

**Financing Renewable Energy and Energy Efficiency
in Turkey
TÜSiAD seminar**

Istanbul, 12 December 2011

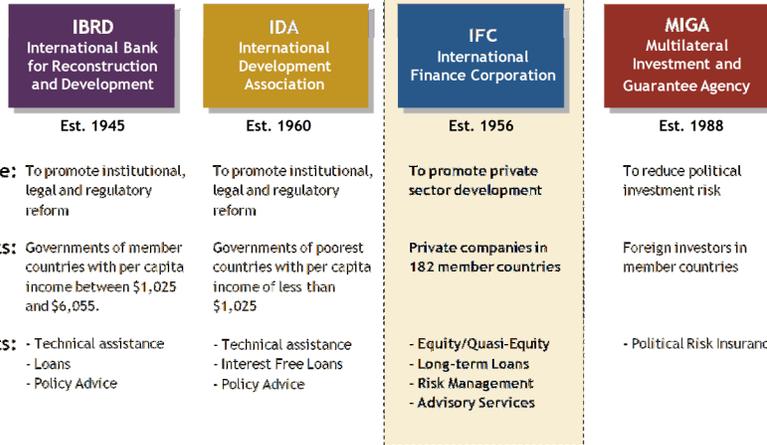
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Agenda

- About IFC
- IFC and RE and EE in Turkey

About IFC

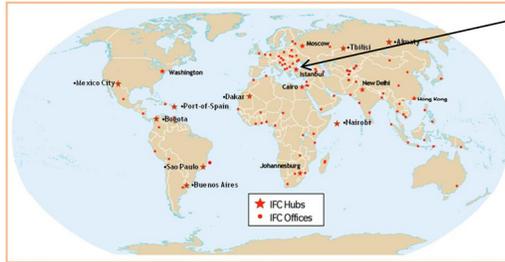
IFC is a Member of the World Bank Group



← Shared Mission: To Promote Economic Development and Reduce Poverty →

IFC's Global Reach

- IFC is the world's largest private sector IFI investing in developing countries
 - Commitments in FY2011 of approximately US\$18 billion in 513 projects with project cost of US\$100 billion
 - Offers a full range of products from equity to mezzanine to debt
 - S&P / Moody's AAA rating
- 100+ country and regional advisory services offices worldwide



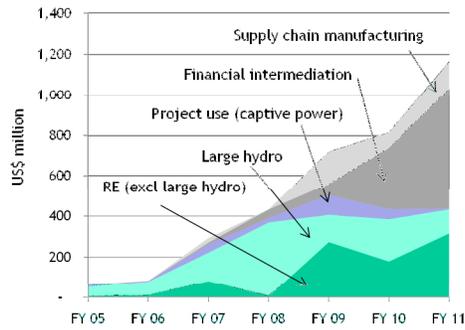
Recently established
Istanbul Operations Centre,
covers 50 countries in
EMENA (Europe, Middle East
and North Africa) region,
including Turkey

Our Power Investments Span 57 Countries

L. America & Caribbean	# of investments	MENA & South Europe	# of investments	Europe and Central Asia	# of investments	Sub-Saharan Africa	# of investments
Chile	9	Turkey	11	Czech Republic	3	Senegal	4
Brazil	8	Pakistan	9	Georgia	3	Cameroon	2
Mexico	7	Egypt	2	Tajikistan	2	Cote D'Ivoire	2
Jamaica	5	Moldova	2	Ukraine	2	Nigeria	2
Colombia	4	Bulgaria	1	Armenia	1	Uganda	2
D. Republic	4	Jordan	1	Hungary	1	Djibouti	1
Guatemala	4	Macedonia	1	Kazakhstan	1	Kenya	1
Peru	4	Oman	1	Lithuania	1	Mali	1
Argentina	2	Romania	1	Poland	1	Rwanda	1
Bolivia	2			Russia	1	Togo	1
Nicaragua	2	East Asia and Pacific	# of investments				
Venezuela	2	Philippines	14	South Asia	# of investments		
Belize	1	China	12	India	29		
Costa Rica	1	Indonesia	3	Sri Lanka	5		
El Salvador	1	Thailand	3	Nepal	3		
Haiti	1	Laos	1	Bangladesh	1		
Honduras	1	Vietnam	1				
Panama	1						

IFC's Renewable Energy Focus

- As a member of the World Bank Group, addressing Climate Change issues is a key component of IFC's corporate strategy
- IFC's direct investment in renewable energy increased from US\$65 million in FY2005 to **US\$1.2 billion** in FY2011



- In the power sector, significant renewable energy experience across all commercially viable sectors:
 - 3,500 MW + plus in hydro
 - 1,200 MW + in wind;
 - 1,300 MW + in geothermal
 - 275 MW + in biomass
 - Multiple small investments in solar PV
 - CSP appraisals underway in multiple countries

IFC in the SEE region / Turkey

IFC is a significant player in the power / RE markets of the region...

- In the last 4 years we've made 16 power investments in Turkey and Southern Europe / Caucuses, for an IFC exposure of EUR1.03 billion
- High visibility, high-impact award winning RE transaction - first in country / sector: Cernavoda / Pestera (Romania wind), Enerjisa (Turkey hydro, gas, wind), Rotor Elektrik (Turkey wind), AkEnerji (Turkey hydro), AES Kavarna (Bulgaria wind), Paravani (Georgia hydro)

... with a strong presence in the Turkish power sector

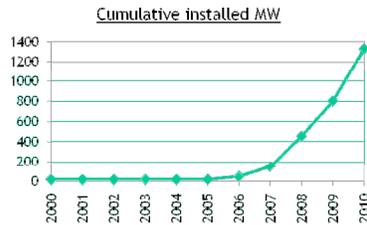
- Turkey is IFC's fourth largest exposure after India, Russia and Brazil
- Power Commitments to date of US\$611 million, with an additional US\$1.4 billion in mobilisation
- In Turkey, significant investments in the power sector of over 3,500 MW generation capacity, in addition to distribution

Key issues in RE finance in Turkey
- Wind
- Geothermal

IFC and EE finance in Turkey

Turkey is a significant and growing wind market

- Turkey's wind sector is the largest in the SEE region, with significant growth in recent years



- All the more remarkable given that growth has been achieved with no direct subsidy payment to WPPs
- Part of a surge in private sector investment in the power sector that saw an increase in capacity of 20% in the first half of 2011
- Wind growth largely driven by local developers, financed by local banks

But will this continue?

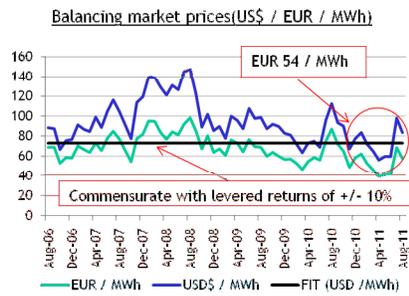
Key return drivers - revenue

- VOLUME: Turkey's wind resource is strong - capacity factors in the mid-30% range (P50) common
- PRICE: However, off-take arrangements are uncertain:
 1. The RE FiT has never been used
 - Why? Historically high balancing market prices; absence of secondary legislation; off-taker (disco) credit-worthiness
 - Even so, the wind FiT level (US\$73 / MWh)* is low, and tenor (10 years) short
 2. WPPs face the balancing market or short term sales arrangements - i.e. merchant risk

* With up to US\$37 / MWh for local content for 5 years

Revenue drivers - price

- Market prices are currently low...
... and at present more than off-set the advantages of a strong wind resource



Turkey v other markets in the region NOW...

	capacity factor (P50)	EUR / MWh	EUR / MW
Romania	25%	155	339,450
Poland	25%	123	269,370
Croatia	30%	98	257,544
Bulgaria	25%	96	210,240
Turkey	35%	54	165,564

Is Turkey competitive at these levels?

Since August, USD has fallen to 80.

Revenue drivers - price and equity returns

- Equity returns are largely a function of future market price developments
 - In the short term, an economic slow-down is likely to bring lower prices
 - In the medium to long-term, supply / demand imbalances should raise prices - but when?
... whether 2013 or 2020 makes a big difference

Indicative return estimations:

- Constant EUR prices over 20 years yields a 9% levered nominal equity return;
- Prices reaching EUR130 / MWh over 20 years yields around 20%

This excludes the impact of royalty payments:

- At up to EUR25 / MWh, this cuts optimistic equity returns to around 12%; based on low price growth wind becomes unfeasible

Financing terms

- The sector has seen significant bank support, particularly from Turkish banks
- Typical debt terms entail EUR financing, 12 year tenors, debt sizing on a P90 / 1.2x DSCR basis and tariff assumptions of EUR55-65 / MWh...
 - ... and sponsor support
- Is this sustainable?
 - Unlikely for non-recourse projects financed on this basis
 - Otherwise, depends on the sponsor support

In the future, we would expect debt sizing commensurate with merchant risk or lower tariff expectations

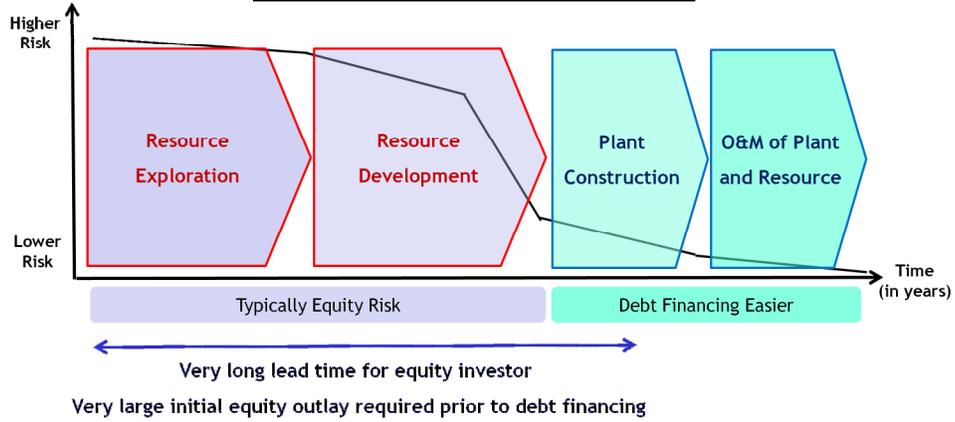
What does this spell for the market?

- Slower growth?
- Withdrawal of high-return seeking investors, entry of investors seeking utility returns?
- Change to the FiT regulations?

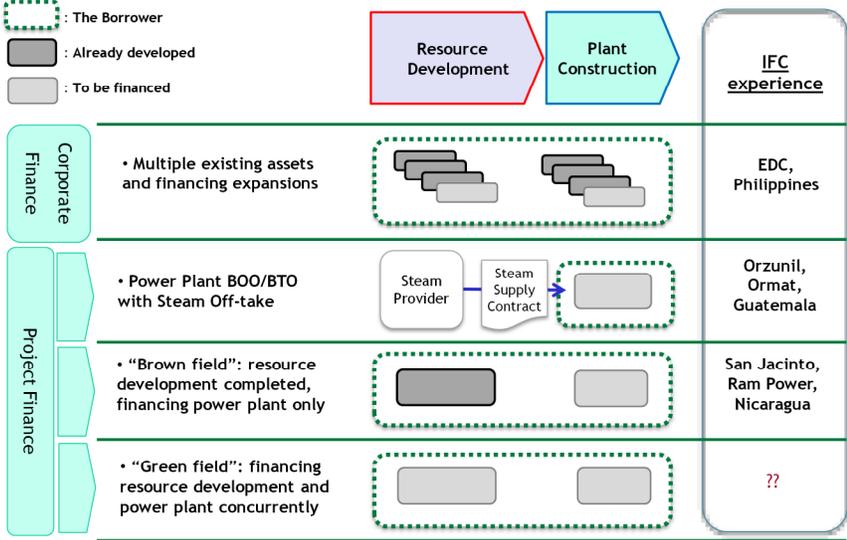
Geothermal financing challenges: Unique risk profile

- Geothermal has a unique risk profile for power generation financing -- very high upfront risk and very long lead time.

Geothermal Project Risk Profile over Time



Geothermal financing: Financing options



Addressing risk profile: Geofund Program

- Access to financing of resource exploration is one of the key barriers to geothermal development in Turkey, and globally
- IFC aims to introduce Geothermal Well Productivity Insurance (GWPI)
- Designed to cover resource productivity risk, not more general drilling/operational risks
- First pilot projects to demonstrate insurance product and to identify preferred insurance partner for following geothermal projects

EE financing through Financial Intermediaries

- IFC provides lines of credit to financial intermediaries to finance energy efficiency and renewable energy activities
- Projects in Turkey include:
 - 2008 - US\$16.7mio credit line for Yapi Kredi Leasing, focus on SME EE
 - 2010 - US\$50mio credit line for Finansleasing (US\$40 mio IFC/10 mio CTF) for SME EE
 - 2010 - US\$25mio credit line for Yapi Kredi Leasing (US\$20mio IFC/5mio CTF), focused on SME EE and RE
 - 2010 - US\$75mio DPR Securitization for Akbank, for EE and RE
 - 2011 - US\$45mio DPR Securitization for Yapi Kredi Bank, for RE

Thank you