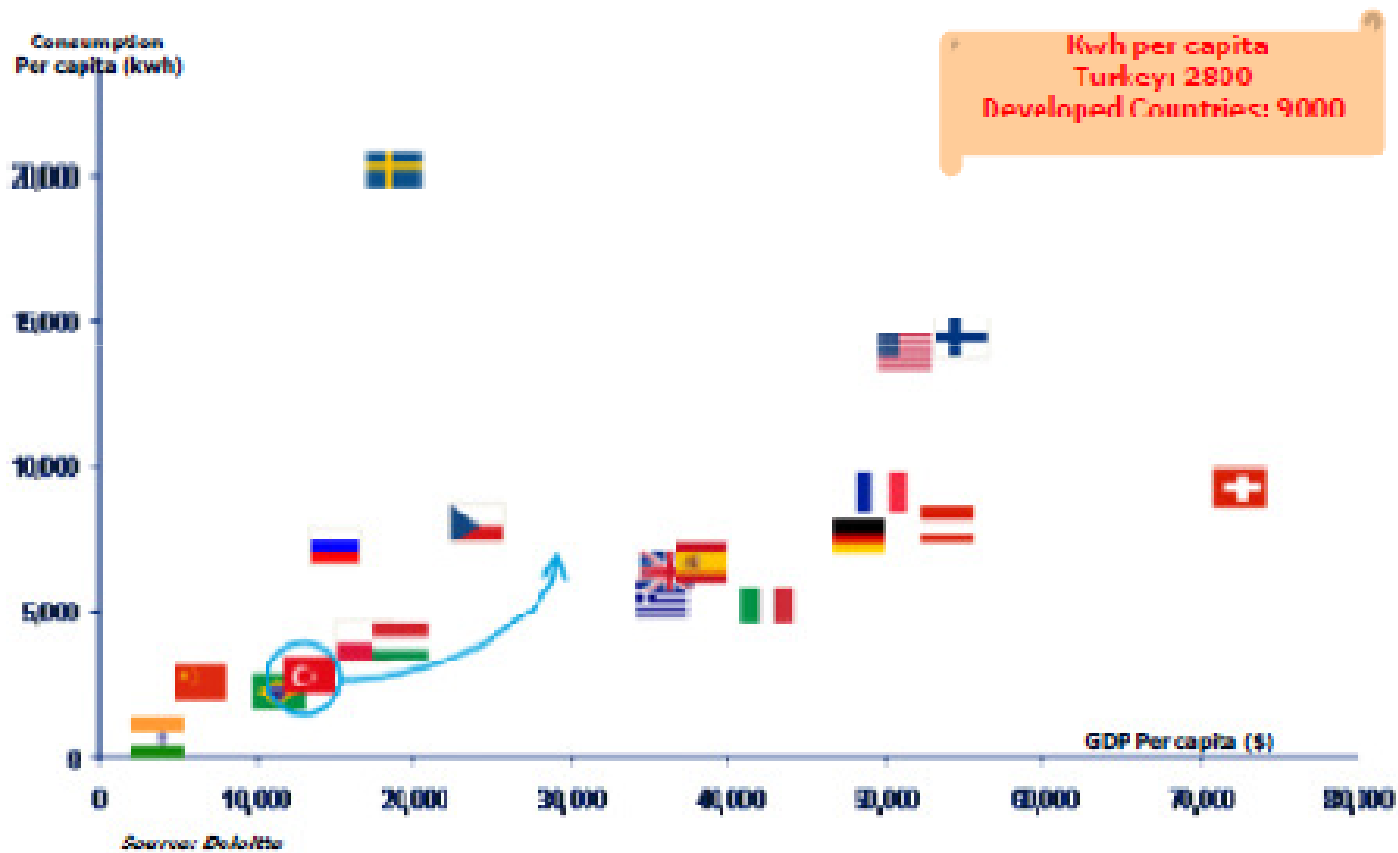


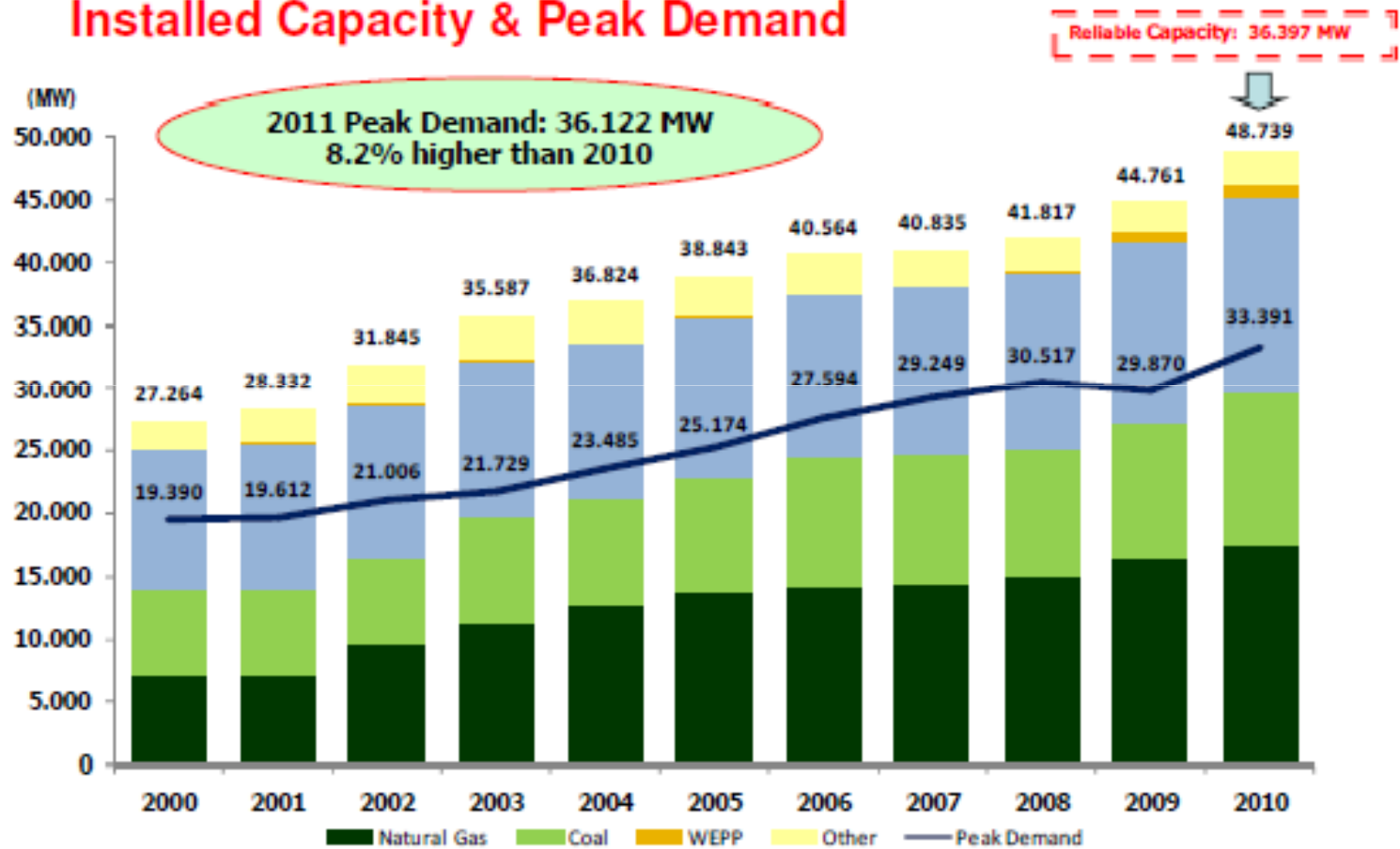
CURRENT RENEWABLE ENERGY SITUATION IN TURKEY

Assoc.Prof.Dr.Mustafa TIRIS
General Manager
T Dinamik Energy & Foreign Trade Company

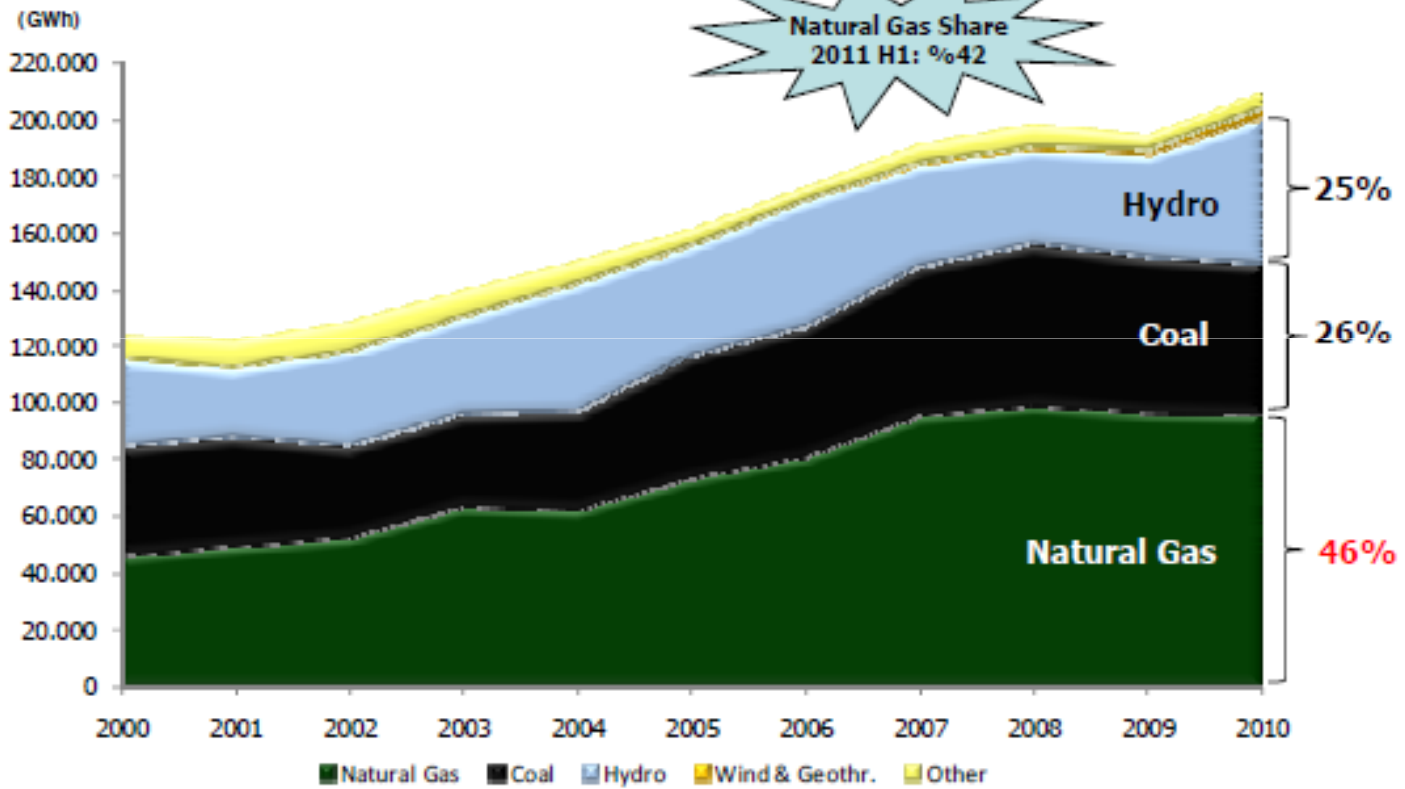
Electricity Consumption per Capita



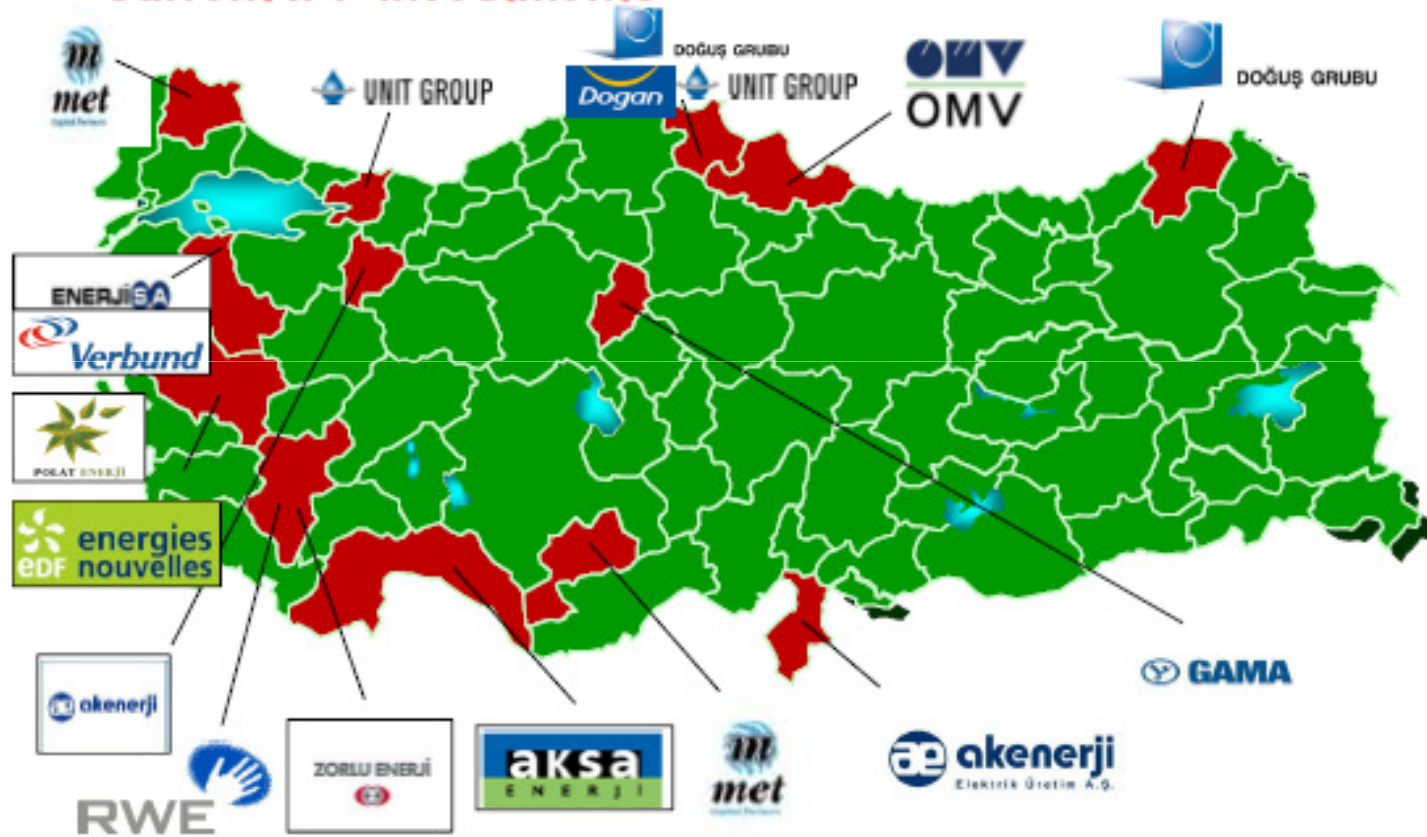
Installed Capacity & Peak Demand



Electricity Generation



Current IPP Investments



Investment Opportunities

- Privatisation
- New Capacities (New Licences)
 - Solar
 - Wind
 - Biomass
 - Coal
 - Natural Gas
- Manufacturing
- Energy Trade

Privatisation

The transition of the Turkish electricity market to a liberalized market has already attracted private investments from both domestic and foreign investors and more opportunities will occur. Among these, the privatization of state-owned generation and distribution assets, together with the new power plant establishments, can be pointed out.

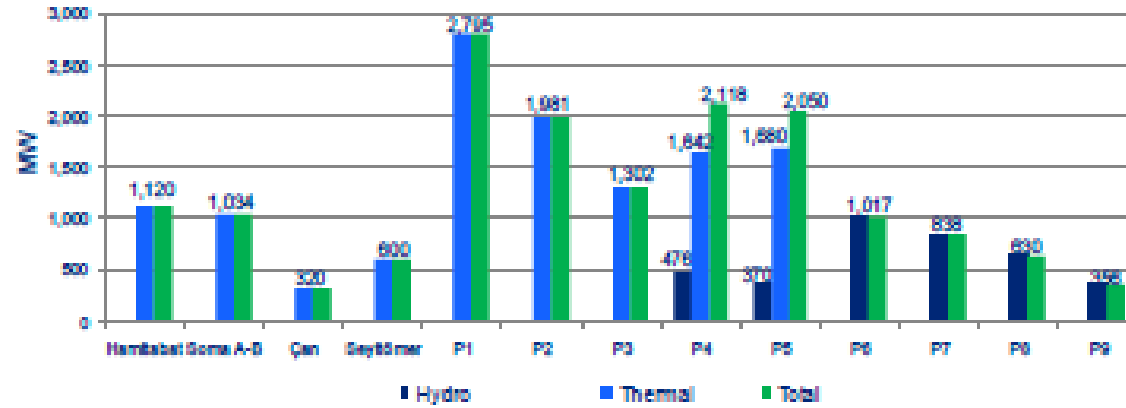
Turkey has experienced a lively investment environment in the last five years in which many foreign investors have made greenfield investments, formed partnerships with local players and acquired state-owned and private companies.

The Turkish government is in the course of privatization of the distribution companies as a step towards full liberalization of the energy market. Privatization of electricity generation companies has accelerated during 2010.

52 hydro-electric power plants' tenders were established under 19 groups with a total deal amount of USD 439.9 million. However, high investment costs have arisen at these plants which may cause some difficulties for investors and may end up in transfers of these plants to other investors within a few years.

In addition, privatization of 13 thermal plants (12,474 MW) and 28 hydroelectric plants (3,687 MW) have been divided into 9 portfolios within the privatization process.

Portfolio Groups and Installed Capacities



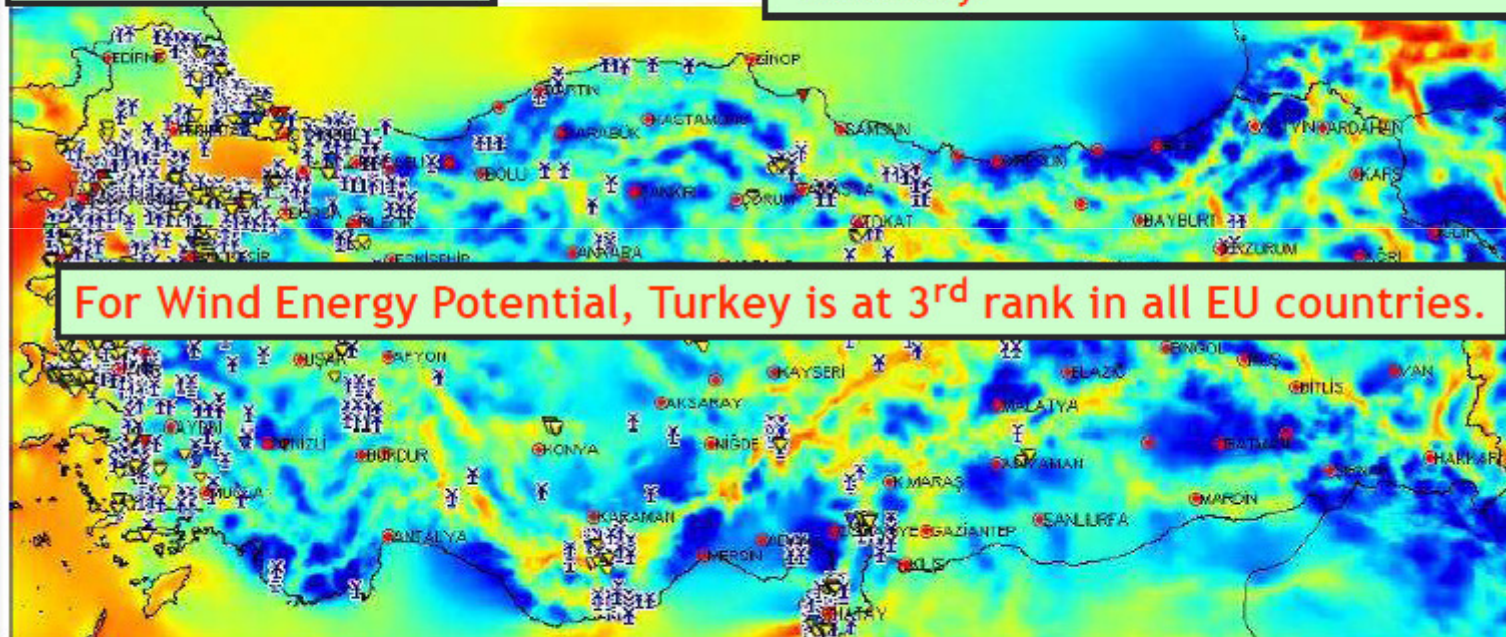
Source: EÜAŞ, ÖİB, Deloitte Analysis

Privatized Alone	Portfolio 1 (P1)	Portfolio 2 (P2)	Portfolio 3 (P3)	Portfolio 4 (P4)
<ul style="list-style-type: none"> Hamitabat (1,120 MW) Soma A-B (1,034 MW) Çan (320 MW) Seyitömer (600 MW) 	<ul style="list-style-type: none"> Elibolan A (1,366 MW) Elibolan B (1,440 MW) 	<ul style="list-style-type: none"> Ambartı DG (1,351 MW) Ambartı Fuel-oil (830 MW) 	<ul style="list-style-type: none"> Alağa (160 MW) Kangal (487 MW) Tunçbilek (365 MW) Çatalağaç (300 MW) 	<ul style="list-style-type: none"> Bursa DG (1,432 MW) Orhanlı (210 MW) Gölkaya (278 MW) Sarıyer (150 MW) Yenice (38 MW)
Portfolio 5 (P5)	Portfolio 6 (P6)	Portfolio 7 (P7)	Portfolio 8 (P8)	Portfolio 9 (P9)
<ul style="list-style-type: none"> Kemerözü (630 MW) Yatağan (530 MW) Yeniözü (420 MW) Demirköprü (59 MW) Adıgözel (62 MW) Kemer (48 MW) Karacaören-1 (32 MW) Gazanda (159 MW) 	<ul style="list-style-type: none"> Altınkaya (703 MW) Derbent (58 MW) Hirfanı (128 MW) Kesiköprü (76 MW) Kapulukaya (54 MW) 	<ul style="list-style-type: none"> Hazan Uğurlu (500 MW) Suat Uğurlu (59 MW) Almus (27 MW) Kököce (30 MW) Kılıçkaya (120 MW) Çamlığözü (32 MW) 	<ul style="list-style-type: none"> Çatalan (169 MW) Azalan (138 MW) Manzaret (124 MW) Karak (10 MW) Karabıyık (189 MW) 	<ul style="list-style-type: none"> Doğanlı (75 MW) Kızılcık (85 MW) Tortum (26 MW) Ödöce (170 MW)

TURKEY'S WIND ENERGY POTENTIAL

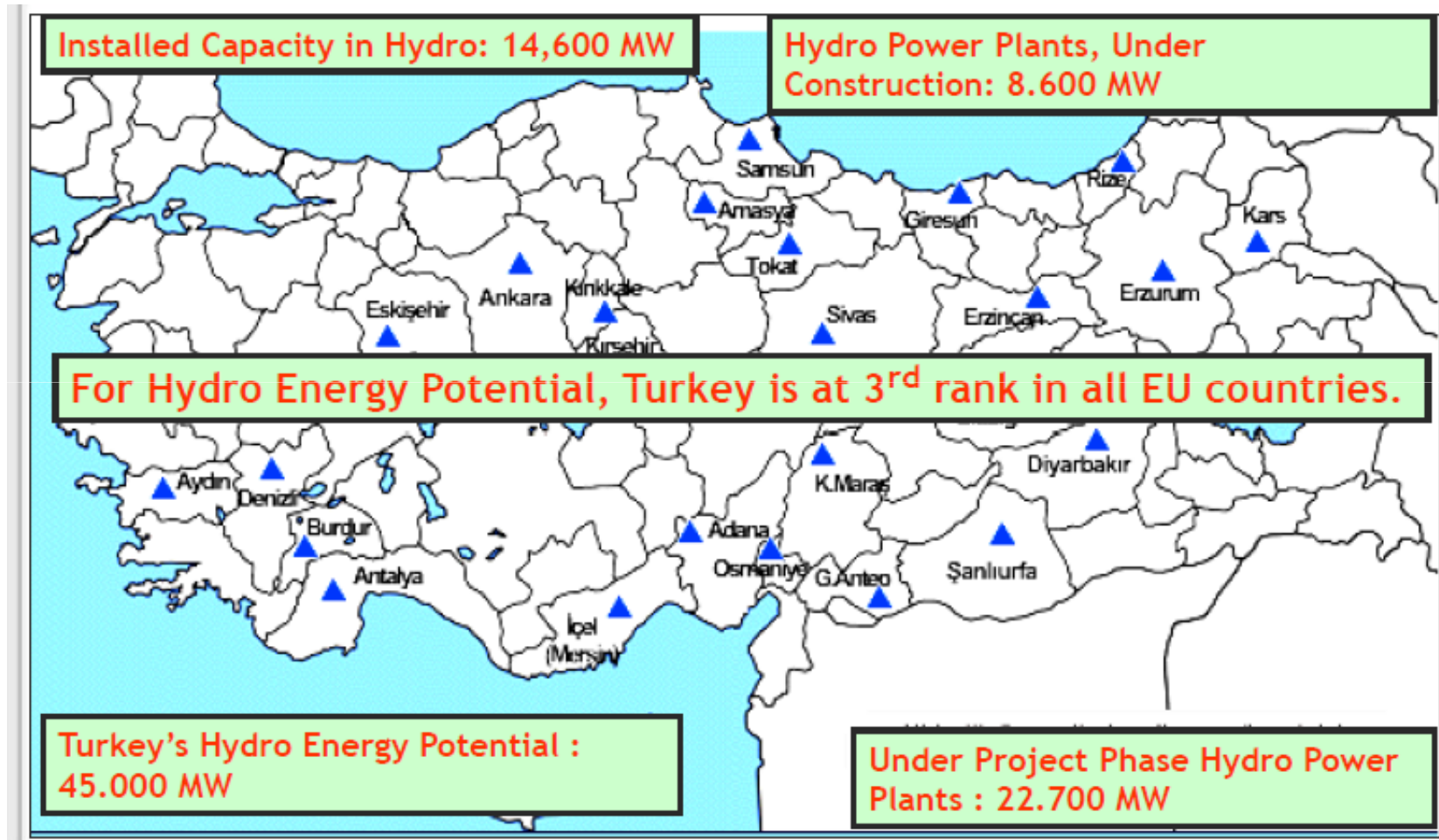
Installed Capacity in Wind:
1800 MW

Turkey's Technical Wind Energy Potential:
120 GWh/yr



Turkey's Technical and Economical
Installed Capacity Potential in Wind:
12.000 MW

Turkey's Estimated Wind Energy
Potential:
400 GWh/yr



TURKEY'S GEOTHERMAL ENERGY POTENTIAL

Installed Capacity in Geothermal : 94 MWe

Turkey's Geothermal Energy Potential : 2.000 MWe



For Geothermal Energy Potential, Turkey is at 2nd rank in all EU countries.



Turkey's Geothermal Energy Potential (Thermal): 31.500 MWt

AÇIKLAMALAR

Yerel Enerji Kaynakları (Local Energy Sources) Sıcaklığı 70-100°C olan kaynaklar (Sources with 70-100°C temperature) Jeotermal Enerji Kaynakları (Geothermal Energy Sources)

TURKEY'S SOLAR ENERGY POTENTIAL

Turkey's Solar Energy Potential: 500 -700.000 MWe

Turkey



For Solar Energy Potential, Turkey is at 2nd rank in all EU countries.

Yearly sum of global irradiation [kWh/m^2]

1400 1500 1600 1700 1800 1900 2000>

1050 1125 1200 1275 1350 1425 1500>

Yearly electricity generated by $1kW_{peak}$ system with performance ratio 0.75 [kWh/kW_{peak}]

Authors: M. Šuri, T. Cebecauer, T. Huld, E. D. Dunlop

PVGIS © European Communities, 2001-2006

<http://re.jrc.ec.europa.eu/pvgis/>

0 75 150 300 km

FIT in Turkey- for Renewables

Turkey has made photovoltaic power generation subsidy payments law. Under the regulation, payments for renewable energy generation will be determined as dollar cent, in Turkish Parliament.

Accordingly, prices for RES plants are as follows (per kWh):

Solar:	US\$13.3 cents,
Biomass (including landfill gas):	US\$13.3 cents
Geothermal:	US\$10.5 cents
Hydroelectric:	US\$7.3 cents
Wind energy:	US\$7.3 cents

The licensing will be arranged by the supervisory Energy Market Regulatory Board, taking into consideration of Interior Ministry, Energy and Natural Resources Ministry, and also State Hydraulic Works' opinions.

The feed-in tariff will also support concentrated solar power (CSP) and hybrid power plants.

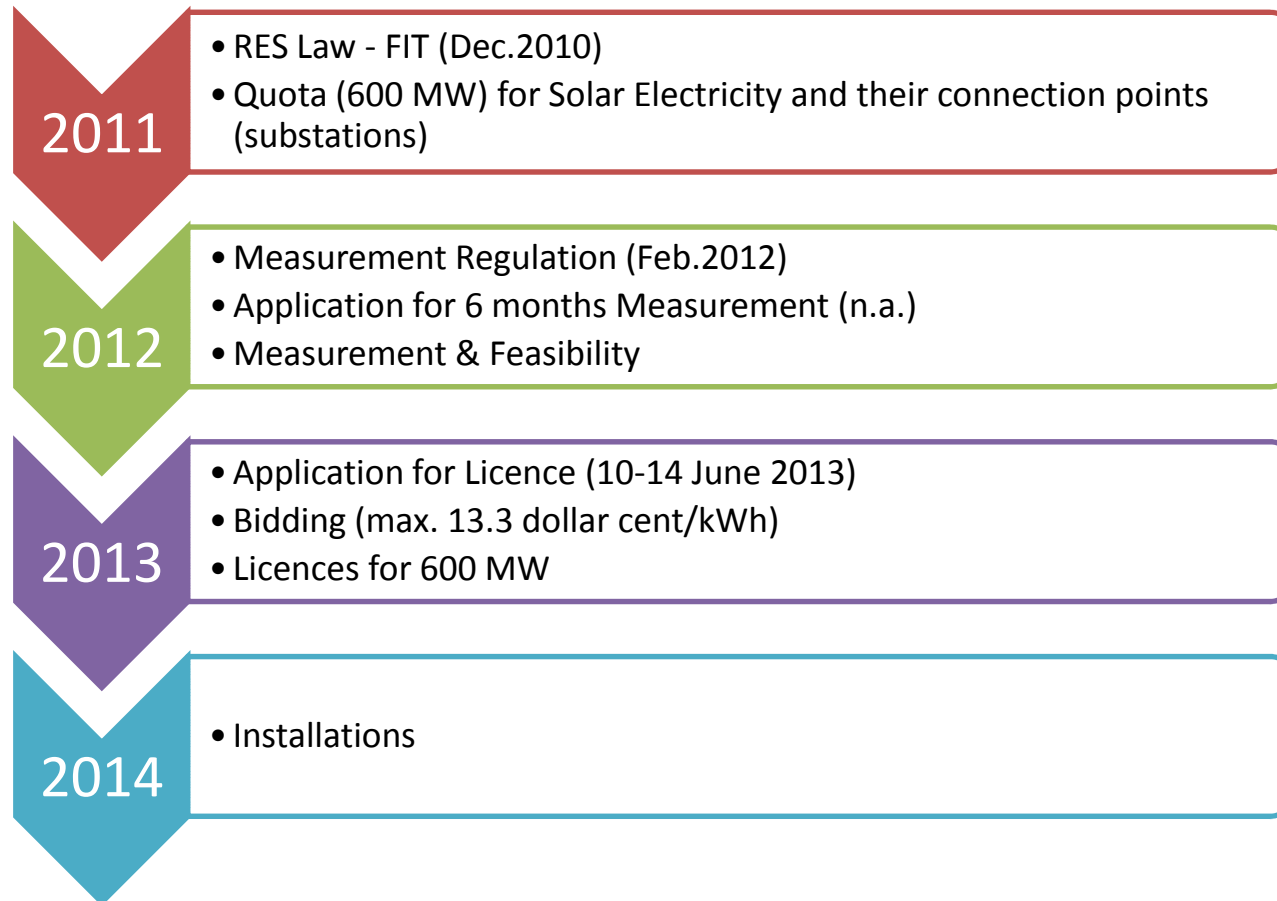
These prices will be applied for ten years to those which apply for RES between May 18, 2005 and December 31, 2015. For companies beginning operation later than December 31, 2015, the FiT rates will be determined by the Council of Ministers.

Further, if the products utilized for the plants carry the ‘Made in Turkey’ stamp, additional credit will be given for five years after the facility’s establishing date. This support will be applied from US\$0.4 to 2.4/kWh.

There is however a 600MW cap in place up until December 31, 2013. For applications later than that date, the Council of Ministers will be authorized to determine total installed power.

For the first decade, 85% discount will be applied for the power grid permission, lease, easement and certificate of occupancy fees for the facilities which will be established until December 31, 2015.

PV Power Plant Installations in Turkey (600 MW)



PV & Small Wind Installations in Turkey



2012

- Regulation for the RES Power Production <500 kW without Licence (draft is available)

2013

- Huge capacity for PV & Small Wind (and other RES)
- FiT is applicable



THANK YOU

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