

GTZ TERNA
Expert Dialogue 2008

Wind Energy in the MENA Region: Emerging Private Investment

18. September 2008

Agenda

- Lahmeyer International – Renewable Energies
- Country examples
- Financing of wind farms in MENA Region
- Conclusions

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Introducing Lahmeyer International

Lahmeyer means Infrastructure

Energy

Hydropower
and Water Resources

Transportation



Company Data 2006

Lahmeyer International

Turnover	LI	94 Mil. Euro
	LI Group	114 Mil. Euro
Employees	LI	567
	LI Group	863

New Main Shareholder is Capiton



Headquarter in Bad Vilbel / Dortelweil

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Renewable Energies

Lahmeyer International

Fuel cells / Hydrogen



Wind technology



Photovoltaic

Solar thermal



Geothermal

All Technologies
30 + 20 Experts
40 Countries
15 Languages



Hydropower



Biomass & Waste



Hybrid systems

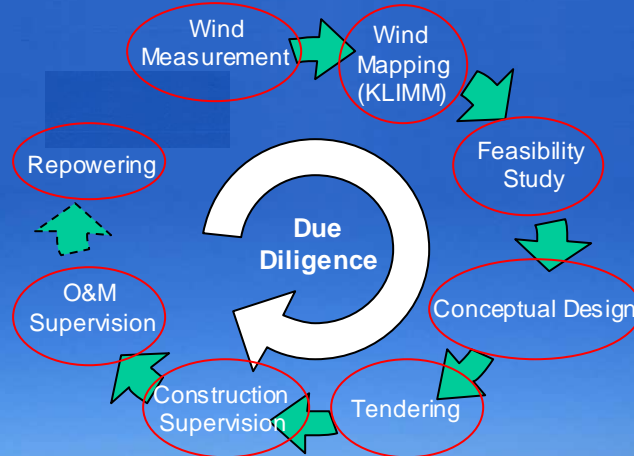


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Life Cycle Services for Wind Energy

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Experience in Wind Energy

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- More than 230 Wind Masts installed
- More than 220 Wind Potential Studies
- More than 80 Projects as Owner's Engineer
- More than 11.000 MW Due Diligence
- More than 1400 MW Const. Supervision
- More than 1.350 MW O&M Supervision



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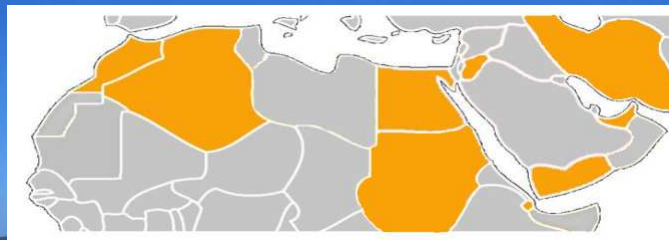
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Project Examples

Lahmeyer presence in the MENA Region

Wind Energy Projects

•Egypt	80 MW
•Djibouti	60 MW
•Algeria	20 MW
•Morocco	400 MW
•Yemen	60 MW
•United Arab Emirates	100 MW (1200 MW MENA)
•Iran	200 MW
•Jordan	75 MW



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Egypt – Zafarana

Opportunities

- High wind potential at the red sea coast
- Wind energy is competitive with fossil fuel power plants
- More hydropower is limited
- Several programs for wind energy promotion and laws for RE

Barriers

- Grid has to be reinforced
- High ornithological impact on the coast reducing space available for wind farm installation



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Morocco

Opportunities

- Very high wind potential at the coast
- Set up of an institutional framework for RE (eg. Energie Pro)

Barriers

- International development difficult through the Energie Pro system
- Grid limitations



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Djibouti

Opportunities

- Very high wind potential
- Highly increasing electricity demand
- Wind energy very competitive with diesel power
- Feasibility Studies available and institutional analysis for IPP's prepared



Barriers

- No IPP framework available yet
- Limitation due to installed Diesel capacity and grid possibilities
- Wind turbine procurement difficulties

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High Market Potential

- Many countries in Middle East and North Africa with high wind potential
- Wind power is competitive to Diesel power at many sites
- Wind power is complementary to Hydropower
- Wind power is a decentralised technology

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Barriers

- High specific investment of wind power
- Financing by International Development Organisations (IDO) is decreasing
- Local financing limited
- International Development Organization complex procurement procedure versus low turbine availability in the market
- Green Field Private Project development risky
- Institutional framework not adapted to Independent Power Producers (IPP)
- High demand for decentralised transmission lines

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Strategy

- Project Development through national organisations or support by IDO
- Long term institutional framework for IPP (PPA)
- Procurement and financing of implementation by international private Investors

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Conclusion

- Wind Energy can contribute to a competitive, clean and reliable energy mix in many countries of the MENA region
- National organisations develop the institutional framework and prepare the PPAs with support of IDOs.
- The MENA region wind energy market offers increasing opportunities for international and local private Investors

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Thank you for your attention!



Bungo.ezawa@lahmeyer.de

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