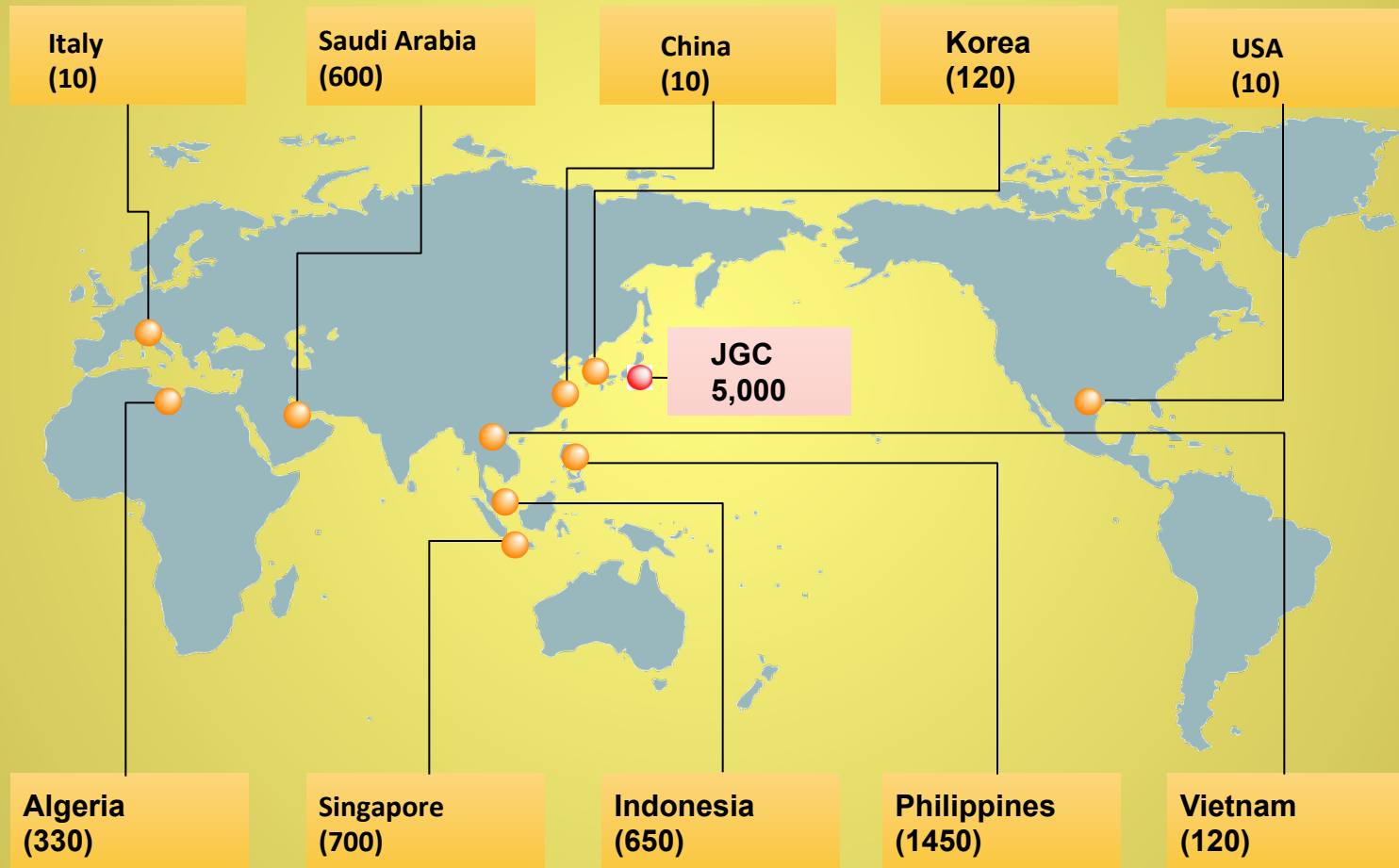


- Established in 1928
- Independent, Not member of a group
- Turnover: US\$ 6.8 Bil. (Fiscal '11, ending March 2012)
- JGC Group Manpower: 9,000 (Domestic: 5,000 + Overseas: 4,000)
- Publicly Owned
- Listed in Nikkei 225 (Nikkei Stock Average of 225 selected Issues)

Worldwide resources

Total JGC Group Manpower: 9,000

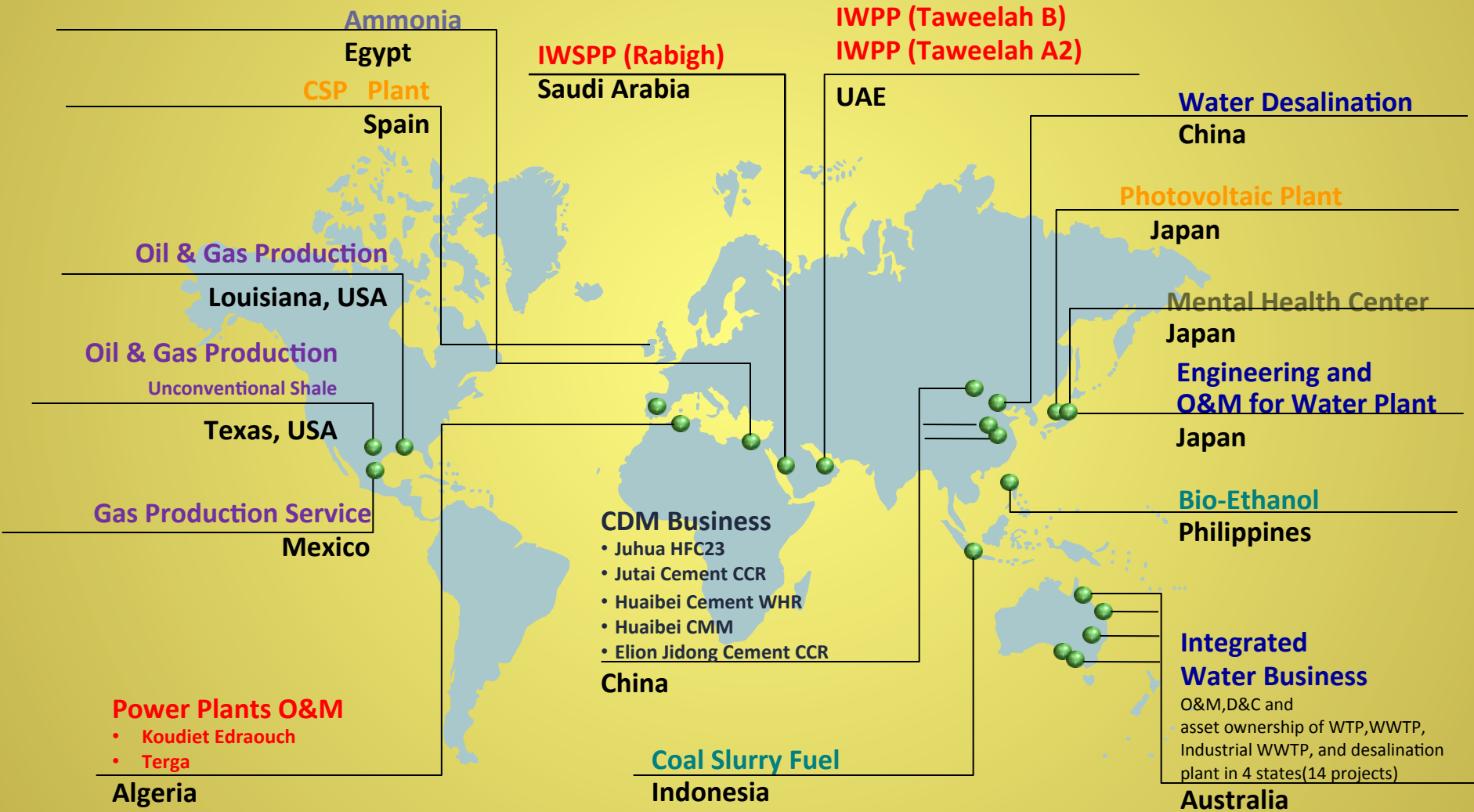
Domestic: 5,000 Overseas: 4,000



As of 2012

Investment Portfolio

Red: IPP, IWPP
 Orange: Renewable
 Blue: Water
 Purple: Oil & Gas



World Energy Future Summit



Solar Project / our history

CSP

2005	Algerian ISCC	- declined
2006	UAE Shams 1	- declined
2008	France Project X	- declined
2009	Spain Solacor 1/2	- developed with Abengoa Solar

Photovoltaic

2009	Saudi Arabia Demo	- developed
2009	Spain Project Y	- declined
2011/2	Japan Oita	- developed

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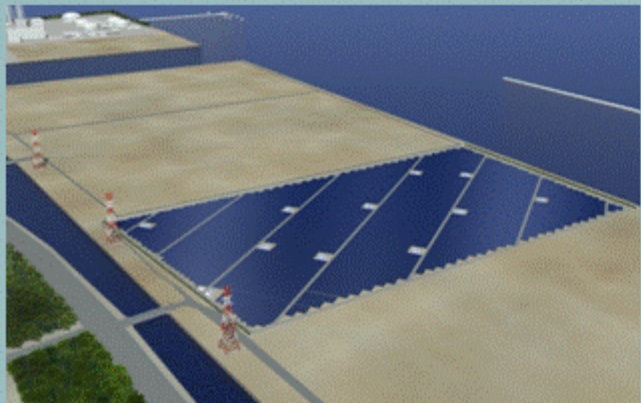
Japanese Feed in Tariff

I heard that METI announced FIT for PV system owners ¥42 (\$0.53) per kWh from July — and slightly less for other renewables -technologies.

It will be among the highest in the world, uncapped, and good for 20 years at systems larger than 10kW.

Great news! We can secure the site for mega solar by offering the generous lease fee and even choose Japanese PV modules for our solar park (=^▽^=).

Oita Mega Solar PJ Introduction



Project Scheme	BOO (Build, Own and Operate)
Location	Ohita, Japan
Facilities	26.5MW
Total Project Cost	8,000 Million Yen (Approx. USD 100million)
Project Schedule	Finance Close: 2012 PCOD: 2013
Shareholder	JGC Corporation 100%
EPC Contractor	JPS (JGC Plant Solutions) Yonden Engineering
Remarks	Project Finance from Mizuho Corporate Bank and others.

Schedule and Photo

	2012						2013												2014						
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7
FIT																									
Basic Design																									
Site																									
Apply Grid Connection																									
Permitting																									
Finance																									
EPC																									
O&M																									

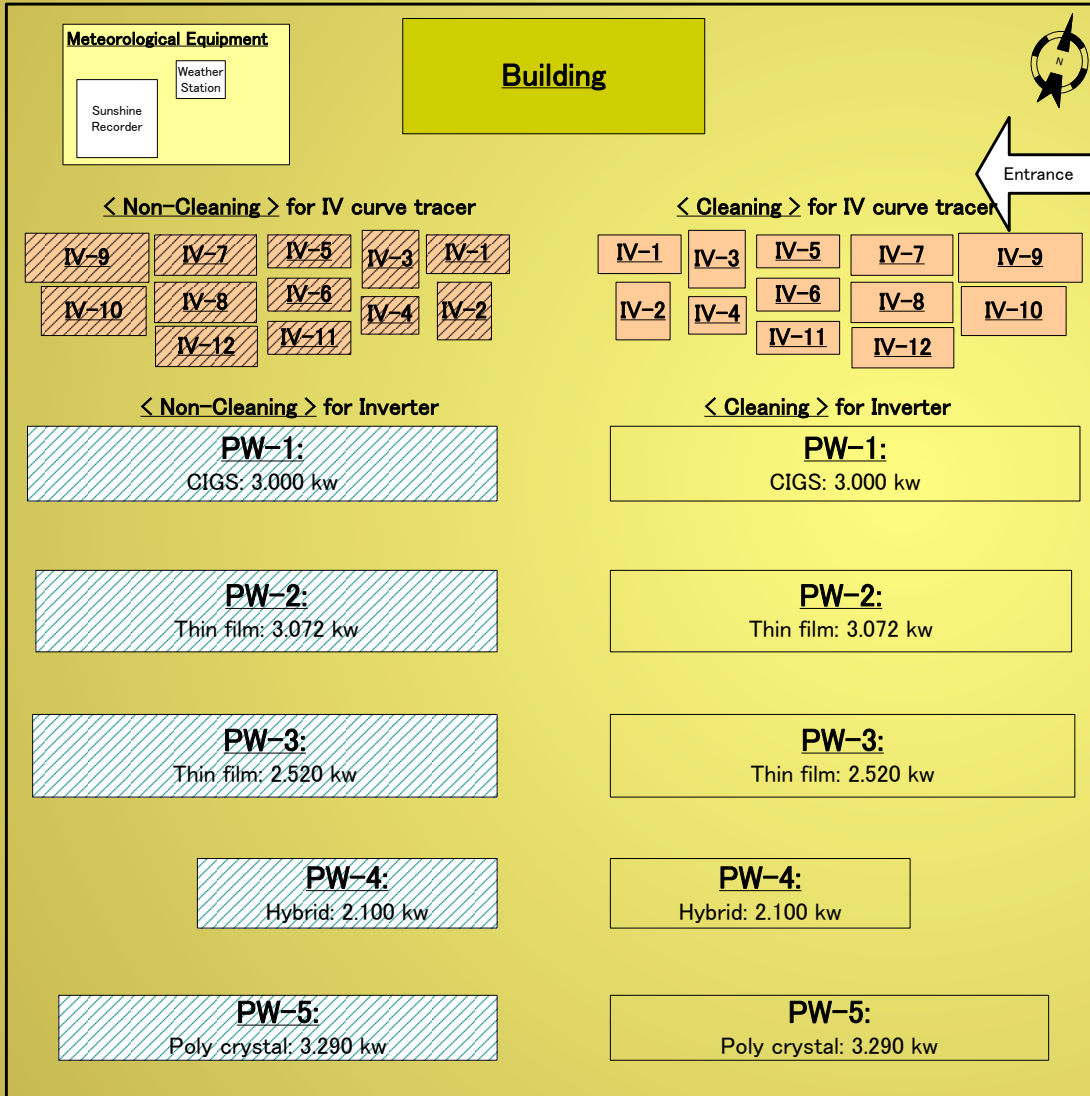


Shinto ceremony of purifying a building site –Aug, 28, 2012

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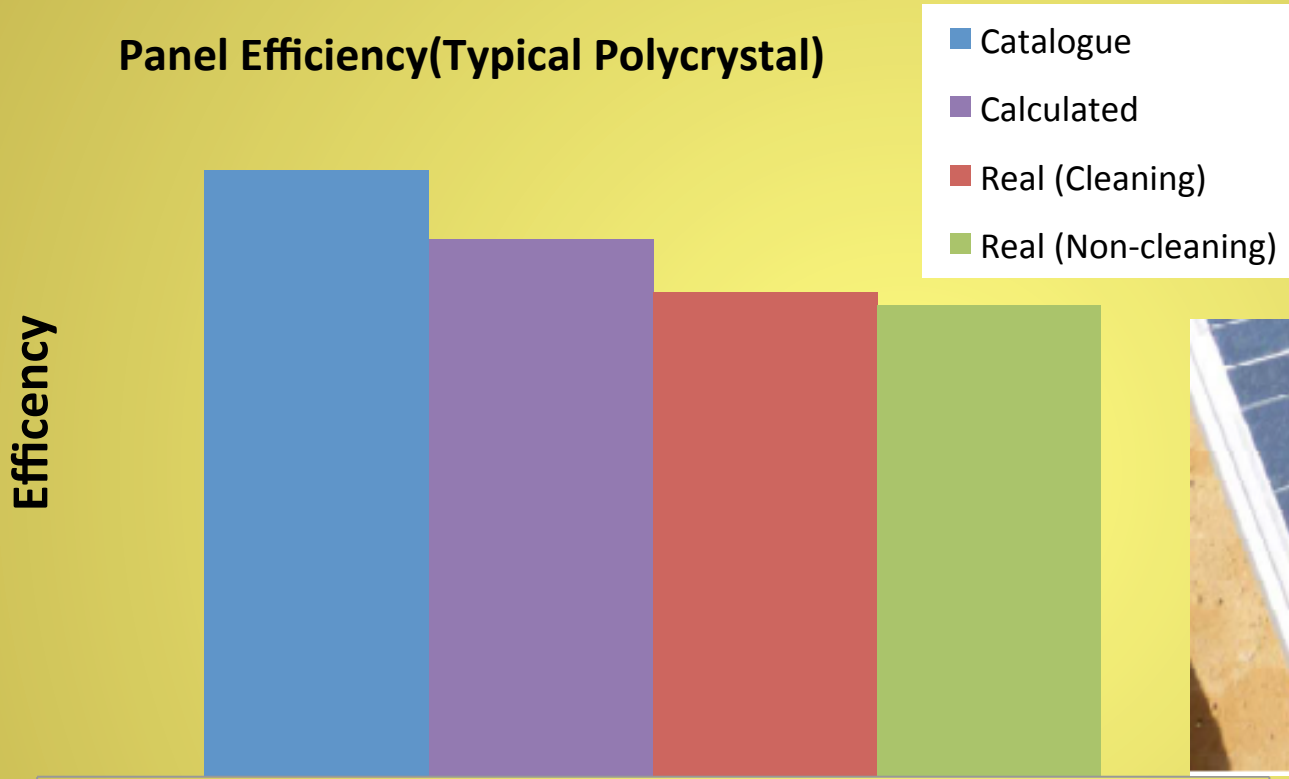
PV Demonstration Test in Saudi Arabia

Rumah Demonstration Plant: Panel Layout



Data analysis

Panel Efficiency(Typical Polycrystal)



•Efficiency is decreased

Thermal Characteristic: Difference ambient condition between Calculated and Real

Dust: Dust by sand

Module degradation: Yearly degradation by aging

etc.

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Mena Solar Map

Powering the Future of Energy Business

The Middle East and North Africa (MENA) region's renewable energy promises great potential especially in the solar energy sector. MENA has amongst the world's finest conditions for concentrated solar power (CSP) and photovoltaic (PV); abundant sunshine, low precipitation, plenty of unused flat land close to road networks and transmission grids. Many countries in the region are seeking to increase the proportion of renewable energy in their generation mix as they seek to reduce local consumption of fossil fuels, meet ever-increasing local demand and even start to diversify their economies away from hydrocarbons.

With great ambitions and fixed targets, an abundance of natural resources and maturing solar technologies, the region is set to experience significant growth in solar energy. Explore the MENA solar energy potential at World Future Energy Summit 2013.

Building on the high profile successes of the World Future Energy Summit (WFES) 2012, the sixth annual gathering of future energy's world leaders will be home to brilliant minds and inspiring thinkers for three days of expert debate and world class innovation.

MOROCCO

Project Name: Masen Moroccan Solar Plan: Sebkhah Tah Solar Power Plant
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 360 Built-up area (square meter)
 500 Power (megawatt)

Project Name: Masen Moroccan Solar Plan: Boujbour Solar Power Plant
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 100 Power (megawatt) 500000 Built-up area (square meter)

Project Name: Masen Moroccan Solar Plan: Fourm Al Oudal Solar Power Plant
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 500 Power (megawatt) 5700000 Built-up area (square meter)

Project Name: Masen Moroccan Solar Plan: Ouazazate Solar IPP: Phase II
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 125 Power (megawatt)

Project Name: Masen - Ouazazate Solar Power Plant Phase 4
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 125 Power (megawatt)

Project Name: Masen - Ouazazate Solar Power Plant Phase 3
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 125 Power (megawatt)

Project Name: Masen Moroccan Solar Plan
Owner: Moroccan Agency for Solar Energy (Masen)

Project Name: Masen Moroccan Solar Plan: Ouazazate Solar IPP: Phase 1
Owner: Moroccan Agency for Solar Energy (Masen)
Capacity: 125.00 Power (megawatt)

ALGERIA

Project Name: Sonelgaz - Rouiba Solar Panels Plant
Owner: Société Nationale de l'Electricité et du Gaz (Sonelgaz)
Capacity: 120 Power (megawatt)

EGYPT

Project Name: NREA Kom Ombo Concentrating Solar Power Plant
Owner: New & Renewable Energy Authority (NREA)
Capacity: 100 Power (megawatt)

SAUDI ARABIA

Project Name: Mecca Municipality - Solar Power Project
Owner: Mecca Municipality
Capacity: 100 Power (megawatt)

Project Name: Solar Energy and Technologies
Owner: Kacare
Capacity: 41 gpwatts

JORDAN

Project Name: MENA Cleantech GmbH - Joan 1 Solar Power Plant
Owner: MENA Cleantech GmbH
Capacity: 100.00 Power (megawatt)

Project Name: Kavar Energy / Ma'an Development - Shams Ma'an Photovoltaic Power Plant
Owner: Kavar Energy / Ma'an Development
 Area Kavar Energy / Ma'an Development Area
Capacity: 100.00 Power (megawatt)

Project Name: Aqwa Power / Cegso El-Quweira Photovoltaic Solar Power Plant
Owner: Aqwa Power / Cegso
Capacity: 50.00 Power (megawatt)

Project Name: MEMR - Photovoltaic Power Plant
Owner: Jordan Ministry of Energy & Mineral Resources (MEMR)
Capacity: 40.00 Power (megawatt)

SYRIA

Project Name: Ministry of Electricity - Horns Solar Power Plant
Owner: Syria Ministry of Electricity
Capacity: 10 Power (megawatt)

KUWAIT

Project Name: IKC - Integrated Concentrated Solar Power (CSP) Plant
Owner: Kuwait Oil Company (KOC)

Project Name: MEW - Al Abdaliya Integrated Solar Combined Cycle (SCC) Power Plant
Owner: Kuwait Ministry of Electricity & Water
Capacity: 228 Power (megawatt)

Project Name: MEW / KISR - Abdel Renewable Energy Complex
Owner: MEW / KISR
Capacity: 70 Power (megawatt)

BAHRAIN

Project Name: Ministry of Electricity & Water (MEW) Hybrid Solar and Wind Pilot Plant
Owner: Bahrain Ministry of Electricity & Water
Capacity: 10 Power (megawatt)

Project Name: Tanmiyat Aloula Holdings Photovoltaic Power Plant
Owner: Tanmiyat Aloula Holdings

QATAR

Project Name: KAHRAMA - Solar Power Complex
Owner: Qatar General Electricity & Water Corporation "KAHRAMA"
Capacity: 3500 Power (megawatt)

OMAN

Project Name: PAEW - Solar Power Plant
Owner: Oman - Public Authority for Electricity & Water (PAEW)
Capacity: 200 Power (megawatt)



TUNISIA

Project Name: Nur Energie Ltd / Top Oil Fields Services - TuNur Solar Power Project
Owner: Top Oil Field Services Nur Energie Ltd.
Capacity: 1000 Power (megawatt)

Project Name: Mitsub / Tunisian Government El Borma ISCC Power Plant
Owner: Mitsub / Tunisian Government
Capacity: 44 Power (megawatt)

Project Name: STEG - Soleil de Nefta Solar Power Plant
Owner: Société Tunisienne de l'Electricité & du Gaz (STEG)
Capacity: 20 Power (megawatt)

UAE

Project Name: Shams 1
Owner: Masdar / Abengoa / Total
Capacity: 100 (megawatt)

Project Name: Mulk Renewable Energy - Sharjah Solar Power Project
Owner: Mulk Renewable Energy
Capacity: 200 Power (megawatt)

Project Name: DEWA - Mohammad Bin Rashid Al Maktoum Solar Power Plant
Owner: Dubai Electricity & Water Authority (Dewa)
Capacity: 1000 (megawatt)

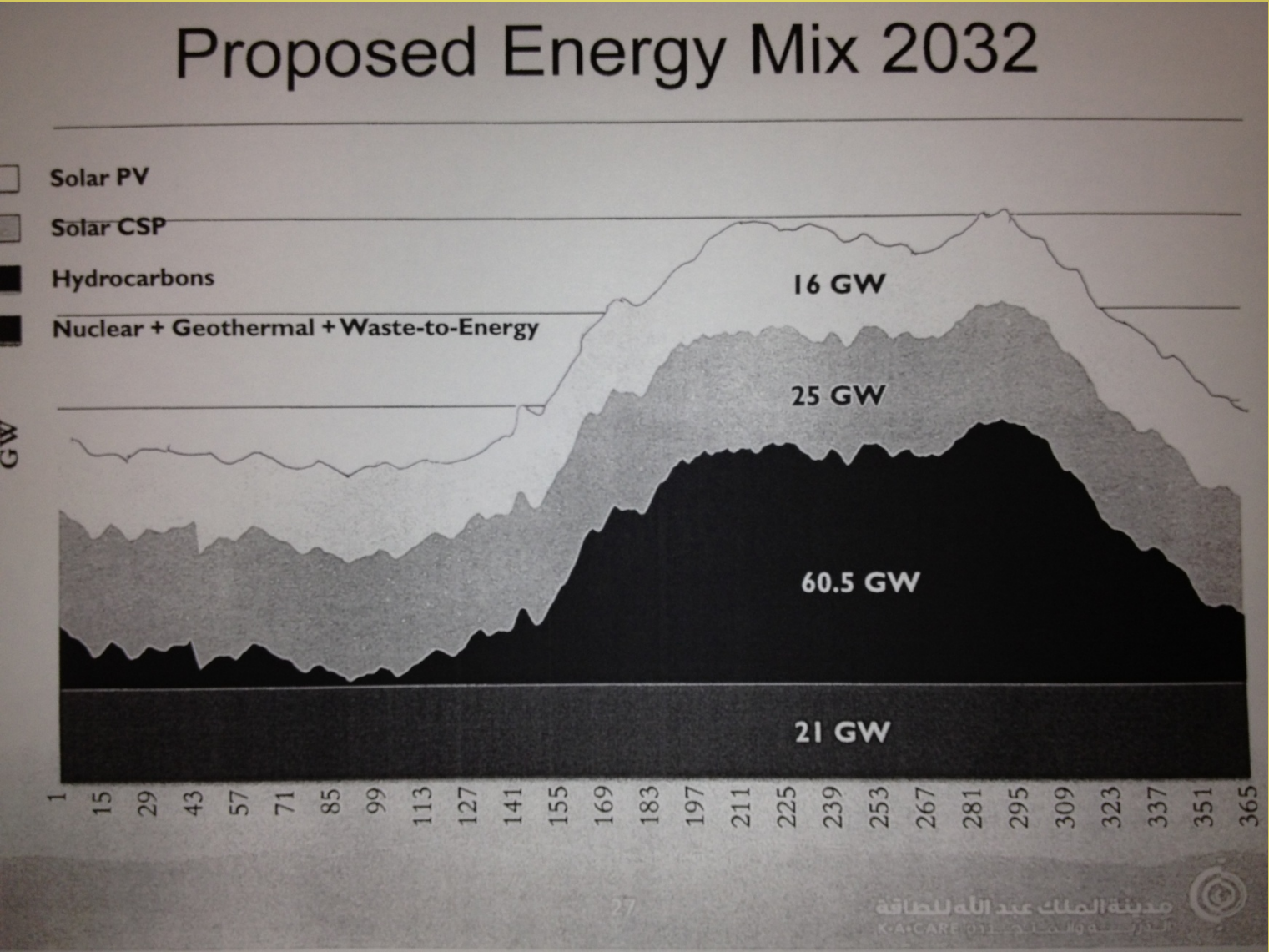
Project Name: DEWA - Mohammad Bin Rashid Al Maktoum Solar Power Plant (Phase II)
Owner: Dubai Electricity & Water Authority (Dewa)
Capacity: 1000 power (megawatt)

Project Name: Masdar City's Solar Photovoltaic Power Plant
Owner: Masdar
Capacity: 10 (megawatt)

Project Name: Solar Islands
Owner: Ras Al Khaimah Investment Authority

Project Name: Noor 1
Owner: Masdar
Capacity: 100 (megawatt)

Saudi Arabia Proposed Energy Mix



Solar will make up a large proportion of Saudi Arabia's future renewable energy purchases

KACARE renewables procurement program will be among the largest sustained efforts of its kind in the world, resulting in 54.1 GW by 2030. (SOLAR 41 GW: PV 16 GW & CSP 25 GW).

- ▶ Program has strong underlying economic fundamentals given the value of saved oil and local value chain development.
- ▶ Process envisioned to commence with two competitive procurement rounds followed by institution of Feed-in-Tariff.
- ▶ KACARE is commencing a developer registry program immediately, will solicit comments on program design in June, and expects to issue a draft RFP in the third quarter of 2012.
- ▶ While size of initial procurement could be as high as 3,000 MW, KACARE recognizes that first projects will be pioneers – objective is quality, utility-scale plants, rather than a fixed MW target.
- ▶ Initial procurement will seek diversity of technologies and developers, with selection based on both price and non-price factors.

Source: 4th Saudi Solar Energy Forum

Remaining Issues

- Continued KSA Government Support,
i.e. suitable legal and regulatory framework
including funding mechanism
- Power Purchase Agreement (PPA)
- Off-Taker
- FITs

Thank you!