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6th AIEE Energy Symposium

Energy industry challenges to a low-carbon economy, the RES and gas role in the transition

Ahmet Türkoğlu

EXIST CEO

15 December 2021

Virtual conference

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The New York Times

His Lights Stayed on During Texas' Storm. Now He Owes \$16,752.

After a public outcry from people like Scott Willoughby, whose exorbitant electric bill is soon due, Gov. Greg Abbott said lawmakers should ensure Texans “do not get stuck with skyrocketing energy bills” caused by the storm.

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Energy policy and regulation

Energy data & research

What happens if your energy supplier goes bust

If your supplier goes out of business Ofgem's safety net will ensure you'll always have an energy supply. This guide explains what to expect if it happens to you.

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EPIAS

Crises is Everywhere

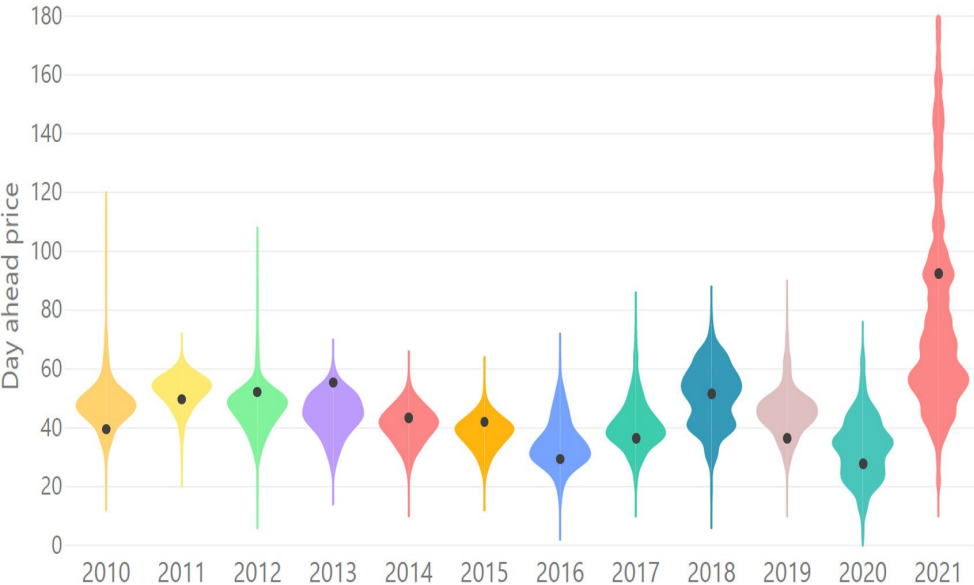
Gas & Electricity Price Changes from in 2019 - 2021

	BG	DE	EL	FR	IT	SK	TR	EU
Wholesale Gas	592%	559%	11%	562%	406%	37%	116%	429%
Retail Gas	38%	5%	28%	25%	14%	-8%	37%	14%
Wholesale Electricity	306%	259%	121%	281%	210%	206%	33%	230%
Retail Electricity	21%	5%	19%	5%	-2%	9%	42%	7%

Source: <https://www.nytimes.com/2021/02/20/us/texas-storm-electric-bills.html>
OFGEM, EU Commission – Latest Possible Values (2021 – First 10 Months)

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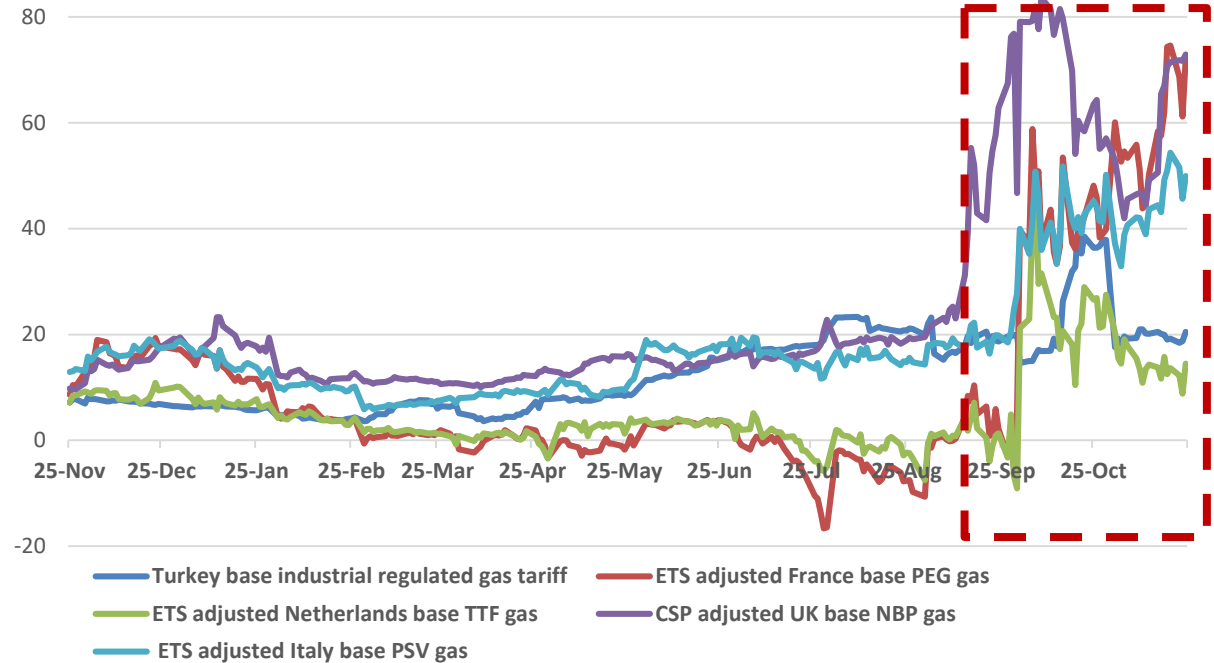
• Annual average cost of producing electricity from gas



Painted area show distribution of DAM Prices

Electricity - Gas

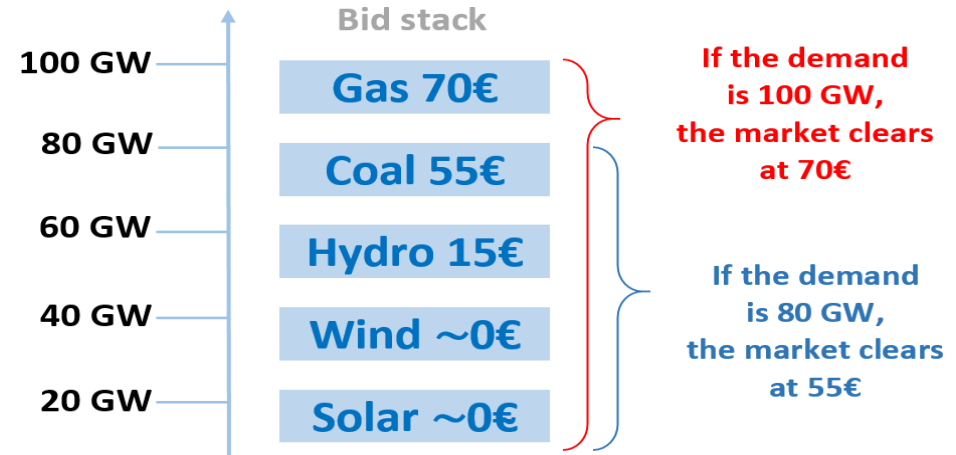
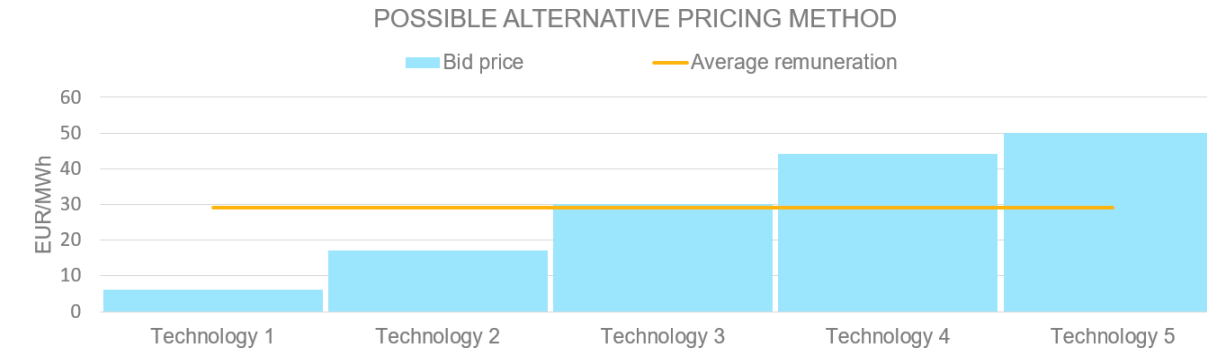
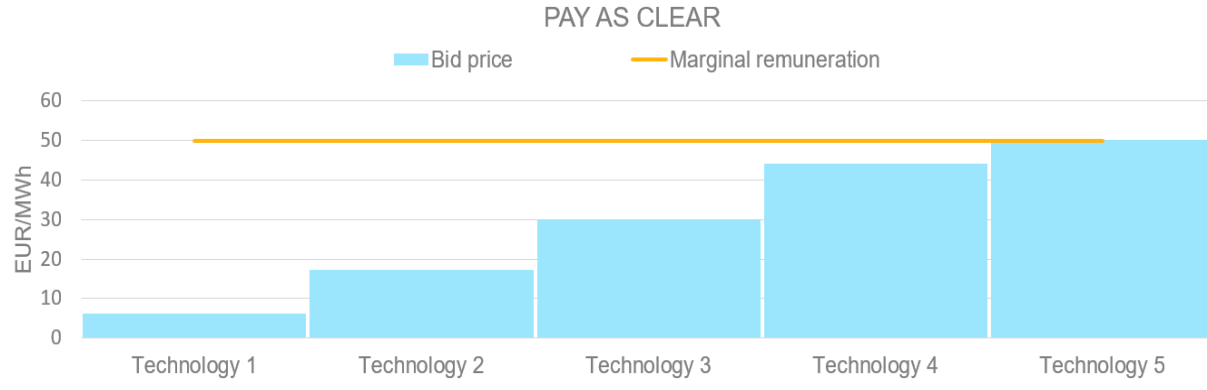
Gas Spark 55% month 1
London close, Euro/MWh



Source: ACER, Argus

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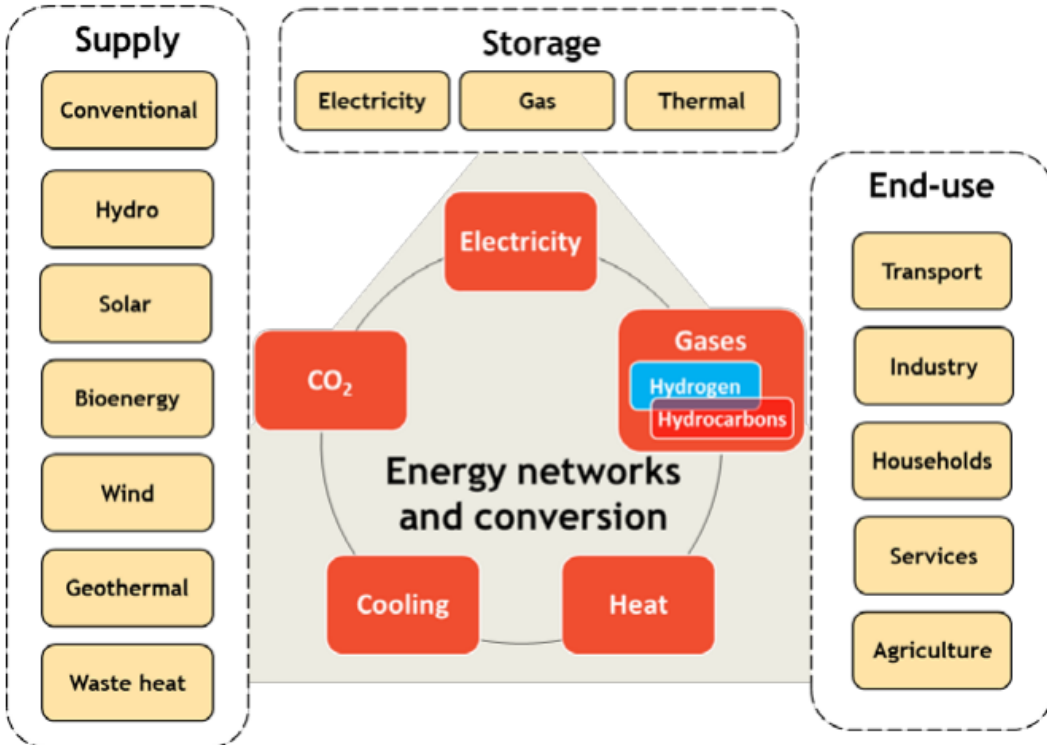
Illustration of the current electricity wholesale pricing method and a possible alternative



Producers bid true costs and get the market clearing price.

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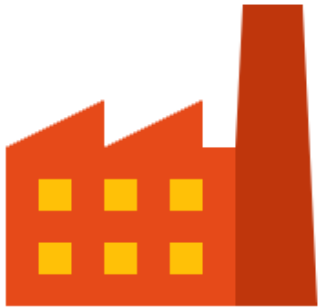
Coupling of the energy system sectors



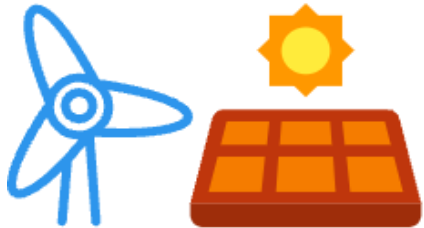
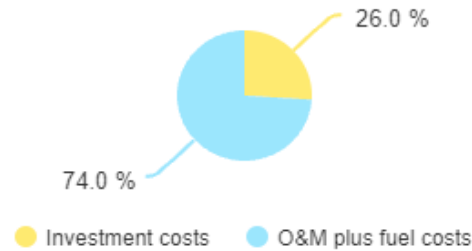
- Zonal approach being questioned due to increased congestion levels and slow progress in grid extension
- Further electrification of many sectors (industry, transport, heating, etc.)
- Digitalisation, technological innovation, large-scale roll-outs (e.g. offshore wind/off-shore BZs), energy system integration
- Increased potential of demand-side flexibility, storage, etc.

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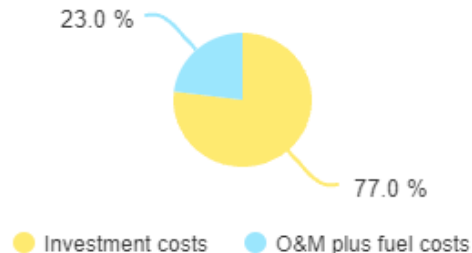
Role of wholesale markets in a high renewables system



Conventional generation (coal and gas)



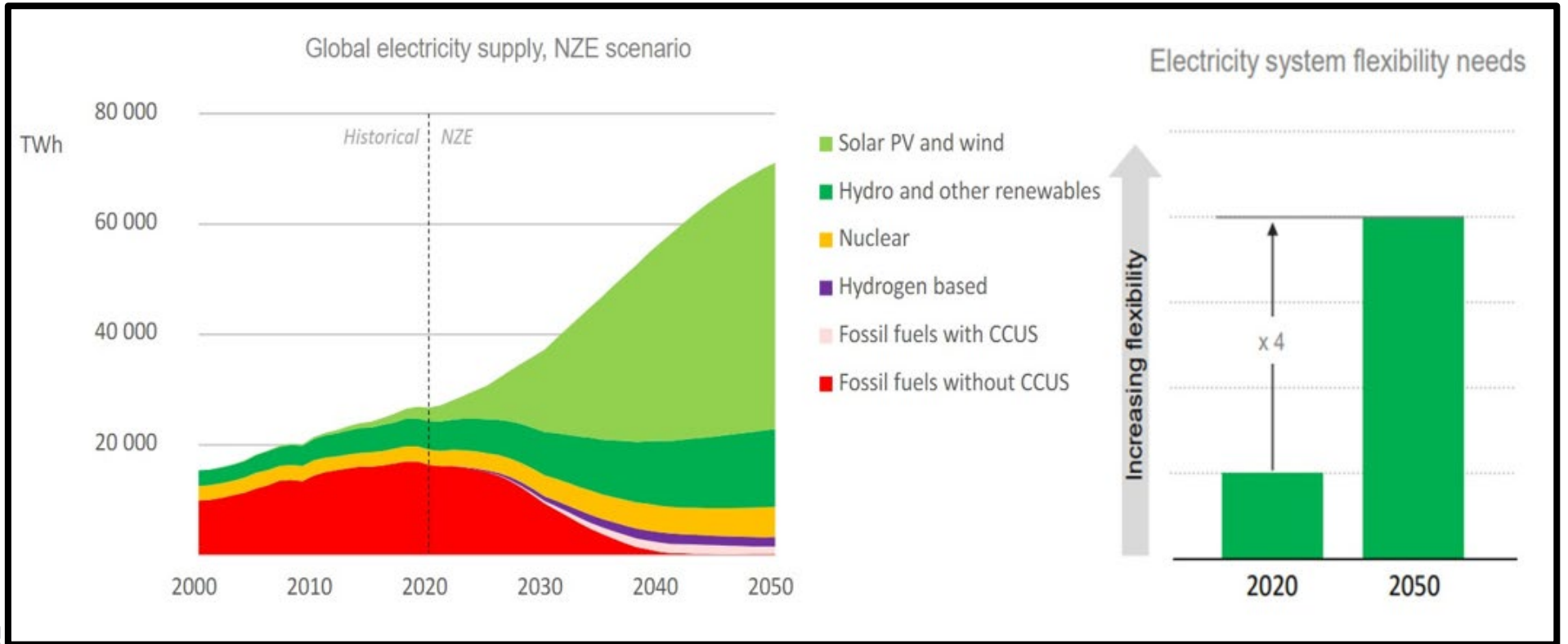
Renewables (wind & solar)



- Decarbonisation targets will require high shares of renewable energy.
- Renewable and low-carbon gases at large scale will require an evolution of the current market design.
- RES projects with high up-front capital costs but very low marginal running costs
- Subsidy schemes are widely used and distort the markets

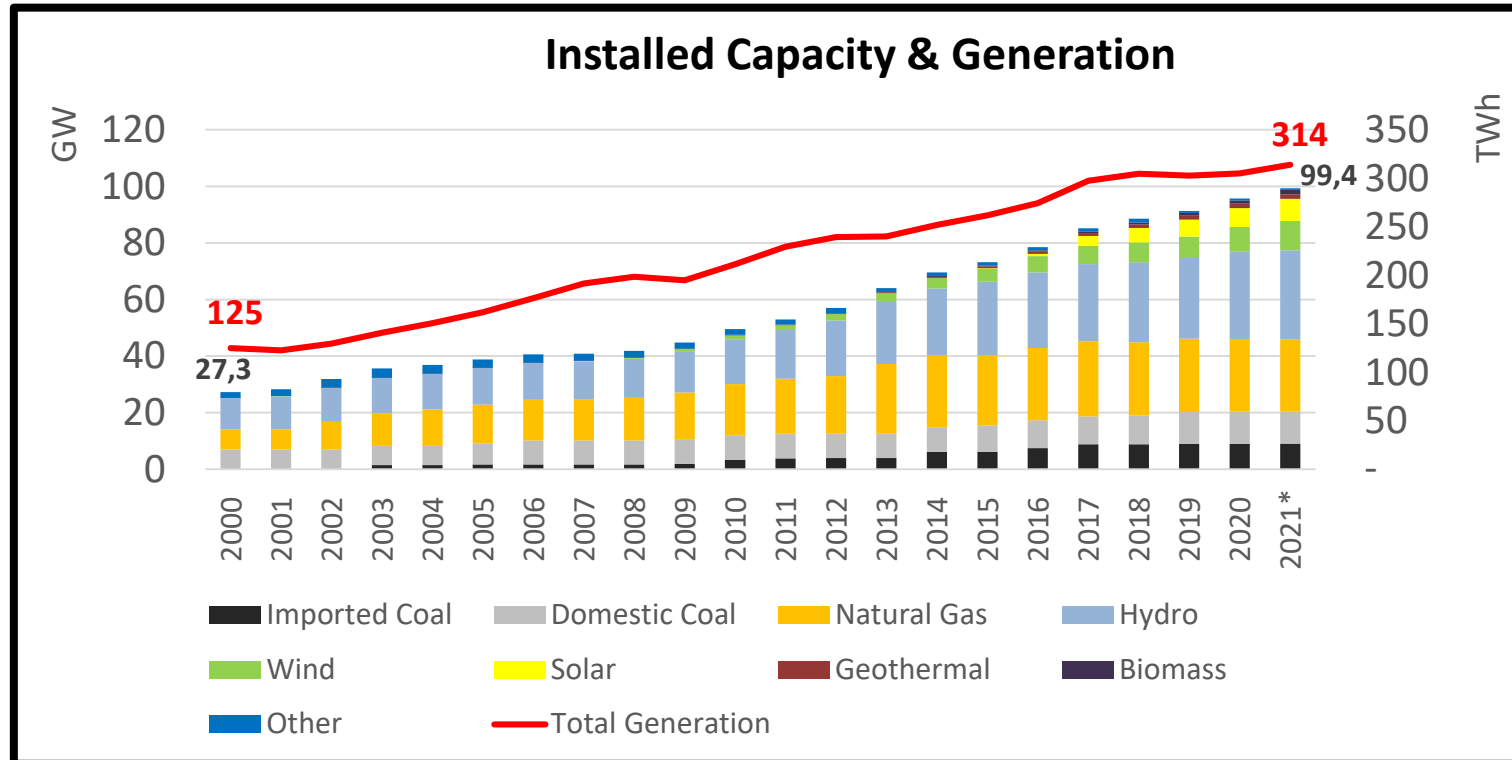
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Outlook for global electricity generation and associated flexibility needs towards a 2050 net zero trajectory



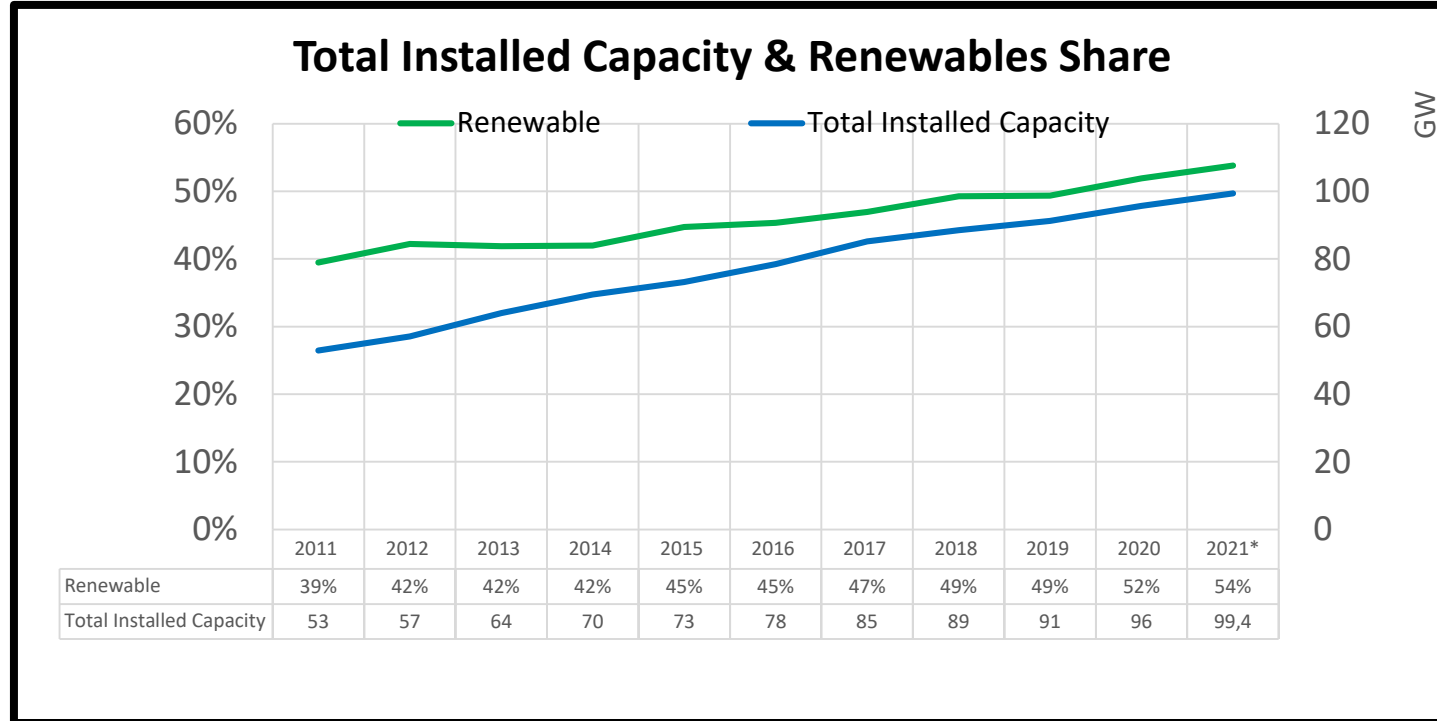


- ❖ The Paris Agreement has entered into force for Turkey on Nov. 10, 2021 and Turkey will reach net zero emissions by 2053.



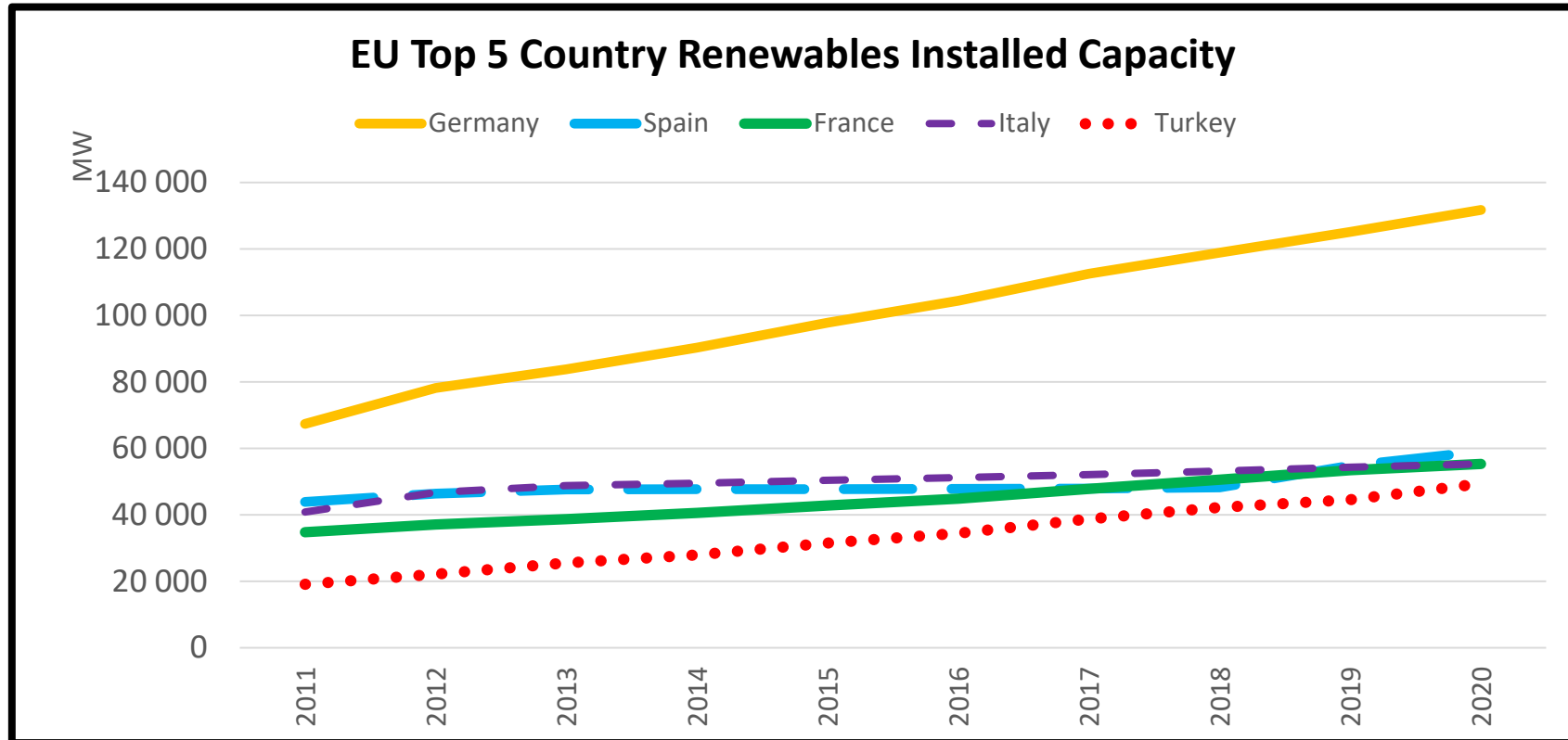
Source: TEİAŞ YTBS - https://ytbsbilgi.teias.gov.tr/ytbsbilgi/frm_istatistikler.jsf

*2021 contains the data until 14 December 2021



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*2021 contains the data until 14 December 2021



Source: IRENA (2021), Renewable Capacity Statistics 2021; & IRENA (2020)

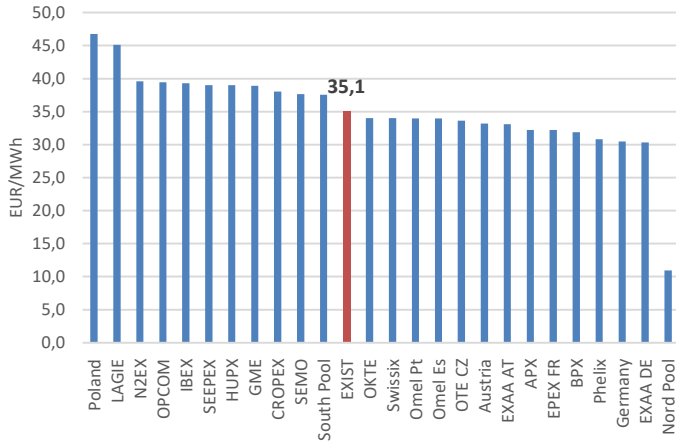
Energy Sector Goals			
	2018*	2023	Change %
Primary Energy Demand (kTOE)	147.955	174.279	18%
Electrical Energy Demand (TWh)	303,3	375,8	24%
Primary Energy Consumption Per Capita (TOE/Person)	1,81	2,01	11%
Electrical Energy Consumption Per Capita (kWh/Person)	3.698	4.324	17%
Share of Natural Gas in Electricity Production (%)	29,85	20,7	-31%
Share of Renewable Resources in Electricity Generation (%)	32,5	38,8	19%
Amount of Electricity Produced from Domestic Sources (TWh)	150	219,5	46%
Installed Power Capacity (MW)	88.551	109.474	24%

Source: The Eleventh Development Plan (2019-2023)

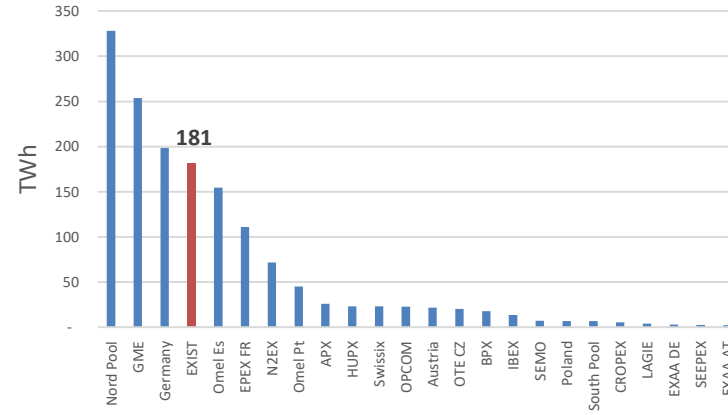
https://www.sbb.gov.tr/wp-content/uploads/2020/06/Eleventh_Development_Plan-2019-2023.pdf

Million m3/day	2021	2022	2023
PIPELINE	164,9	164,9	164,9
LNG	130,6	150,6	150,6
STORAGE	45	115	155
TOTAL	340,5	430,5	470,5

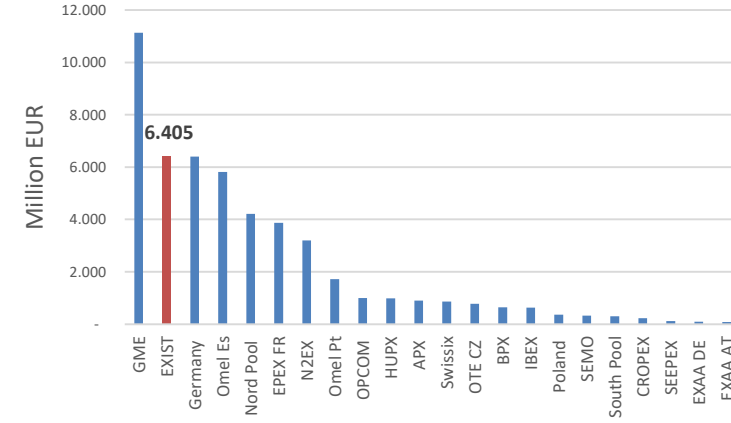
2020 DAM MCP



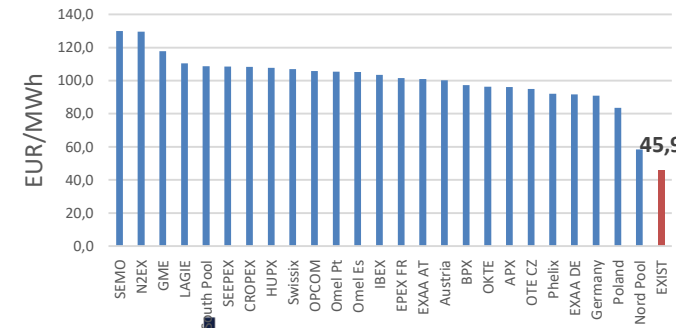
2020 DAM Volume



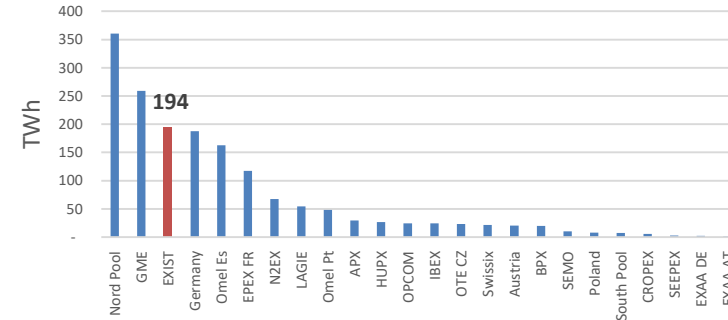
2020 Financial Volume



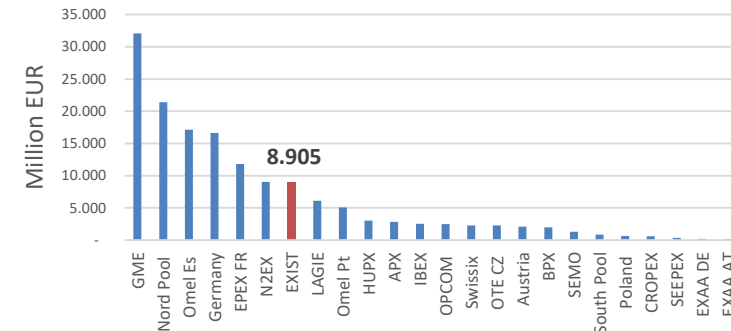
2021 DAM MCP



2021 DAM Volume



2021 Financial Volume



(2021 – As by 15 December)

Source: Montel Eurospot – Some Values may have numeric differences and some volumes are missing with respect to lack of data



- ❖ The Renewable Energy Guarantee of Origin (YEK-G) System and the Organized YEK-G Market launched on Jun. 1 2021
- ❖ Power Futures Market launched on Oct. 1 2021
- ❖ In addition to the existing Natural Gas Spot market, Turkey's Natural Gas Futures Market launched on Oct. 1 2021



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THANK YOU

Ahmet Türkoğlu

EXIST CEO

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