Nur Energie

Solar Development in the Mediterranean Basin

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NUR ENERGIE COMPANY OVERVIEW

A CSP developer in the Mediterranean Region

Nur Energie Limited ("Nur Energie") is a solar power plant developer and operator in the Mediterranean region, founded by a clean technology investment fund in London with ca. $100m assets under management.

CSP Project Development:
2 plants under development in Greece: Applications for a 50MW plant in Rhodes and 42MW plant in Crete, with land secured and feasibility-stage completed, using BrightSource Energy Technology.

Long-term Objective in Tunisia:
To build the first utility-scale solar export project between Northern Africa and Europe (target: 2000MW). Environmental and Economic Impact Study in progress with Comete Engineering.
Nur Energie - Existing Projects Overview

**Project highlights - Crete**

**Location highlights:**
- Optimal site in Greece with >100ha of gentle south facing slope
- Adjacent to existing 200MW power station – no grid connection & capacity constraints
- High radiation ca. 2300kWh/m2/y
- Securing land in competitive tender against major Spanish competitor
- No environmental / archaeological constraints

**Development stage**
- Highest quality DNI measuring device installed in November 2008, recording frequency every minute
- BrightSource Energy has completed a pre-FS confirming energy prediction and plant layouts
- Advanced discussions with Siemens and BrightSource for the design of the steam turbine
- Application submitted to regulatory authority and is under evaluation for the granting of electricity generation license
Solar Export potential in Tunisia

Nur Energie’s engagement in Tunisia

Work carried out to date
- Fully integrated techno-economic model confirms case for solar export opportunity
- Pre-feasibility Study with Statnett Engineering establishing cable route between Tunisia and Italy
- Short-list of sites identified in Southern Tunisia and terrain and impact studies started
- Grid integration study with CESI research institute identifying optimal grid integration point

HVDC is the only way to transport electricity across large distances, especially under water
HVDC losses are 3% per 1000km whereas it is practically impossible to make the same transfer using alternating current

2430 kWh/y
2530 kWh/y
Desertec - **three projects in one**

Different layers of Risk

- Generation of solar electricity in Northern Africa
  - Residual technology risks?
- Cable interconnectors between North Africa and Europe, and between North African Countries
  - Utilization Rate of cable
  - Meshed networks vs. single point failures
- Sale of electricity in Europe (and North Africa)
  - Off-take agreements - at what price?
  - Counter-party and contract risk
Mitigating Risks - a case for government support

Key pre-conditions for investment

- Off-take agreements
- “Creating a market” - Options:
  - Private Contracts with credible counter-parties - at what price?
  - Auctions for minimum quantities backed by government
  - Feed-in tariffs - quasi PPAs, government-backed
- Concessional Finance
  - Overcoming “First-of-a-Kind” Risk
  - Include multi-lateral institutions in project finance syndicates
  - Loan guarantees on construction and minimum production rates
  - Providing co-benefits of solar export projects locally
What Area would be required?

Tunisian annual electricity consumption:
~15,000 GWh
Tunisian land surface area
163,610 km²

Area needed to produce ~18,000GWh of solar electricity and meet 100% of Tunisian forecasted demand - 180 km²

Area needed to produce ~18,000GWh of solar electricity to cover 10% of Italian projected 2020 demand - 400 km²

Area needed for proposed 2000MW solar export project by Nur Energie (~12,000GWh of annual production) - 120 km²
Contact Information

• **Dr. Till Stenzel, Chief Operating Officer**
  – ts@nurenergie.com
  – +44(0)203 1705601