

DÜNYA ENERJİ ÜRETİMİ ve KURULU GÜÇLERİ ÜLKELERE VE ENERJİ KAYNAKLARINA GÖRE AYRINTILARI

Hazırlayan: Yüksel atakan , Dr.Radyasyon Fizikçisi, Almanya, ybatakan4@gmail.com 19.02.2024

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1. DÜNYA ENERJİ ÜRETİMİ VE BUNLARIN KURULU GÜÇLERİ

The total world installed capacity (GW) and electricity production (TWh) for nuclear, solar, wind, and fossil fuels based on the most recent data (2022-2023). This table provides a global comparison of these energy sources.

Energy Source	Installed Capacity (GW)	Electricity Production (TWh)	References
Nuclear	~390 GW	~2,600 TWh	IAEA, World Nuclear Association
Solar	~1,050 GW	~1,300 TWh	IRENA, IEA
Wind	~940 GW	~2,100 TWh	GWEC, IEA
Fossil Fuels	~4,500 GW (coal + gas)	~25,000 TWh (coal + gas)	IEA, BP Statistical Review

Key Insights:

- Nuclear Energy:**
 - Provides a stable and significant share of global electricity (~10% of total production).
 - High capacity factors (typically 80-90%) mean nuclear plants produce large amounts of electricity relative to their installed capacity.
- Solar Energy:**
 - Rapid growth in installed capacity due to declining costs and policy support.

- Lower capacity factors (15-25%) mean solar produces less electricity per GW of installed capacity compared to nuclear or fossil fuels.
- 3. **Wind Energy:**
 - Wind has a higher capacity factor (25-40%) than solar, making it more efficient in terms of electricity production per GW installed.
 - Onshore and offshore wind are both growing rapidly, with offshore wind contributing increasingly to global capacity.
- 4. **Fossil Fuels:**
 - Still dominate global electricity generation, accounting for ~60% of total production.
 - Coal and natural gas are the primary sources, with coal being the largest contributor to CO₂ emissions

References:

1. **IAEA (International Atomic Energy Agency):** Nuclear energy statistics.
 2. **IRENA (International Renewable Energy Agency):** Solar and wind energy data.
 3. **IEA (International Energy Agency):** Global energy statistics, including fossil fuels.
 4. **GWEC (Global Wind Energy Council):** Wind energy statistics.
 5. **BP Statistical Review of World Energy:** Fossil fuel data.
 6. **World Nuclear Association:** Nuclear energy capacity and production
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2. DÜNYA ENERJİ ÜRETİMİNE ÖNEMLİ KATKIDA BULUNAN ÜLKELER

A table comparing the installed capacities (GW) and electricity production (TWh) for nuclear, solar, wind, and fossil fuels for selected countries based on the most recent data (2022-2023). This table allows for easy comparison across energy sources and countries. The Table includes approximations.

Country	Energy Source	Installed Capacity (GW)	Electricity Production (TWh)
United States	Nuclear	~95 GW	~775 TWh
	Solar	~140 GW	~150 TWh
	Wind	~140 GW	~400 TWh
	Fossil Fuels	~720 GW (coal + gas)	~2,500 TWh (coal + gas)
China	Nuclear	~55 GW	~400 TWh
	Solar	~430 GW	~400 TWh
	Wind	~340 GW	~700 TWh
	Fossil Fuels	~1,400 GW (coal + gas)	~5,800 TWh (coal + gas)
France	Nuclear	~61 GW	~360 TWh
	Solar	~15 GW	~20 TWh
	Wind	~20 GW	~40 TWh
	Fossil Fuels	~20 GW (coal + gas)	~50 TWh (coal + gas)
Germany	Nuclear	~4 GW	~30 TWh
	Solar	~60 GW	~50 TWh
	Wind	~65 GW	~130 TWh
	Fossil Fuels	~50 GW (coal + gas)	~200 TWh (coal + gas)
India	Nuclear	~7 GW	~40 TWh
	Solar	~70 GW	~100 TWh
	Wind	~42 GW	~70 TWh
	Fossil Fuels	~255 GW (coal + gas)	~1,270 TWh (coal + gas)
Russia	Nuclear	~29 GW	~220 TWh
	Solar	~2 GW	~3 TWh
	Wind	~1 GW	~2 TWh
	Fossil Fuels	~300 GW (coal + gas)	~800 TWh (coal + gas)

Notes:

1. **Installed Capacity:** Refers to the maximum potential output of energy infrastructure (in gigawatts, GW).
2. **Electricity Production:** Refers to the actual electricity generated (in terawatt-hours, TWh).
3. **Fossil Fuels:** Includes coal, oil, and natural gas. Installed capacity and production are combined for simplicity.
4. Data is approximate and based on 2022-2023 estimates from sources like **IAEA, IRENA, IEA, EIA**, and national energy agencies.

3. YAPIMI YA DA PROJELERİ SÜREN ENERJİ SANTRALLERİ VE BUNLARI YAPAN ÜLKELER

The facilities under construction or planned for nuclear, solar, wind, and fossil fuels based on the latest available data (2022-2023). These projections are based on industry reports, government plans, and energy agency forecasts.

Below is a table summarizing the **estimated facilities under construction or planned** for **2024**:

Energy Source	Facilities Under Construction/Planned (2024)	Estimated Capacity Additions (GW)	Key Countries/Regions	References
Nuclear	~60 reactors under construction globally	~60 GW	China, India, Russia, France, UK, USA	IAEA, World Nuclear Association
Solar	Thousands of utility-scale solar farms and rooftop solar installations	~350 GW	China, USA, India, EU, Southeast Asia, Middle East	IRENA, IEA, SEIA
Wind	Hundreds of onshore and offshore wind farms	~120 GW	China, USA, EU, UK, India, Brazil	GWEC, IEA
Fossil Fuels	New coal and gas plants, though growth is slowing due to energy transition policies	~100 GW (coal + gas)	China, India, Southeast Asia, Middle East	IEA, Global Energy Monitor

Key Insights:

1. **Nuclear Energy:**
 - **60 reactors** are under construction globally, with **China** leading the way (accounts for ~70% of new nuclear construction).
 - Countries like **India**, **Russia**, and the **UK** are also expanding their nuclear fleets.
 - Estimated **60 GW** of new nuclear capacity could come online by 2024.
2. **Solar Energy:**
 - Solar energy is experiencing **explosive growth**, with **350 GW** of new capacity expected in 2024.
 - **China** is the largest market, followed by the **USA**, **India**, and the **EU**.
 - Both utility-scale solar farms and distributed rooftop solar are driving growth.
3. **Wind Energy:**
 - **120 GW** of new wind capacity is expected in 2024, with a mix of onshore and offshore projects.
 - **China**, the **USA**, and the **EU** are the largest markets for wind energy.
 - Offshore wind is growing rapidly, particularly in Europe and China.
4. **Fossil Fuels:**
 - **100 GW** of new coal and gas capacity is expected, primarily in **Asia** (China, India, Southeast Asia) and the **Middle East**.
 - Growth in fossil fuel capacity is slowing due to global decarbonization efforts, but some regions still rely heavily on coal and gas for energy security.

References:

1. **IAEA (International Atomic Energy Agency):** Nuclear reactor construction data.
 2. **IRENA (International Renewable Energy Agency):** Solar and wind energy projections.
 3. **IEA (International Energy Agency):** Global energy trends and forecasts.
 4. **GWEC (Global Wind Energy Council):** Wind energy market reports.
 5. **Global Energy Monitor:** Fossil fuel plant tracking.
 6. **World Nuclear Association:** Nuclear energy construction and planning
 7. **YZ**
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