

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## Overview

# TEMO-STPP (Solar Thermal Power Plant) project

Last update: 3.11.2011

**July 2011 – June 2012**

**July 2012 – December 2013**

**Test rig phase**

**Installation in Zawia/Lybia**

**Task:**

**Installation of 200 kW test rig**

**Time span: 12 months**

**Personnel: 4 engineers**

**Costs: 765.000 EUR**

**Task:**

**Installation of a 7 MW power plant in the Lybian Desert**

**Time span: 18 months**

**Personnel: 4 engineers, 50 technicians**

**Costs: 18 Mio. EUR**

**Amortization time: until 2028 insha Allah**

**Selling Price of 1 kWh: 7 EUR-Cent**

## Partners and Roles in the TEMO-STPP (Solar Thermal Power Plant) project

Germany

TEMO Consulting e.K.  
[www.temo-ek.de](http://www.temo-ek.de)

- Project Management
- Investment (390 TEUR)
- Development of test rig in Lebanon.



Logistics

Lybia

LybianSolarPower

Investment

Lebanon



- Logistics
- Offering Development Facilities for Test rig

Applied Research Institutes

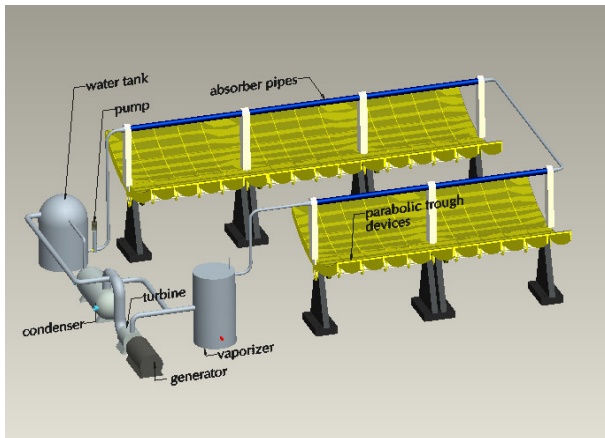
Commercial Companies

Role

**TEMO-STPP (Solar Thermal Power Plant) project – Test rig phase**  
**Planned working packages, costs, output**

**Task:**  
**Installation of 200 kW test rig**

**Time span: 12 months**  
**Personnel: 4 engineers**



**Material Costs**

Pump, pipes, ...	5.000 EUR
Solar field	10.000 EUR
Steam production (by incineration)	40.000 EUR
200 kW Turbine&Gen.	150.000 EUR
Condensor	20.000 EUR
To be paid until 15 Dec 2011 by LybianSolarPower	

**Personnel Costs**

**Staff**

Samir M. (Project Management)  
 Abdulfattah A. (Integration)  
 Mohamed G. (S7 Control System)  
 Said Elm. (User Interface, ...)

4x12 man months = 480.000 EUR  
 (4x12x1000 EUR= 48.000 EUR to be paid until 31  
 march 2012, rest is investment from TEMO)

**Using AECENAR Facility**

12 x 1000 EUR = 12.000 EUR  
 (to be paid by LybianSolarPower until 31 march  
 2012)

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**Total costs: 765.000 EUR**

**-Small Solar  
 thermal /  
 conventional  
 (Incineration)  
 200 kW  
 combination  
 Power Plant**

**-Trained Lybian  
 personnel: experts  
 which are able to  
 lead the next  
 stage (Lybian  
 desert 7 MW  
 STPP)**

**Activities ...**

**Costs**

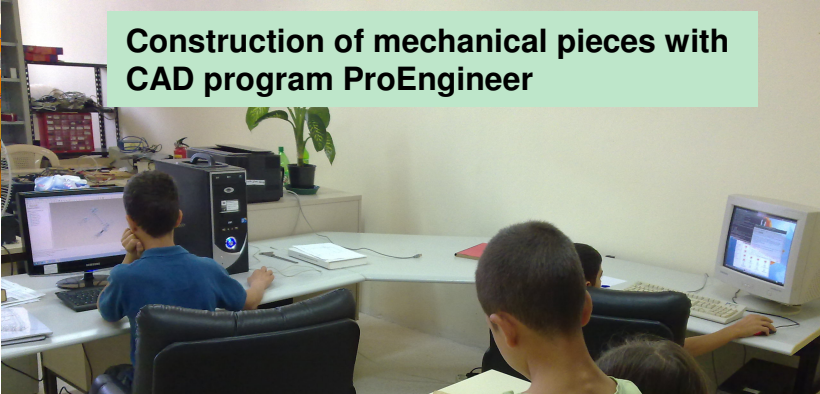
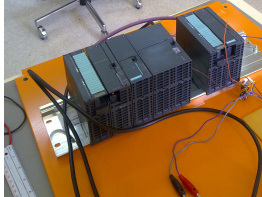
**Output / Win**

# TEMO-STPP (Solar Thermal Power Plant) project – Test rig phase

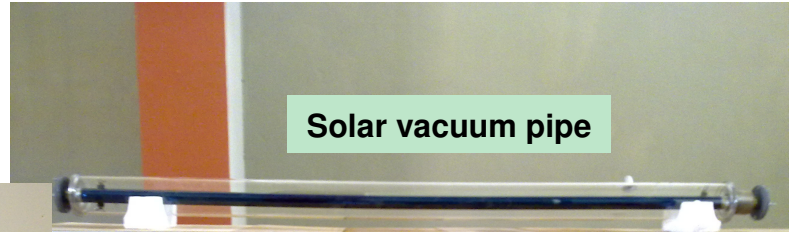
## AECENAR construction site and mechanical/electrical working hall in Lebanon



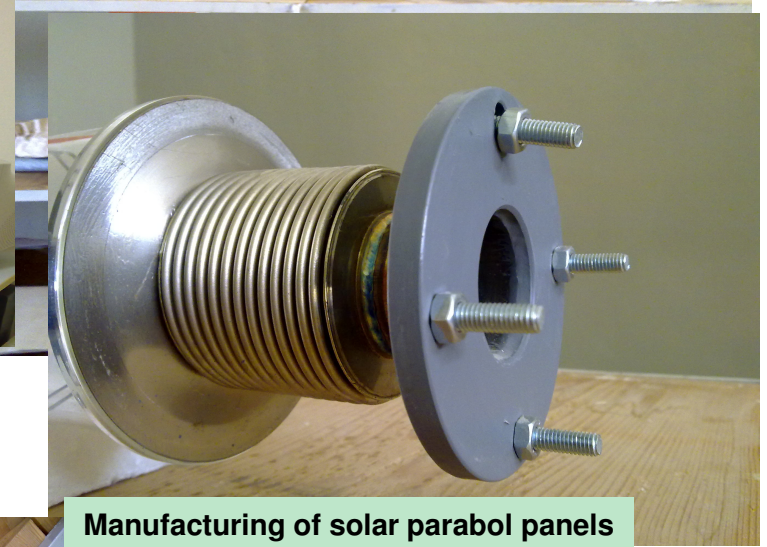
Process control system  
Development with Siemens S7 technology



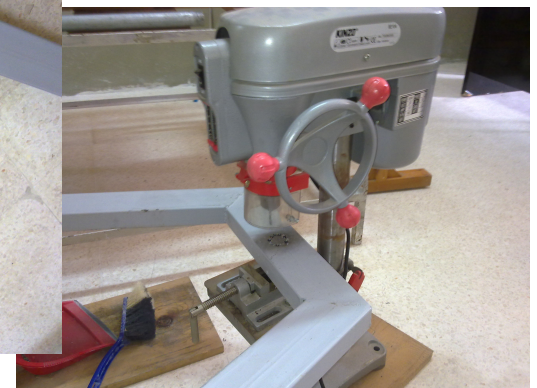
Construction of mechanical pieces with  
CAD program ProEngineer



Solar vacuum pipe



Manufacturing of solar parabol panels



## TEMO-STPP (Solar Thermal Power Plant) project – Installation in Zawia/Lybia

**Time span:**

**18 months  
(Aug. 2012  
– Dec. 2013)**



### **Material**

7 MW Turbine&Generator	1.000.000 EUR
Heat exchanger, condensor, Pipes, pumps, ...	200.000 EUR
400m x 400m solar collector field	100x30x5.000 EUR =15 Mio. EUR

### **Personal**

**Staff**

**Project Management & Leadership**

Samir M.

Abdulfattah A.

Mohamed G.

Said Elm.

About 50 technicians and workers

Personnel costs: **1.200.000 EUR**

**Total installation cost: about 18 Mio. EUR**

### **7 MW Solar thermal Power Plant**

Operated and lead by  
experts from Lybia and  
neighbour countries

**Installation of the Power Plant**

**Costs**

**Output / Win**

TEMO-STPP (Solar Thermal Power Plant) project - Income

**Amortization time: until 2028 insha Allah**

**Selling Price of 1 kWh: 7 EUR-Cent**