

Renewable Energy: International Best-Practice and Prospects for the Development in Azerbaijan

Session III: Wind Energy in Azerbaijan Natural Conditions and Practical Application

12 October 2009



**Caspian Technology
Company**

Nazir Ramazanov

Ph.D., Project Coordinator & Technical Director

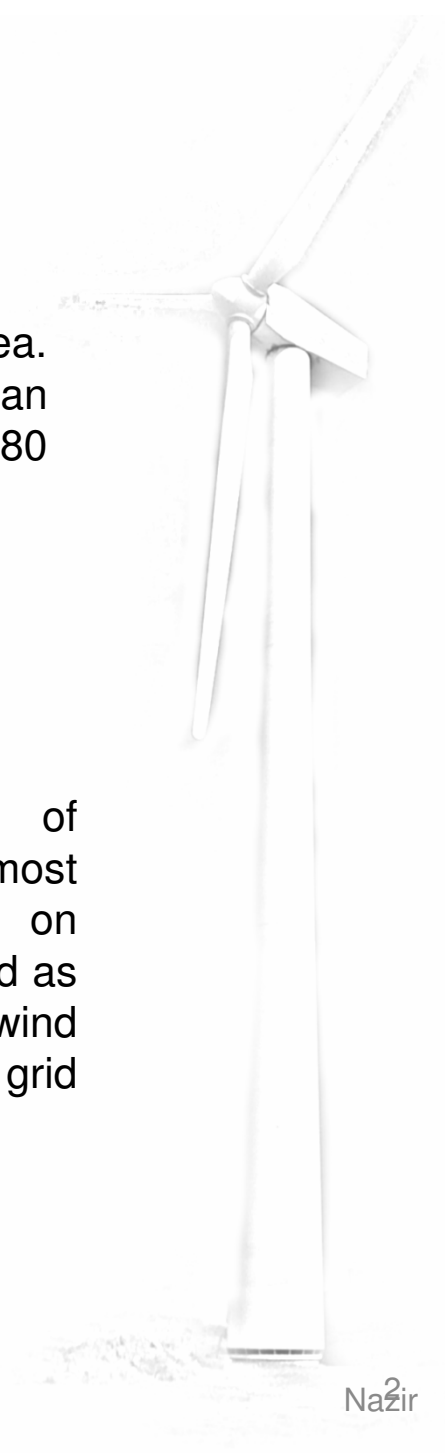
General overview

Azerbaijan has a great wind potential, especially on Caspian Sea. According the present metrological data the wind conditions on Caspian Sea are better than on the North See in Germany. At a height level of 80 meters the wind speed is estimated around 8,5 m/s.

Caspian Technology Company has the aim to develop erect and run wind parks in cooperation with German experienced companies in Azerbaijan.

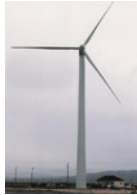


Geographical positions of Azerbaijan shows that most windy areas are located on Caspian Sea shore (estimated as 7,5-15 m/s). At present first wind park 2,2 MW has 35 KV grid connection.



Projects & Aims

Pilot project



Shurabad Project



Wind Measurement project



Solar Project



Training Center Project



Local Production Project



Collaboration



Project Implementation

Legal aspects



Technical aspects



Financial aspects



Legal aspects

Laws, decrees, regulations relative to Power Plants and Renewable Energy

- 1.State Program approved with decree of president #635 14.02.2005**
- 2.State Program “Usage of Renewable energy” decree of president #462 21.10.2004**
- 3.Decision #187 of Cabinet of Ministers “Free from Customs Duty”**
- 4.Guidelines on Regulation of Mutual Relations Related to Dispatch Services of State Power Enterprise, Power Supply Enterprise and Independent Power Producing Enterprise (Grid Codes)**
- 5.Power Purchase Agreement with Sumgait Dis.Co**
- 6.The Regulations on Use of Electricity (Approved with the Decision No.18 of the Cabinet of Ministers**
- 7.The law of the Azerbaijan Republic on power plants**
- 8.Renewable energy tariffs**
- 9.Permissions**



Technical aspects

Important technical issues

1. Selection of rational location
2. Proper wind measurements
3. Infrastructure inspection
4. Soil investigation
5. Topography
6. Selection of proper turbine
7. Micrositing
8. Site planning
9. Grid study
10. Earthquake calculations
11. EIA

Caspian Technology Company



12.10.2009, Baku
Ramazanov

Nažir

Pilot Project

Since April 2009 the first wind project on Caspian Sea produces green energy and delivers it to distribution grid close to Sumgait.



Pilot Project in Yeni Yashma, consists of 2 Vestas V52 wind turbines. The Pilot Project shows that wind projects in Azerbaijan are technically feasible.

Result of Pilot Project

Generated Energy : 1,3 million kWh

Saved Natural Gas : 400 thousand m³

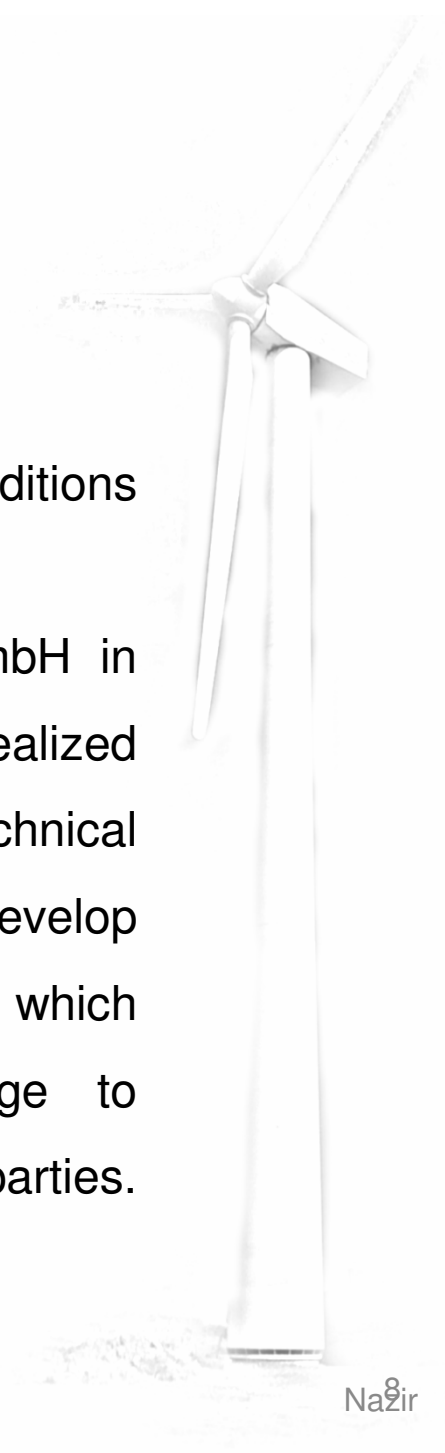


Training Center Project

Training center with V39, Vestas 500 KW.



Under turnkey conditions experienced German company ANTS GmbH in cooperation with CTC LLC realized Training Center to train technical personnel also in order to develop this new sphere in Azerbaijan which provides technical knowledge to interested parties.



WM Project

Wind Measurements



Since May 2009 two Wind Measurement Towers were installed to measure the wind conditions on



Shurabad Project

It's planned to accomplish Shurabad Project in the beginning of second quarter of 2010.

Park Layout



16xV90
3MW

Foundation



LP Project

It's planned to start local production by middle of next year.

In order to attain the aim initial steps of investigation



Factory already
selected,
renovation is on going,
selection of proper
equipment
in on process.

Caspian Technology Company

12.10.2009, Baku
Ramazanov



Nazir

Solar Project

Pilot Project with 2 kW peak for Institute of Physics (Azerbaijan National Academy of Science)



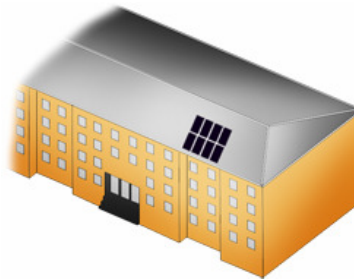
**Satellite
view**



**Location of
building**

This Solar Pilot Project is planned to be implemented by end of this year.

Based on practical knowledge CTC will implement large scale projects



**3D model of Pilot
Project**



What is needed?

Collaboration with:

- National Academy
- Ministry Industry and Energy
- Ministry of Economic Development
- Ministry of Ecology and Natural Resources
- Tariff Council
- Dispatch Control

Tax incentives

Application of Carbon Credits

Periodical conferences, knowledge exchange, working with press



Contact details



Caspian Technology Company

Nazir Ramazanov

Ph.D., Project Coordinator & Technical Director

AZ 1003 Baku, Ahmad Cavad ave, 15 City
Center

tel: +99 450 313 20 05
+99 412 497 48 13
+37 25 920 85 51
+49 1522 359 01 51

email: r.nazir@ctc.az

url: www.ctc.az

