

ASPECTS OF RENEWABLE ENERGY POLICIES OF TURKEY

**Prof. Carmine Difiglio, Director
&
Bora Şekip Güray, Director of Research**

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Who is IICEC and our goals

- IICEC aims to **inform policymakers, industry, academics and opinion leaders on key energy challenges and provide them with objective and genuine analysis.**
- IICEC **fosters the exchange and development of ideas by providing a distinguished platform gathering key stakeholders** involved in energy and climate fields.
- The decision to form the Istanbul International Centre for Energy and Climate was motivated by **the growing role of Turkey in the international energy landscape and the strategic position of Istanbul, where Europe and Asia meets.**
- Utilizing this strategic position, IICEC serves to fill the need for an international approach with international resources to **the future of energy and climate topics**, as a globally recognized networking center.

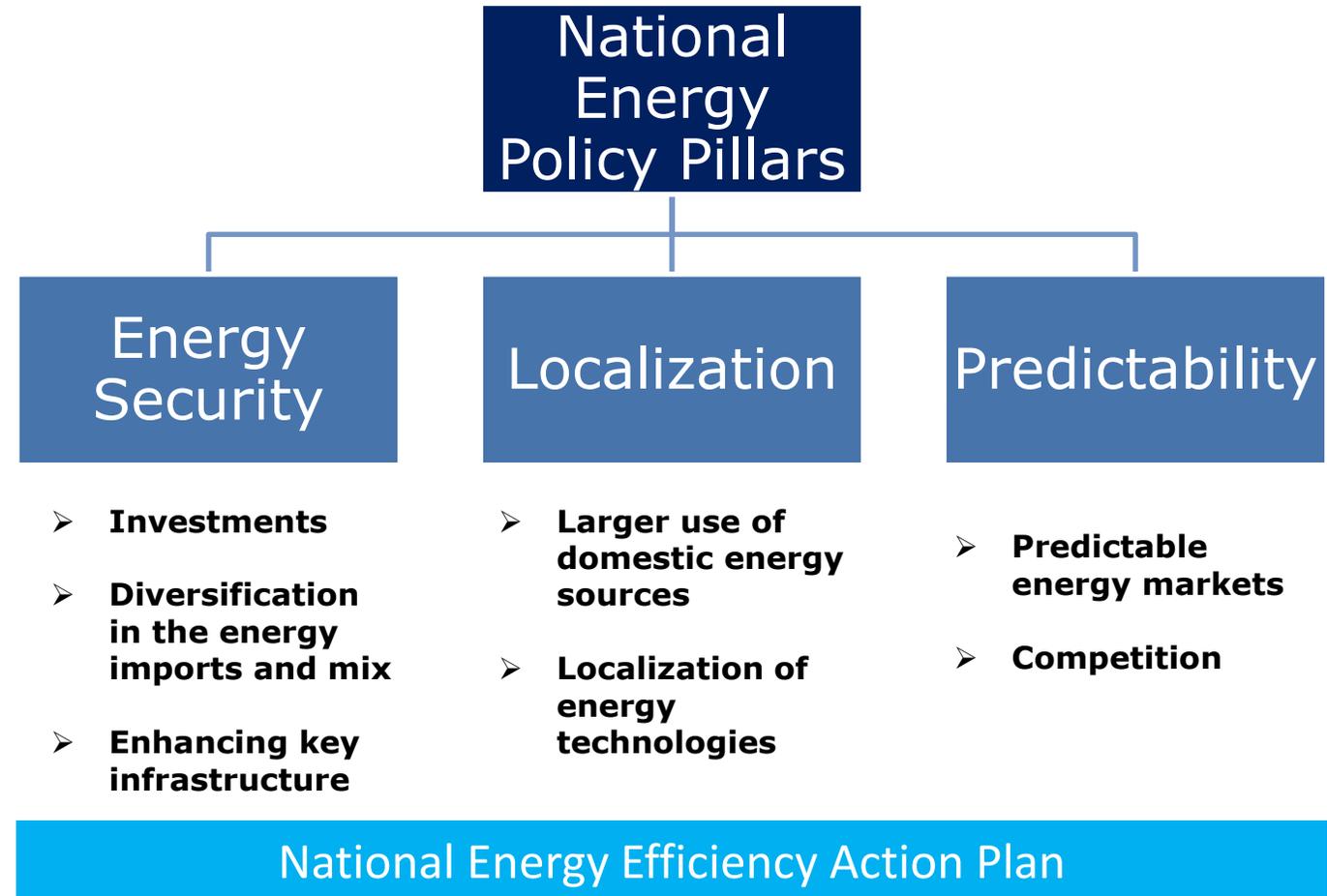
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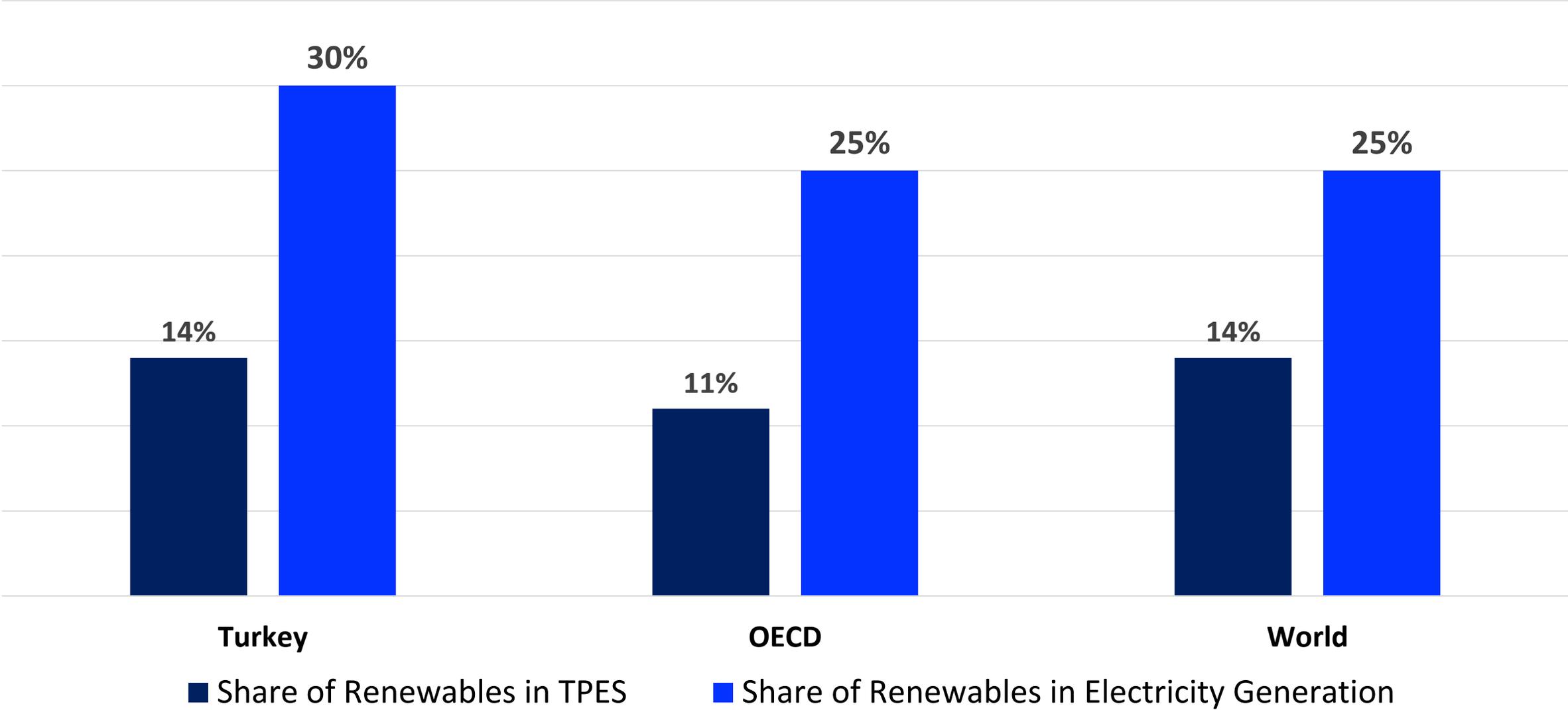
IICEC is an independent Center at Sabancı University that produces energy policy research and has convening power at the energy crossroad of the world.

Looking into Key Characteristics & Policies for Turkey Energy Sector

1. One of the fastest growing energy markets; energy consumption per capita still at ~1/3 of OECD average
2. ~3/4 of energy demand is being met by primary energy imports which has a major impact on Current Account Balance; there is a good potential of local energy resources, particularly renewables
3. Energy intensity (1/energy efficiency) is ~30% higher than EU average
4. Carbon intensity of primary energy supply is ~10% more than OECD average



Renewable Energy : How Does Turkey Compare ?



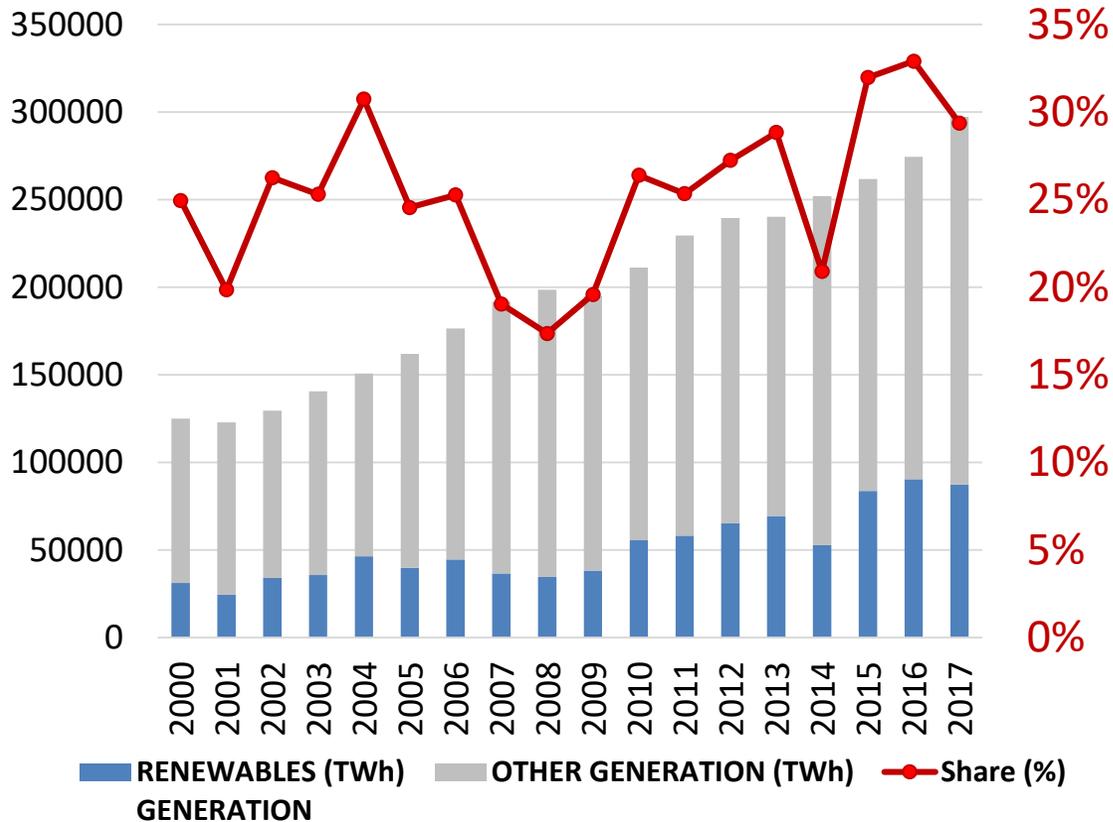
Sources : IEA Statistics, ETKB statistics



Renewables in the Power Sector :

A Key Focus Area with Strong Growth and Further Potential

Evolution of Power Generation



Larger use of renewable energy in electricity generation is a major element of national energy policies :

1. Security of energy supply
2. Improved Current Account Balance
3. Technology production & Job creation
4. Environmental dimension

With strong growth in hydro, wind and solar capacities in recent years,

Turkey managed to reach its 2023 target of "30% renewables in total electricity generation"

Installed capacity based on renewables reached to ~1/2 of total capacity

The current target for generation in 2023 is 50%

Key Developments and Drivers in Renewables Based Power Generation

INSTALLED CAPACITIES

	RESERVOIR HYDROS	RUN_OF_RIVER	WIND	SOLAR PV	GEOTHERMAL	THERMAL RENEWABLES
GW	20.5	7.8	6.9	5.0	1.3	0.9
	<p>Largely utilized</p> <p>Turkey is in top 10 in terms of electricity generation from hydro</p> <p>Turkey is ranked 5th in terms of share of hydro in total electricity generation</p> <p>Reservoir hydro base is a critical resource for system optimization as well as intermittent renewables integration</p>		<p>One of the fastest growing markets in both wind and solar PV</p> <p>A largely untapped potential</p> <p>Feed-in tariff model allowing for higher prices than the spot market price and reverse auction model with guaranteed price a key driver</p> <p>A substantial pipeline of developed projects</p> <p>Most recently the "YEKA" model including local manufacturing for GW scale projects</p> <ul style="list-style-type: none"> -Tenders for 2 GW finalized -Upcoming tenders for >3 GW 		<p>Turkey is one of the leaders in geothermal use including for power generation</p> <p>Progress in biomass and waste heat for wider utilization of resource base</p>	

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“YEKA Model”

- Forthcoming YEKA tenders :
 - GW scale onshore wind
 - GW scale offshore wind
 - GW scale solar including battery storage
- YEKA model of GW scale renewables are not just about Turkish power but the Turkish energy industry, technology base and workforce
- **Renewable tenders, including the YEKA tenders, provide the most attractive investment opportunities for a number of reasons:**
 - **Sales prices are guaranteed over an envisaged investment payback horizon**
 - **Renewable power contracts does not have fuel cost risk**

There are a number of other elements to facilitate larger and wider use of renewables in power generation

- Ongoing technology cost reductions, particularly in solar PV
- Sustained grid investments at transmission and distribution level
- Smart Grid vision and road map for distribution sector
- Demand side management
- Battery storage (both grid scale and behind-the-meter)
- New, innovative business models

Conclusions

- **Turkey is one of the fastest growing renewable energy markets with a strong resource potential for further growth**
- **Renewable energy is one of the central elements of the energy policies of Turkey for a number of reasons**
- **A carefully calibrated role for the public & private sectors can achieve Turkish energy policy goals in renewable energy**
- **This involves government support to ensure needed investments, improved predictability, investments into the grid, better risk management in the private sector; financial sustainability is important**
- **At the same time, the role of market forces in allocating investments can grow and lead to a more efficient and sustainable Turkish energy economy**

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IICEC KONFERANSI: DÜNYA ENERJİ GÖRÜNÜMÜ 2018 TÜRKİYE LANSMANI

Program*
20 Aralık 2018 - Conrad Hotel, İstanbul

09.00 – 10.00 Kayıt & Kahvaltı

10.00 – 10.45 Açılış

Karşılama Konuşması

Prof. Carmine Difiglio, Direktör, IICEC

Açılış Konuşmaları

Güler Sabancı, Mütavelli Heyeti Kurucu Başkanı, Sabancı Üniversitesi
Erol Bilecik, Yönetim Kurulu Başkanı, TÜSİAD

10.45 – 11.30 “Dünya Enerji Görünümü 2018” Sunumu

Dr. Fatih Birol, Başkan, Uluslararası Enerji Ajansı

11.30 – 12.00 Onur Konuşması

Fatih Dönmez, Enerji ve Tabii Kaynaklar Bakanı, Türkiye Cumhuriyeti (TBC)

12.00 – 12.15 Kahve Arası

12.15 – 13.15 Panel: “Türkiye Elektrik Piyasası: Gelecek Adımlar” ve Soru-Cevap

Moderatör: Dr. Fatih Birol, Başkan, Uluslararası Enerji Ajansı
Orhan Kaldırım, Genel Müdür, TEİAŞ (Türkiye Elektrik İletim A.Ş.)
Mehmet Acarla, Genel Müdür, Borusan EnBW Enerji
Denis Lohest, CEO, Engie Türkiye
Bora Tuncer, Başkan, Schneider Electric, Türkiye, İran ve Orta Asya
Kıvanç Zaimler, Enerji Grup Başkanı, Sabancı Holding

13.15 – 14.30 Öğle Yemeği

(*) Konferans anadili Türkçe olup, simultane çeviri sağlanacaktır.

IICEC ANNUAL ENERGY CONFERENCE featuring the WORLD ENERGY OUTLOOK 2018 TURKEY LAUNCH

Program*
20 December 2018 - Conrad Bosphorus Istanbul Hotel

09.00 – 10.00 Registration & Breakfast

10.00 – 10.45 Welcoming Remarks & Opening Speeches

Welcoming Remark

Prof. Carmine Difiglio, Director, IICEC

Opening Speeches

Güler Sabancı, Founding Chairman, Sabancı University Board of Trustees
Erol Bilecik, President, TÜSİAD

10.45 – 11.30 “World Energy Outlook 2018” Presentation

Dr. Fatih Birol, Executive Director, International Energy Agency (IEA)

11.30 – 12.00 Speech of the Guest of Honor

Fatih Dönmez, Minister of Energy and Natural Resources, Republic of Turkey (TBC)

12.00 – 12.15 Coffee Break

12.15 – 13.15 Panel: “Turkish Power Market: The Next Steps” and Q&A

Moderatör: Dr. Fatih Birol, Executive Director, International Energy Agency (IEA)
Orhan Kaldırım, CEO, TEİAŞ (Turkish Electricity Transmission Corporation)
Mehmet Acarla, General Manager, Borusan EnBW Energy
Denis Lohest, CEO, Engie Turkey
Bora Tuncer, President, Schneider Electric, Turkey, Iran and Central Asia
Kıvanç Zaimler, Energy Group President, Sabancı Holding

13.15 – 14.30 Networking Lunch

(*) Primary language of the Conference will be Turkish and simultaneous translation to and from English will be provided.

Dr. Fatih Birol,
the IEA Executive Director,
will present the 2018 WEO
on 20 December
@ Conrad Bosphorus Hotel;

please join us