UNLOCKING SUNBELT COUNTRIES' SOLAR POTENTIAL

Dubai's STE Projects

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Current STE initiatives in the Arab Emirates

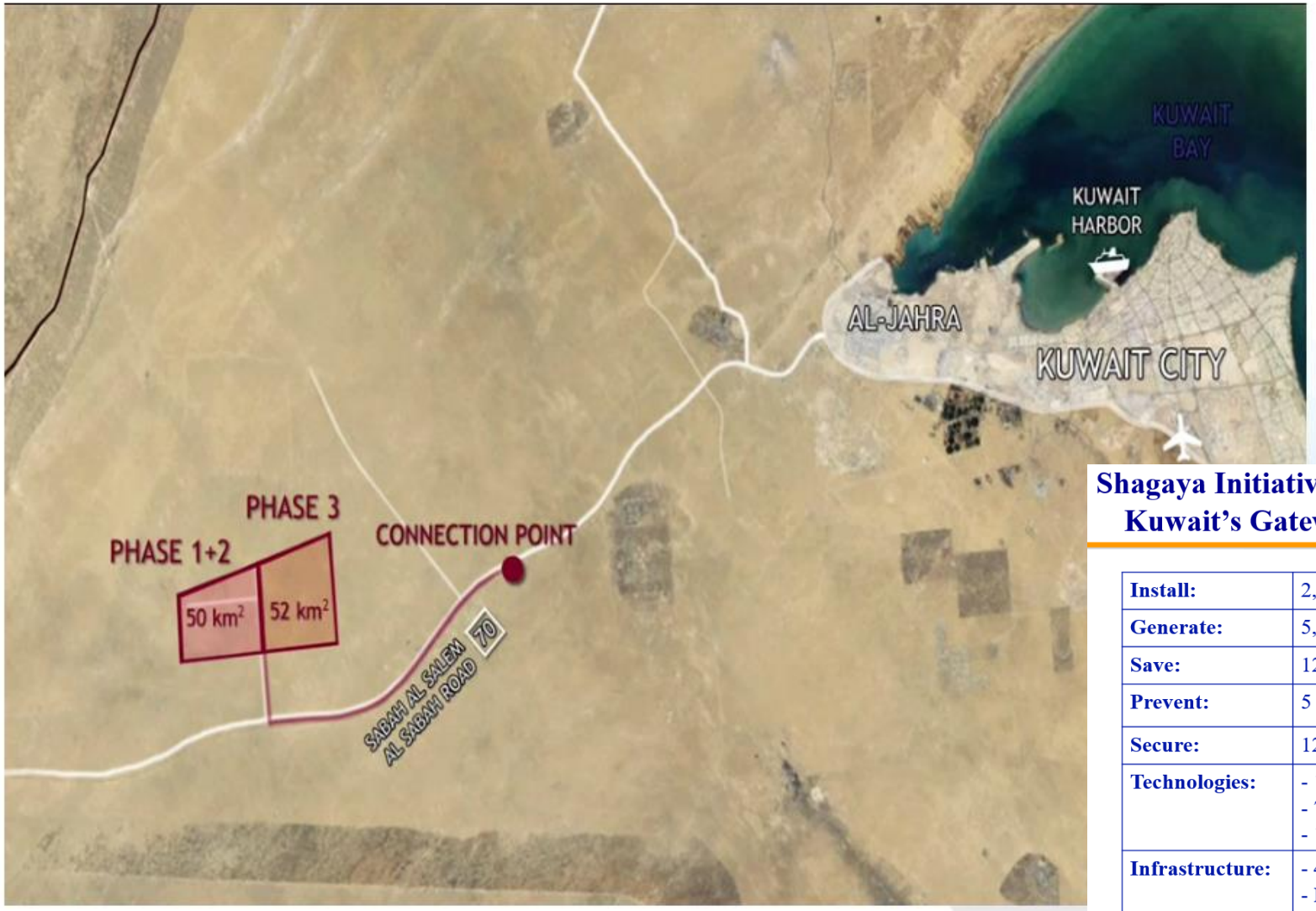
Kuwait: Shagaya plant (50 MW, PT, 8h TES) under construction
Plans for 2.000 MW multi-technology park (1.150 MW STE)

Qatar: Focused on PV until now. Interest in R&D on STE

UAE: Abu Dhabi: Shams (100 MW PT hybrid plant) in successful operation.
Dubai: 200 MW STE in tendering process

Oman: EOR plant (1 GWth, PT) in advanced construction stage
Tender for 200 MW STE in preparation

Shagaya Location KUWAIT



Shagaya Initiative
Kuwait's Gateway to Future Energy Security

Install:	2,000 MW multi-technology renewable energy park
Generate:	5,000 GWh annually
Save:	12 Million barrel of equivalent oil
Prevent:	5 Million Tone of CO_2 from atmospheric emersion
Secure:	1200 Jobs
Technologies:	- 1150MW CSP plants with 10h thermal energy storage - 700MW PV plants - 140MW wind energy farm
Infrastructure:	- 4 Substations - Integration to the national Grid - Emerging Technology testing/demonstration site - Housing Compound - Water Treatment Plant

UAE

Fostering Renewable Energy Developments

Currently there are two governmental bodies who act as the key players in fostering the Renewable Energy development in the country

Masdar مصدر
A MUBADALA COMPANY
إحدى شركات مبادلة

هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

Gulf nation to invest $163 billion towards diversifying energy with plans to generate 44 percent of its power from renewables by 2050.

The United Arab Emirates announced Tuesday plans to invest 600 billion dirhams ($163 billion) in projects to generate almost half the country's power needs from renewables.

UAE

Shams 1

Facing the desert challenge

"Shams" means "Sun" in Arabic

- SHAMS 1 is 100 MW Concentrated Solar Power (CSP) plant.
- It is located in the western region of the Abu Dhabi Emirate
- It is structured as an Independent Power Producer (IPP), which is developed, owned and operated by Shams Power Company PJSC, a Joint Venture between Masdar (80%) and Total (20%)
- Commercial operation started in Sep. 2013

Shams 1 (100 MW) is a successful exampl
parabolic trough technology with the well-e
operated at 540°C live steam temperature,

Shams 1 is located in the middle of the desert approx. 120 km south west of the city of Abu Dhabi, the plant has to face atmospheric challenges like the high dust concentration, wind storms, and high ambient temperature.

Despite the very challenging environment, the budgeted target has been exceeded in the first two years of operation.

Mohammed bin Rashid Al Maktoum Solar Park DUBAI

- DEWA's **200 MW STE Project** is **Phase IV** of Dubai's Mohammed bin Rashid Al Maktoum Solar Park

- The total capacity of the Solar Park is expected to reach 5.000MW by 2030 combining PV and STE

- Previous awarded phases comprise:
  Phase I: 13MW PV, operational since 2013
  Phase II: 200MW PV, under construction, expected to be in operation in 2017
  Phase III: 800MW PV, award announced in June 2016, project to be completed by 2020

The DEWA STE Project

هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

- The **200 MW STE Project** is being procured following an Independent Power Producer (IPP) model
- DEWA will maintain a majority stake in the Project.
- DEWA awarded the contract for the Advisory Services for the transaction to a consortium formed by KPMG (Financial), Mott MacDonald (Technical) and Ashurt (Legal).
- The technology selected for the Project is **TOWER** (Central Receiver) with thermal energy **STORAGE**.
- The project configuration (number of towers, minimum storage capacity) and tariff structure will be clearly defined in the Request for Proposals.
- The RFP package will include draft agreements, minimum functional specifications and studies to inform the bidder's response (solar resource, geotechnical, environmental, electrical interconnection, etc.).

The DEWA STE Project

Target dates:

- Expression of Interest (EOI) – Released on 16 October 2016 - 30 EOIs received by the closing date of 27 October 2016
- Request for Qualification (RFQ) – Released on 3 November 2016 – Statements of qualification received from key CSP players, already evaluated
- Request for Proposals (RFP) – Release of the RFP documents to the prequalified bidders expected in January 2017
- Bid submission; Notification of preferred bidder; PPA signing; and Financial Close: to be confirmed
- **Commercial Operation Date (COD) – April 2021**

OMAN

The 1GW solar-thermal project will turn water into steam for injection into the Amal oilfield.

GlassPoint Solar Inc has begun work on one of the world's largest solar parks, with completion planned for late 2017.

The 1GW solar-thermal project will turn water into steam for injection into the Amal oilfield, in the south of the country. The process known as Enhanced Oil Recovery (EOR) involves heating the ground to improve the flow of heavy crude to the surface.

The Fremont, California-based company is working with Petroleum Development Oman (PDO). The project is a landmark deal in terms of size but also because it also the first time that solar energy is used to produce oil at a commercial scale.

To be named Miraah (mirror in Arabic), the project comes after the success of the pilot project in Amal.
Many countries have already pumped their lightest, easiest to access oil and now are using EOR to reach the heavier varieties. Companies typically use five barrels to steam to make one barrel of oil.

A tender process for 200 MW STE is in preparation

Thank you for your attention

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