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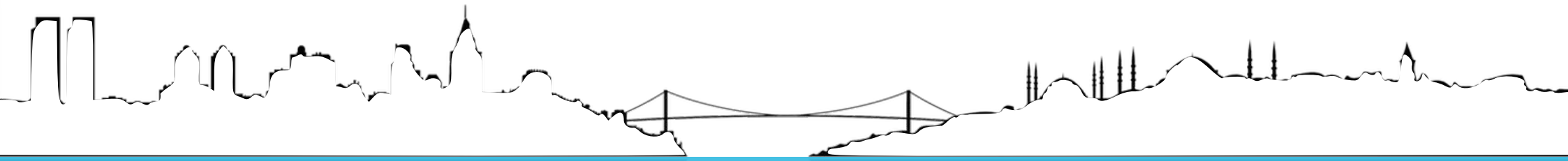
Solar Energy Investment Opportunities

One MWp or Larger Licensed Projects



Turkey's Bright Future in Solar Energy

Sitting astride the 'Mediterranean sun belt, with high irradiation levels in contrast with Europe, Turkey seems an unlikely hub for green energy with its' huge potential.

Nevertheless, keen to capitalize on its renewable energy potential, in 2014, the Turkish government announced as part of its '2023 Vision' – the year coinciding with the Turkish Republic's centenary – plans to boost the country's alternative energy sources significantly. The goal is to increase the renewable energy share in total energy and to maximize benefit from existing potential until next 15 years. It was planed that the share of renewable energy resources in electricity production would be at least 30% by 2023 and government ensured some incentives such as feed-in tariff, investment incentives etc. for renewable energy.

Initially, Turkey aimed to install 34 gigawatts (GW) hydroelectricity capacity, 20GW in wind energy, 5GW from solar energy and 1GW each from geothermal and biomass. The success of the initiative has exceeded initial expectations. By 2016, senior figures in Turkey's solar industry were already predicting that the country would exceed its planned solar energy target.

Turkey's Solar Energy Potential

One of the world's largest and Turkey's first integrated solar cell and panel production facility recently opened

Kalyon Holding Energy Group President Murtaza Ata announced that the company plans to add storage facilities to the 1,000-megawatt (MW) Karapınar power plant, which they will set up with South Korean partner Hanwha Q-Cells in Konya under the Renewable Energy Resource Areas (YEKA) contract the two companies were awarded in March 2017.

Source: Daily Sabah, published March 22, 2018

A prime example of the government's renewable energy legislation in action, Turkey's first integrated solar cell and panel production facility opened in Karapınar near Ankara late last year.

The plant will provide solar energy equipment for the Karapinar site, Turkey's largest solar facility. With the capacity to produce 1,000 megawatts (MW) in green energy – enough to power some 600,000 households – Karapinar will be one of the world's largest solar power plants. And the second such scheme is slated to be announced in mid-2018…

Turkey's Solar Energy Potential

2006 - 2023 Annual Electricity Consumption
Change Per Person (kWh/person)

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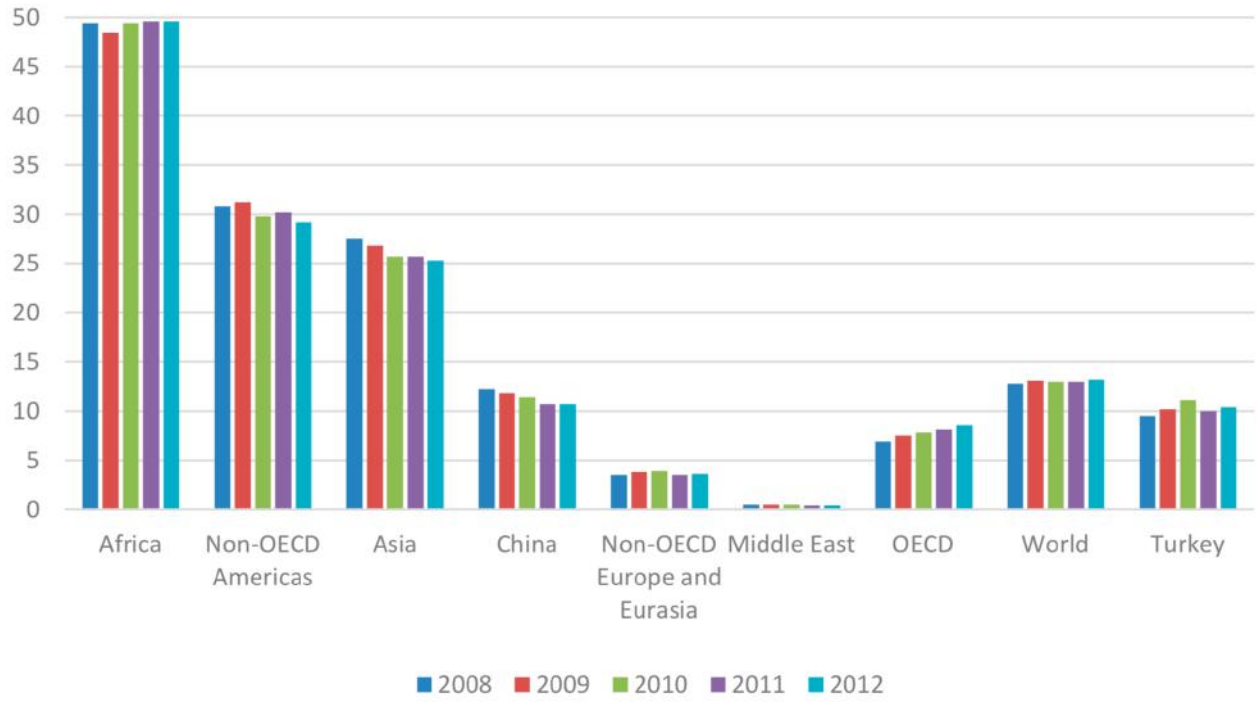
Economic expansion, rising per capita income, positive demographic trends, and the rapid pace of urbanization have been the main drivers of energy demand, which is estimated to increase by around 6 percent per annum through 2023. In order to satisfy the increasing demand in the country, the current 80-GW installed electricity capacity is expected to reach 120 GW by 2023 through further investments to be commissioned by the private sector.

Already laggin behind in its' hunger for energy, Turkey, one of the fastest growing economies of the world, needs to satisfy its' rising energy demand !

Turkey's Solar Energy Potential

Worldwide Renewable Energy Shares %



Turkey approaches the world average in renewable energy use and is in a slightly better position than the OECD total.

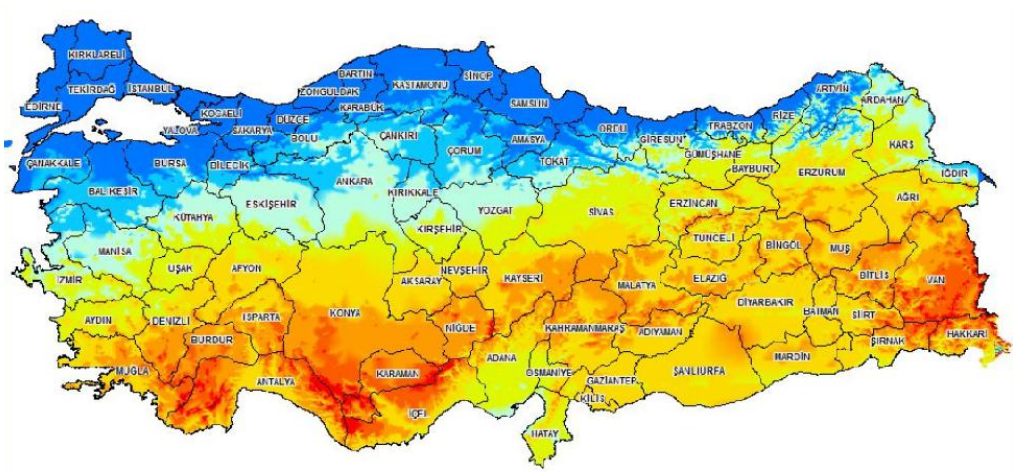
However, the renewable energy use excluding hydro is below the general average, which indicates that a significant amount of the energy production in Turkey is from hydroelectric sources.

As part of its efforts to provide sustainable and reliable energy to consumers, Turkey offers investors favorable incentives, such as feed-in-tariffs, purchase guarantees, connection priorities, license exemptions, etc., depending on the type and capacity of the energy generation facility.

Source: IEA yearly "Renewables Information" reports (2010–2014 Editions)

Turkey's Solar Energy Potential

Total Solar Radiation by Regions



Total Solar Radiation
KWh/m2 - year

- 1400 - 1450
- 1450 - 1500
- 1500 - 1550
- 1550 - 1600
- 1600 - 1650
- 1650 - 1700
- 1700 - 1750
- 1750 - 1800
- 1800 - 2000

According to studies made by General Directorate, renewable energy is low levels in Black-Sea and Marmara regions in Turkey. Sunshine durations in Black Sea region vary approximately maximum between 8 and 10 hours in June.

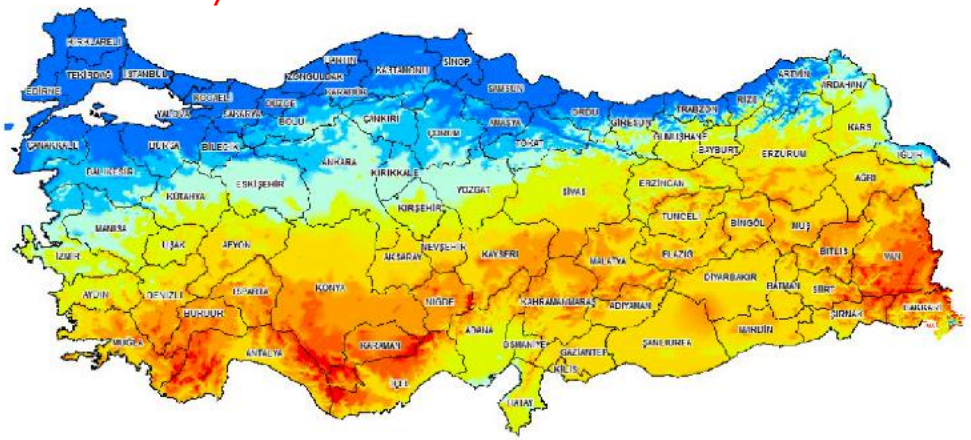
Even if Solar Power that is 1.168 KWh/m 2-years in Marmara region is under country average, it is a high rate in contrast with Europe.

Source: EIE (Renewable Energy General Directorate)

Turkey's Solar Energy Potential

Turkey Compared to Germany

Turkey



Germany

Turkey has started to notice and utilize its' resources after 2005 with a serious contribution of the renewable energy law. Average sunny hours per year in Turkey is 2.640 whereas 1.800 in Germany. That means Turkey has around 50% better solar radiation capacity in comparison.

However, Germany has around 35.000 MW existing solar energy power plants (capacity) which is around 500 times more than Turkey's around 70 MW existing solar energy capacity. This is a dramatic image showing the potential of the sector for development in Turkey.

Source: EIE (Renewable Energy General Directorate)

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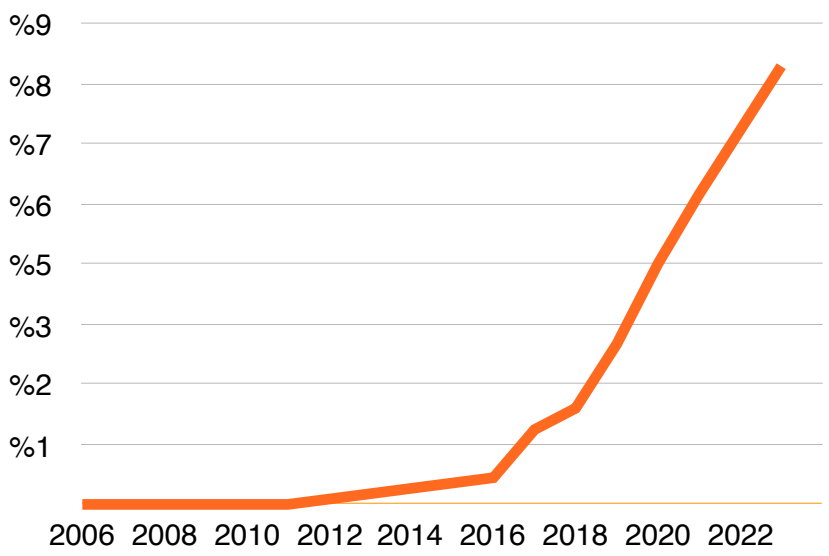
Turkey's Solar Energy Potential

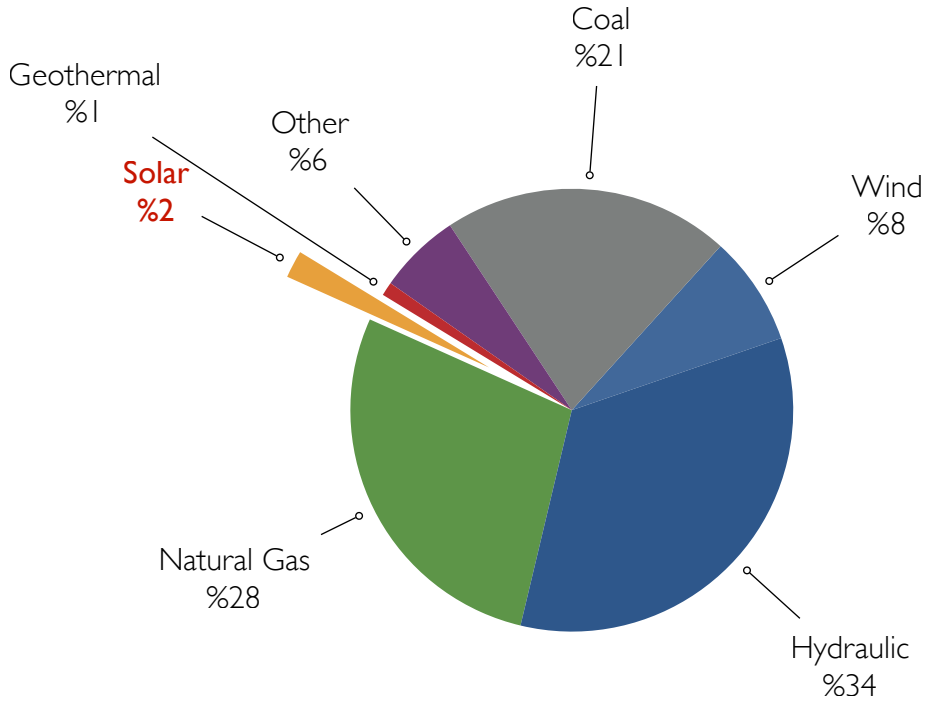
Rising share of renewable as well as solar energy resources in the total installed capacity

Share of solar energy in total production.



The Turkish solar energy sector has been growing dramatically in the last decade and this trend is expected to continue into the future. The proportion of SPP, which has an important position in renewable energy sources, is increasing day by day.

The distribution of installed power by resources in Turkey in July 2017



The share of solar energy based on distribution of installed power has already exceeded 5% in 2018, well above the projections. The Turkish government has made it a priority to increase the share of renewable sources in the country's total installed power to a remarkable 30 percent by 2023.

Source: Ministry of Energy and Natural Resources, Republic of Turkey

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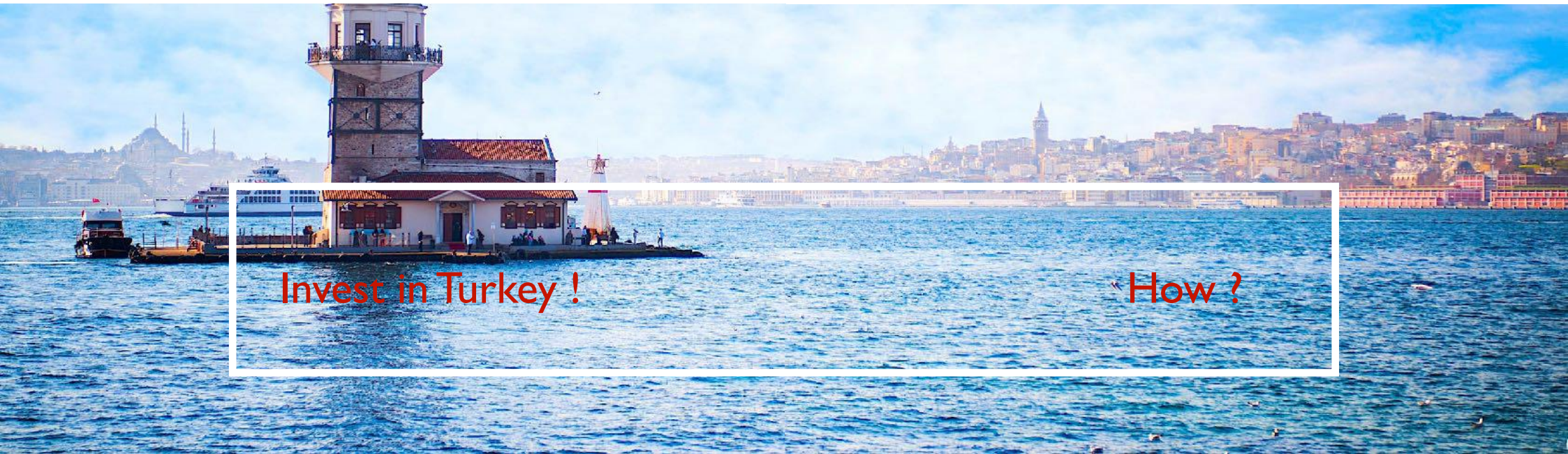
Our expertise lies in serving corporate clients, but private clients get the same level of service quality. Starting with extensive research and business analysis and financial modelling, our team supports clients through to completion including investment and project/business management. Post completion our management team are also keen to ensure you maximise your income streams.

Please consult to our team for investmet opportunities in Turkey.



DQDX is an investment, research and management consulting firm advising both the public and private sector in investment with a focus on Turkish market. With backgrounds in business administration, economics, finance, property and engineering, our cross-functional team rings breadth and depth to provide credible support for optimal decision-making. Our advice is based on a strong in-house analytical research base to highlight trends and opportunities in an otherwise opaque market.

We have worked on several projects including internationally renowned architects, Zaha Hadid, to advise the Istanbul city government on the economic feasibility of its urban masterplan, several investment and business development projects in real estate, renewable energy, establishing new start-up businesses, and provided analytical research which is used by leading institutions including SWFs and PE funds.

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