



## Renewable Energies

A cost effective  
alternative for Morocco

# Content



1. juwi key figures
2. Our vision
3. Renewables in Morocco

# juwi key figures



**Founded 1996 by**  
Fred **Jung** and Matthias **Willenbacher**

**Employees**  
> 1,800 in 14 countries

**Turnover**  
1 billion € in 2011



juwi HQ in Wörrstadt Germany

**Number of PV installations:** 1,500  
■ Installed capacity: approx. 950 MW

**Number of wind turbines:** 540  
■ Installed capacity: approx. 950 MW

**Annual energy output**  
■ 3 billion kWh  
■ demand of 1 million households

**CO<sub>2</sub> reduction**  
■ 2.2 billion tons of CO<sub>2</sub>

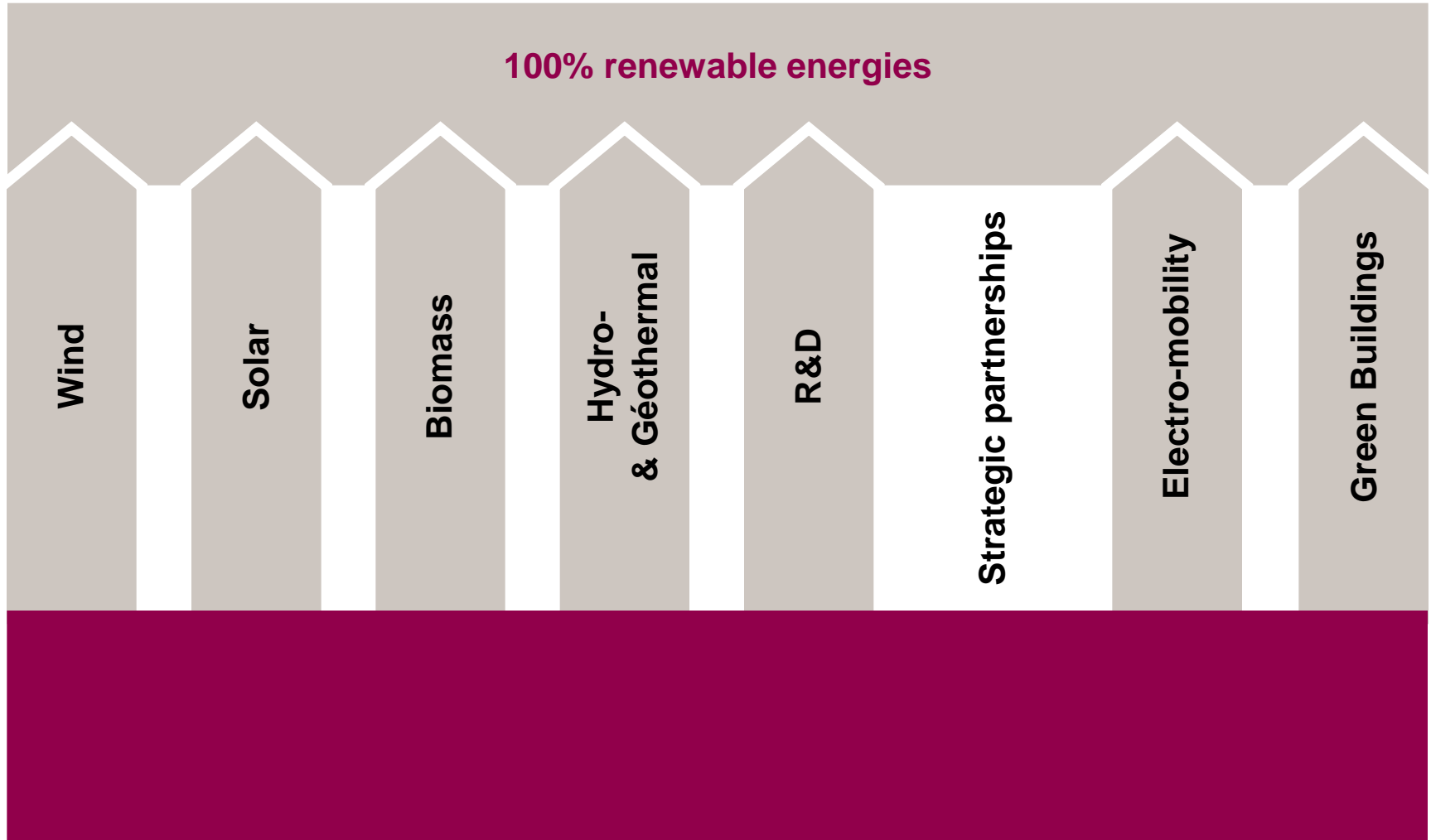
# Our services



juwi – your partner from A to Z

- Consulting
- Planning
- Development
- Finance
- Construction
- Operation & Management

# Our vision



# Solar

## Grid connected PV-Systems

- Easy engineering
- Short implementation time
- Investment costs decreased in 2011 due to PV module price by ca. 40%
- Generation costs of 0,08 €/kWh and less are possible.



71 MWp free-field installation, Lieberose, Germany

## Off Grid

- High potential for sparsely populated areas with low electrification rate
- Generation costs depend on battery



250 kWp free-field installation, Kigali, Rwanda



# Wind

- High potential
- but very site dependent  
(wind measurement!)
- Generation costs of 0,09 €/kWh and less are possible



50 MW, Wind farm, Costa Rica



Enercon E-126 7.4 MWp, Schneebergerhof, Germany

# Example: the Morbach Energy Landscape

- 14 wind turbines with 2 MW each
- Free-field PV systems ca. 2MW
- Roof-top PV system ca. 30 kW
- Biogas power plant 500 kW<sub>electrical</sub>
- Wood pellet production facility
- Wood-based heating plant
- Tourist hotspot: more than 30,000 visitors from more than 60 countries since 2002

Source: <http://www.energielandschaft.de/fr/accueil>



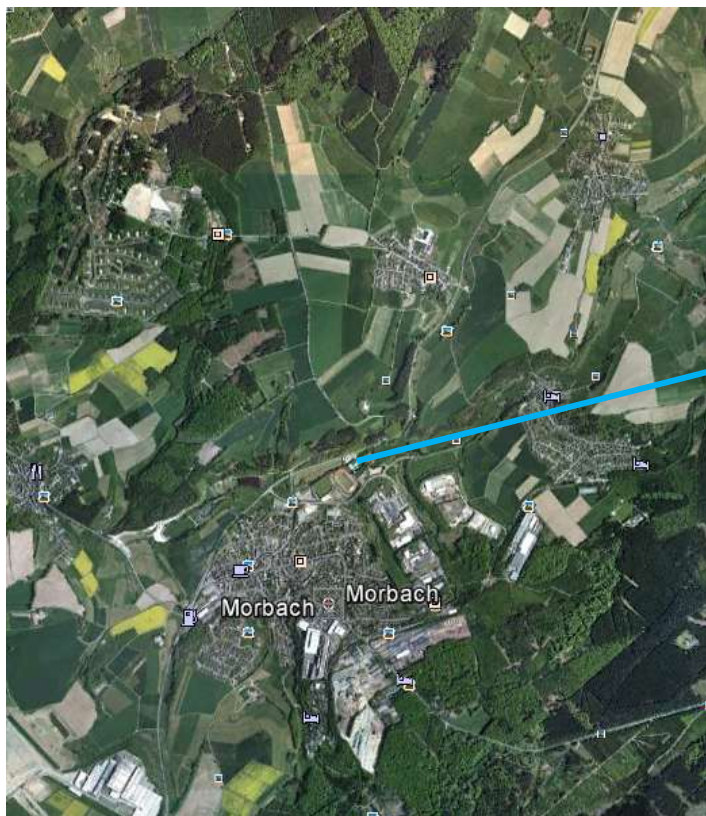
Wind, solar and bio energy at the Morbach Energy Landscape



Wind, solar and bio energy at the Morbach Energy Landscape



# Morbach



Source: <http://www.energielandschaft.d/fr/accueil/>

# Renewables in Morocco



- High solar irradiation
- High wind speeds
- High energy demand
- Space
- Interest

# Regional Value Creation and Participation Models for Morocco

- Climate protection & sustainability
- Income from land lease
- Income from energy sale
- Low-priced energy
- Independence of fossile fuels
- Regional financial participation & job creation
- Regional training and know how
- Tourism



**Instead of spending money on raw materials, prosperity is created in the region.**

# Challenges



- Legal framework
- tax
- Who will buy the energy at what price for how many years?
- Grid capacity

# Merci!

Contact:

Ute Schneider

International projects

juwi Solar GmbH

Energie-Allee 1

55286 Wörrstadt

Tel. +49. (0)6732. 96 57-3930

Fax. +49. (0)6732. 96 57-7001

[u.schneider@juwi.de](mailto:u.schneider@juwi.de)

[www.juwi.com](http://www.juwi.com)