



Turkey - A land of Opportunities and Challenges

24. Windenergietage

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steag

Project Süloglu – Turkey / Key data



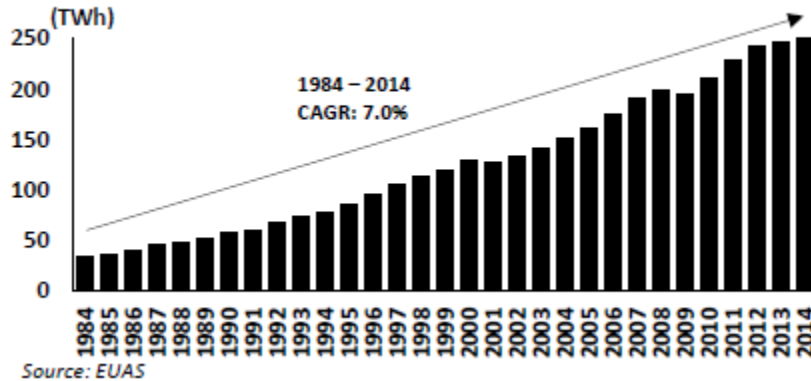
Status	in operation
Typ, Performance	Wind Onshore, 60 MW
Volume	93 Mio. €
Shares	100 % STEAG
Financing	Garantie/Ak -Bank – non recourse, DER 57/43



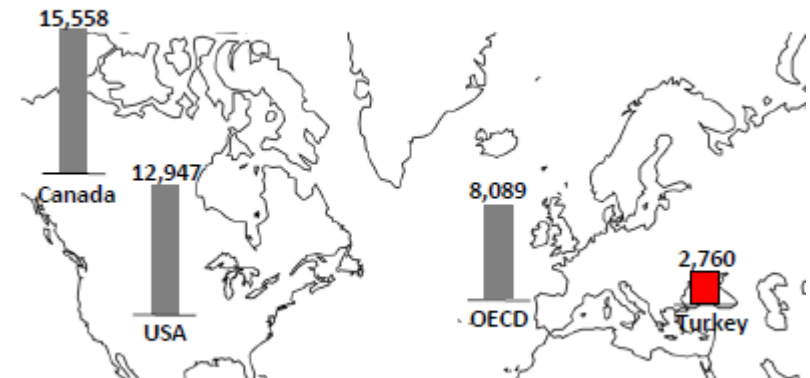
Local content	
VESTAS (Towers)	Turbines and Foundations, V 126
BEST A.S.	Transformer
KESIR Ltd.	Electrical Balance of Plant
TANINMIS A.S.	Civil Works
KARAYAGIZ Ltd.	Power Line Connection

Generals for doing business in Turkey

Consumption



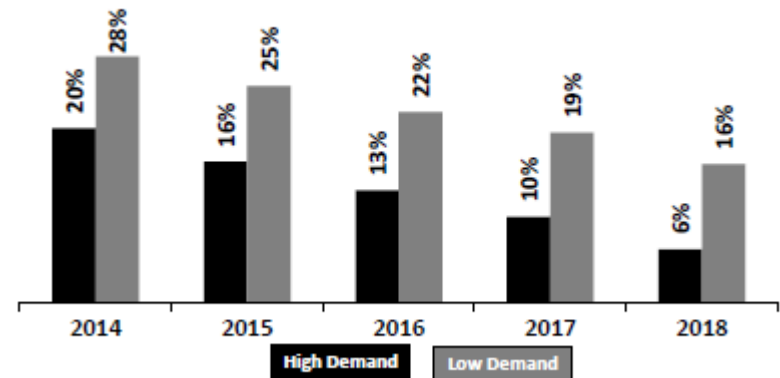
Consumption per capita (kWh in 2012)



Overview

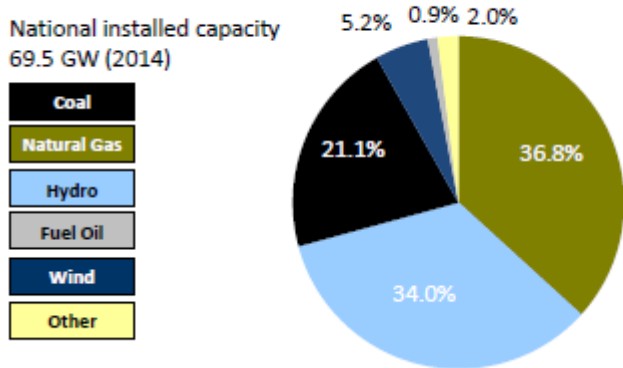
- TEIAS estimates annual electricity demand will increase to 349 TWh and 320 TWh by 2018 under two scenarios:
 - High scenario assumes a demand increase of 6.2% p.a.
 - Low scenario assumes a demand surge by 5.7% p.a.

Reserve Margins (low supply)

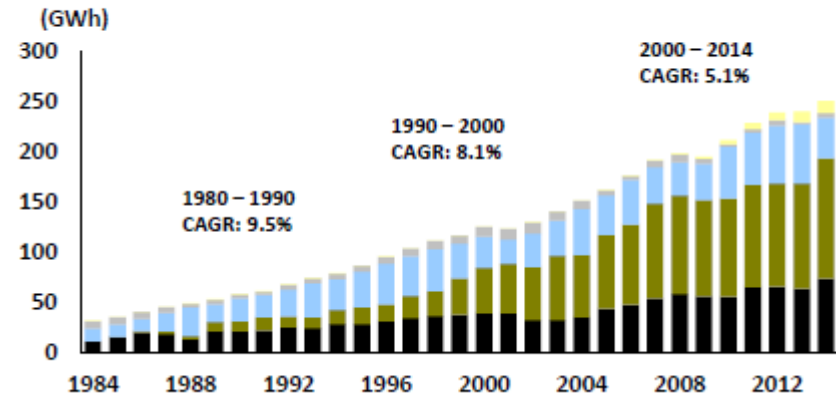


Generals for doing business in Turkey

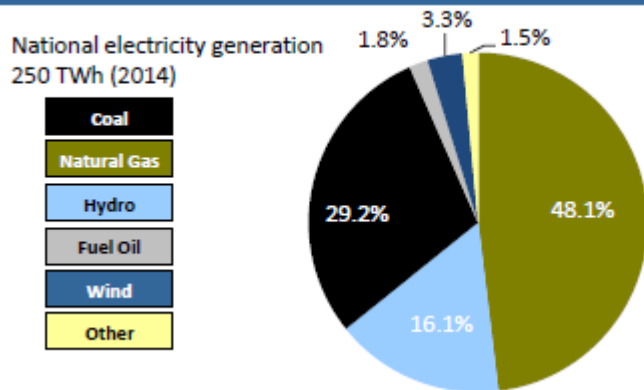
Capacity by fuel type (2014 YE)



Growth



Generation by fuel type



Capacity for Grid Access all over Turkey

3000 MW Grid Access Capacity for next auction



Wind application for Grid Access

41.000 MW in Total – Strong competition expected

SPV	project name	city	district	Our projects capacity [MW]	number of projects in competition	total MW in competition	available capacity to be auctioned [MW]	Over-subscription X times
RENOVA ENERJİ ÜRETİMVE TİC.A.Ş.	ÇUKUROBA RES	BALIKESİR	İVRİNDİ	107,5	92	4.421,21	160	27,6
JV PNE WIND YENİLENEBİLİR ENERJİLER LİMİTED ŞİRKETİ	KAYMAKOBA RES	BURSA	MUDANYA	42,9	30	1.235,10	110	11,2
JV PNE WIND YENİLENEBİLİR ENERJİLER LİMİTED ŞİRKETİ	KÖSELER RES	ÇANAKKALE	AYVACIK	71,4	107	5.384,52	260	20,7
RENOVA ENERJİ ÜRETİMVE TİC.A.Ş.	KEMALLI RES		EZİNE	112,2				
JV PNE WIND YENİLENEBİLİR ENERJİLER LİMİTED ŞİRKETİ	YAZIR RES	EDİRNE	ENEZ	33,6	33	1.012,30	40	25,3
JV PNE WIND YENİLENEBİLİR ENERJİLER LİMİTED ŞİRKETİ	HARMANCIK RES	KAHRAMAN MARAŞ	PAZARCIK	23,1	28	516,60	40	12,9
JV PNE WIND YENİLENEBİLİR ENERJİLER LİMİTED ŞİRKETİ	Seymenli RES	TEKİRDAĞ	MERKEZ	12,6	38	1.331,80	60	22,2
JV PNE WIND YENİLENEBİLİR ENERJİLER LİMİTED ŞİRKETİ	PALAMUT RES		ŞARKÖY	46,2				
Total				449,5	328	13.901,53	670	20,7

Contribution Fees for Solar (PV) Projects

TURKEY - SOLAR : RESULTS OUT OF AUCTIONS

(Solar FIT - basic : 13,3 Şcent/kWh)

EUR / TL = 2,80

Region No	Application No	Company	Regional Capacity	Project's Installed Capacity (MW)	Offered Price (TL/MW)	EUR Equivalent per MW	Allocated Capacity (MW)	Lumpsum Connection Cost (TL)	EUR Equivalent per project
24-Elazığ	16164	Solentegre Enerji Yatırımları Tic. A.Ş.	8	8,00	827.000,00	295.357,14	8,00	6.616.000,00	2.362.857,14
26-Erzurum	16592	Halk Enerji Yatırımları Üretim ve İnşaat A.Ş.	5	4,90	68.000,00	24.285,71	4,90	333.200,00	119.000,00
21-Muş	16302	EnerjiSa Enerji Üretim A.Ş.	9	9,00	Single	-	9,00	-	-
13-Hakkari	16554	Van Enerji A.Ş.	21	21,00	Single	-	21,00	-	-
19-Şırnak	16329	Park Teknik Elektrik Mad. Tur. San. Ve Tic. A.Ş.	11	7,00	Single	-	11,00	-	-
9-Burdur	16144	NAS Enerji A.Ş.	26	26,00	1.515.072,00	541.097,14	20,00	30.301.440,00	10.821.942,86
1-Konya	16289	SBD Enerji Üretim ve Tic. Ltd. Şti.	46	5,00	2.510.000,00	896.428,57	5,00	12.550.000,00	4.482.142,86
	16207	ME-SE Enerji Yatırım İnş. Tur. Tic. Ltd. Şti.	46	9,90	2.153.000,00	768.928,57	9,90	21.314.700,00	7.612.392,86
	16492	Zorlu Enerji Elektrik Üretim A.Ş.	46	18,00	1.756.055,00	627.162,50	18,00	31.608.990,00	11.288.925,00
	16085	LE Güneş Elektrik Üretim A.Ş.	46	38,18	1.602.000,00	572.142,86	13,10	20.986.200,00	7.495.071,43
10-Niğde	16070	Cıngıllı Organik Tarım İşl. A.Ş.	26	26,00	2.720.000,00	971.428,57	26,00	70.720.000,00	25.257.142,86
11-Kayseri	16184	Özkoyuncu Enerji Üretim San. Tic. A.Ş.	25	15,00	2.511.051,00	896.803,93	15,00	37.665.765,00	13.452.058,93
	16435	Uluder Elektrik Üretim A.Ş.	25	10,00	1.957.000,00	698.928,57	10,00	19.570.000,00	6.989.285,71
3-Van Ağrı	16597	Omicron Güneş Enerjisi Elektrik Üretim ve Tic. Ltd.	77	9,95	2.960.000,00	1.057.142,86	9,95	29.452.000,00	10.518.571,43
	16589	Omicron Güneş Enerjisi Elektrik Üretim ve Tic. Ltd.	77	9,95	2.960.000,00	1.057.142,86	9,95	29.452.000,00	10.518.571,43
	16576	PSİ Güneş Enerjisi Elektrik Üretim ve Ticaret A.Ş.	77	9,95	2.960.000,00	1.057.142,86	9,95	29.452.000,00	10.518.571,43
	16133	Gün Güneş Enerjisi Elektrik Üretim San. Ve Tic. A.Ş.	77	45,00	1.915.000,00	683.928,57	45,00	86.175.000,00	30.776.785,71
	16476	Tuşba En. Ür. Paz. San. Ve Tic. Ltd. Şti.	77	20,00	1.665.000,00	594.642,86	2,15	3.579.750,00	1.278.482,14
8-Kahramanmaraş Adıyaman	16596	Karomad Madencilik İnş. Elektrik Malz. Makine Nakliye Tic. Ve San. Ltd. Şti.	27	7,00	2.345.000,00	837.500,00	7,00	16.415.000,00	5.862.500,00
	16507	Uluder Elektrik Üretim A.Ş.	27	10,00	2.118.000,00	756.428,57	10,00	21.180.000,00	7.564.285,71
	16214	Solar Ventures Sarl En. Yat. San. Ve Tic. A.Ş.	27	26,96	2.100.000,00	750.000,00	10,00	21.000.000,00	7.500.000,00
12-Malatya Adıyaman	16525	İOTA Güneş Enerjisi Elektrik Üretim ve Ticaret Ltd. Şti.	22	9,95	2.960.000,00	1.057.142,86	9,95	29.452.000,00	10.518.571,43
	16493	Özgüçlü Enerji San. Ve Tic. A.Ş.	22	10,00	2.311.000,00	825.357,14	10,00	23.110.000,00	8.253.571,43
	16479	Desun En. Elek. Üre. A.Ş.	22	5,00	2.200.000,00	785.714,29	2,05	4.510.000,00	1.610.714,29
6-Karaman	16026	Teknar Enerji Üretim A.Ş.	38	4,876	2.711.000,00	968.214,29	4,876	13.218.836,00	4.721.012,86
	16221	Teksin Enerji Üretim San. Ve Tic. A.Ş.	38	38,00	2.555.000,00	912.500,00	33,124	84.631.820,00	30.225.650,00
7-Mersin	16125	İlgaz Elektrik Üretim ve Dağıtım Ltd. Şti.	35	35,00	2.417.000,00	863.214,29	35,00	84.595.000,00	30.212.500,00
15-Isparta Afyon	15937	Vektör Enerji Üretim A.Ş.	18	18,00	2.756.169,00	984.346,07	18,00	49.611.042,00	17.718.229,29
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								TOTAL	277.678.836,80

Calculation of local content premium

First step: To qualify as local equipment, the sum of local equipment ratios of equipment components, which are produced locally, must be at least 55%.

Second step: To calculate the premium amount, the total local equipment ratio for each equipment (must be at least 55%) is multiplied by the premium specified for that equipment.

Type of facility	Type of equipment	Component of equipment	Local equipment ratio (%)	Premium (\$ cents/kWh)
Wind	1- Vane	The vane and the fitting elements of the rotor hub.	100	0,8
	2- Generator and Power Electronic	Generator: It is the equipment turning the mechanical energy acquired from the rotor shaft into the electrical energy by means of the stator and rotor equipment.	55	1,0
		Power electronic: They are the software and equipment used for monitoring, controlling and bringing electrical energy generated by the generators into conformity with the electrical characteristics of connection point.	45	
	3- Turbine Tower	1- The Tower holding the mechanical mechanisms of the Rotor and Nacelle groups.	80	0,6
2- The Tower-Nacelle and Tower-Ground fitting elements.		20		
4- All of the Mechanical Components of the Rotor and Nacelle Groups (Except the payments made for the vane group and the generator and power electronics)	1. Rotor hub	20	1,3	
	2. Nacelle cabinet	5		
	3. Vane direction mechanism (engine, engine brakes, gear system and bearings).	10		
	4. Nacelle direction mechanism (engine, engine brakes, gear system and bearings).	10		
	5. The main shaft of the rotor	10		
	6. The rotor main shaft bearing and the bearing block and coupling components.	10		
	7. The system holding the mechanical and electro-mechanical components of the nacelle group (chassis)	5		
	8. The mechanical and aerodynamic brake disks and hydraulic control systems.	5		
	9. The velocity convertor with or without a gearbox.	25		

Generals for doing business in Turkey

Essentials for doing business

- **Understand Turkey**
 - Local Partner or strong organization in Turkey and/or
 - People with local knowledge and language
 - Access to administration and to other market players
 - Understanding of Turkish behavior (intercultural training)
- **General Skills**
 - Patience
 - Long term view

Windprojects in Turkey

- **Attractive Wind Sites**
- **FIT vs. Market**
- **The 31st of October – make a choice**
- **Liberalized Market and Energy Price Projections**
- **FIT including local content**
- **Auction won – incurs development obligation**
 - Bonds
 - Ban

Challenges in Turkey

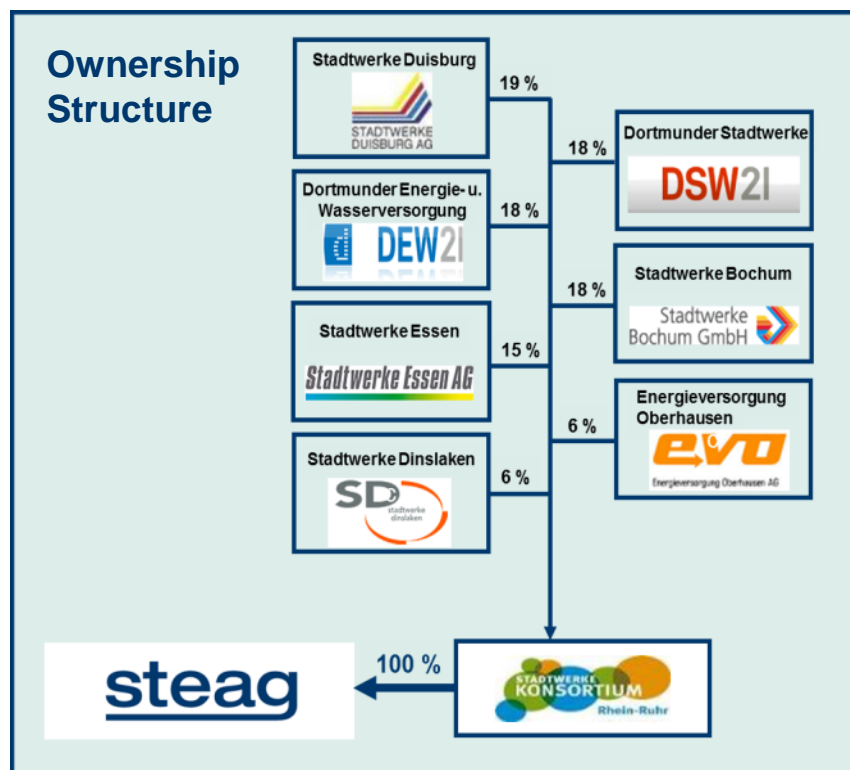
- **How does the Government act**
- **Finding the right place**
- **Land Rights**
 - Governmental Land, pastry land, forest, private land
 - Expropriation vs. Quick Expropriation
 - Land Lease Concepts (Ownership prove)
- **Permits**
 - Environmental Impact Assesment
 - EMRA as a challenge
 - TAC is hard to achieve
 - Don't forget the military and the secret service

Competition for Licenses and access to Licenses

- **Developers**
- **Utilities**
- **License Traders**
- **Auction**
- **Secondary Market**

stead

Key data STEAG GmbH



Key Figures *

Total assets	€ 5.357 million
Sales	€ 3.129 million
EBITDA	€ 390 million
EBIT	€ 244 million
Employees	Around 6.400 (3.700 in Germany, 2.700 abroad)
Installed capacity	10.300 MW (including 8.200 MW in Germany)

STEAG's Strong Subsidiaries

