



Energy Security versus Energy Transition ?

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IENE 13TH SOUTH EAST EUROPE ENERGY DIALOGUE – ENERGY SECURITY
MARKET TRANSITION AND SECURITY IN SE EUROPE

“THE MET HOTEL”

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Tools of Energy Transition

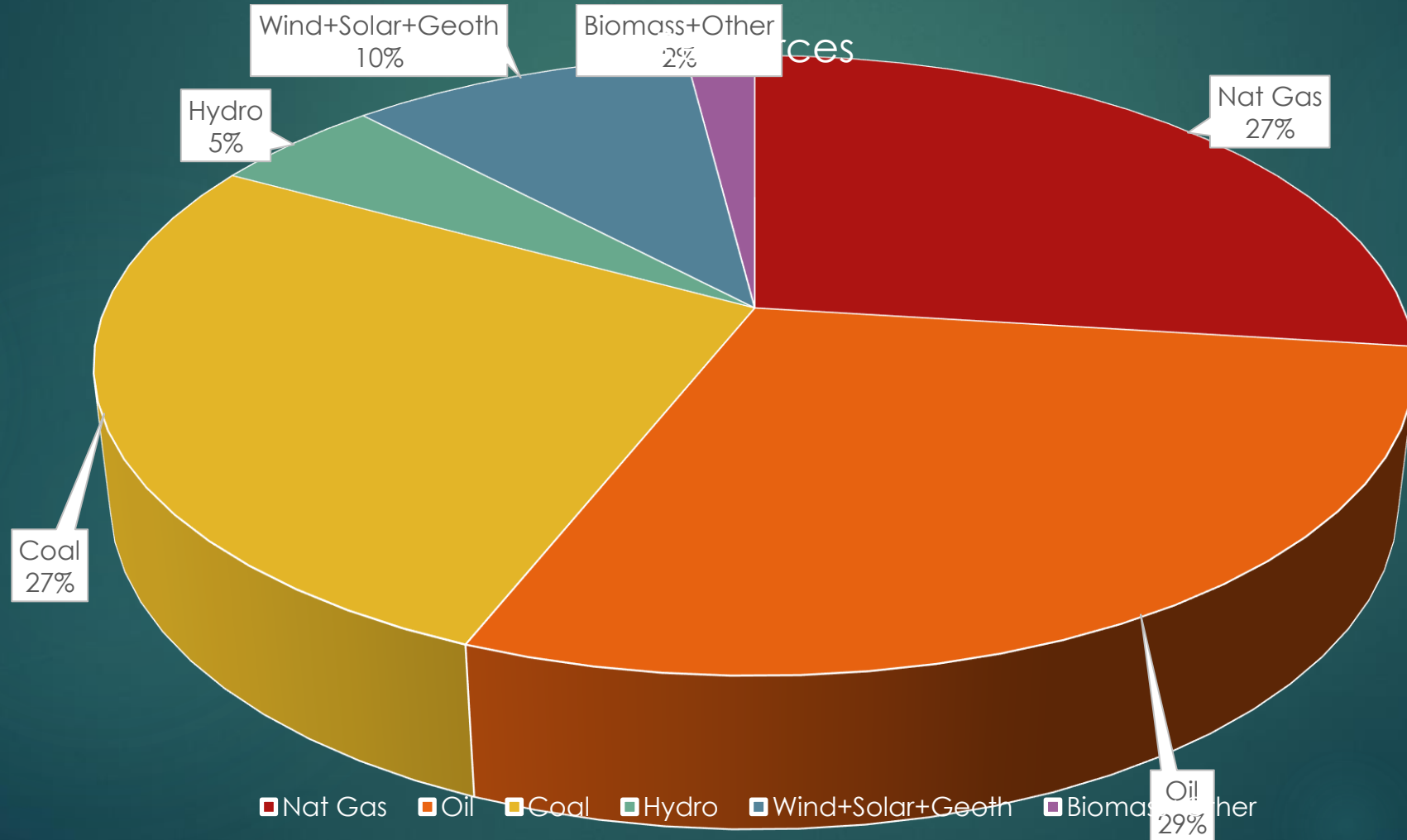
- ▶ **Utilization of Renewable Energy**
 - *Hydro*
 - *Wind*
 - *Solar*
 - *Geothermal*
 - *Biomass*
- ▶ **Energy Storage**
- ▶ **Use of Nuclear Energy**
- ▶ **Use of Natural Gas as Transition Fuel**
- ▶ **Low emission transportation systems**
 - *Rail bound transportation*
 - *E-car, E-bus, CNG bus, LNG ships*
- ▶ **Energy Efficiency and Demand Side Management**
 - *Buildings*
 - *Industry*

Effectuated Sectors from Supply Chain Interruptions, High Energy Prices and UKR-RUS War

Sector	# Europe	# World
Agricultural products	1st	10th
White appliances	1st	2nd
Cement	1st	5th
Footwear	1st	11th
Iron & steel	1st	7th
Plastics	2nd	7th
Motor vehicles	4th	15th
Electricity generation	4th	15th
Merchant fleet	4th	12th
Air travel	3rd	7th

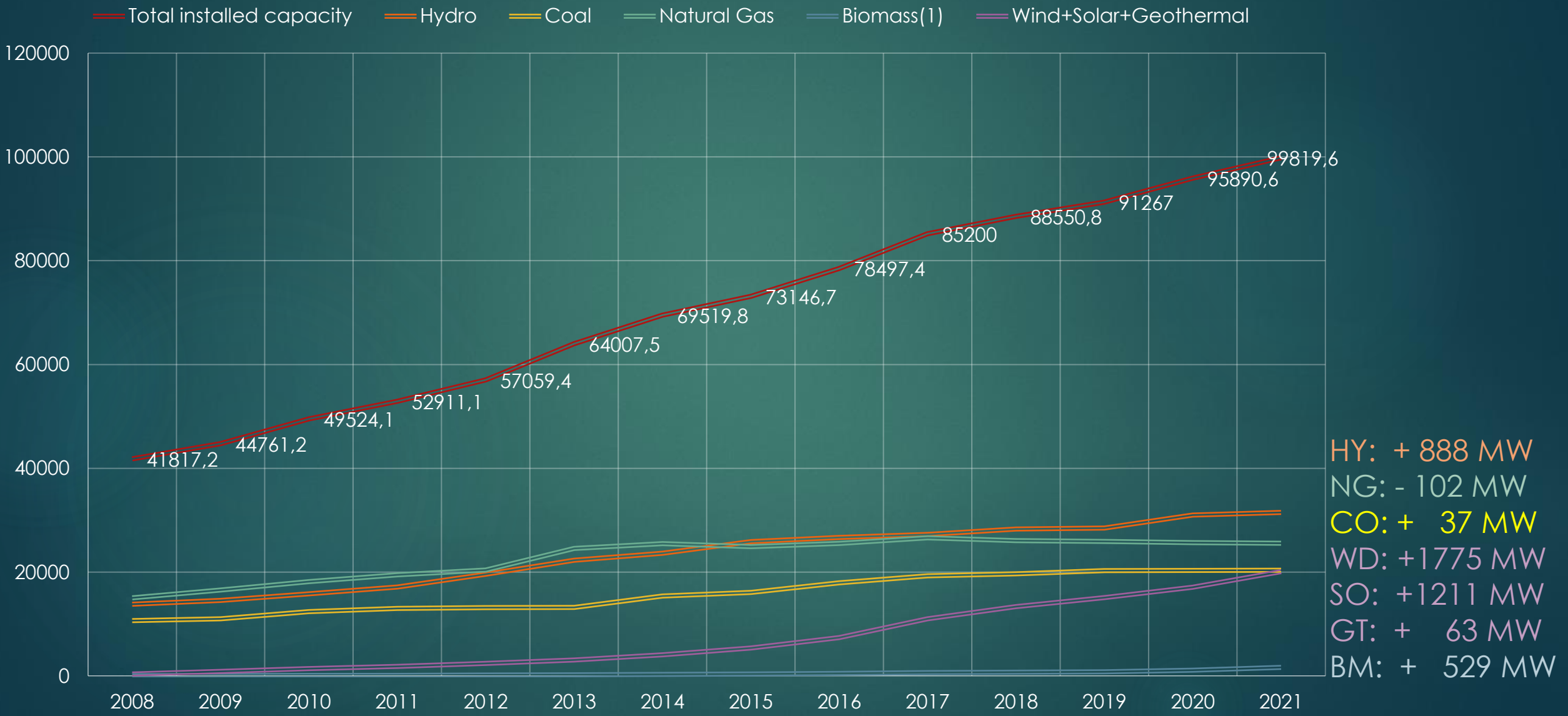
Primary Energy Mix of Turkey 2020

147.2 Mill toe – 1.75 toe per capita
Share of imports: 70% - Share of fossil fuels: 83%



Source: ETKB

Development of installed capacity



NEW YEKDEM FEED-IN TARIFF

Type of Production		Feed-in Tariff (TL/kWh)	Maximum Local Component Bonus (TL/kWh)	Ceiling Price for escalated tariff (USD cent/kWh)	Former YEKDEM Ceiling tariff (USD cent/kWh)
Hydroelectric		0.40	0.08	6.40	9.60
Wind		0.32	0.08	5.10	11.00
Geothermal		0.54	0.08	8.60	13.20
Biomass	Landfill gas etc.	0.32	0.08	5.10	18.90
	Bio methanation	0.54	0.08	8.60	
	Waste incineration	0.50	0.08	8.00	
Solar		0.32	0.08	5.10	20.00 (22.50 CHP)

- Feed-in tariff and local component bonus are subject to quarterly escalation according the producer price index.
- Feed-in tariff is applicable for 10 years, local component bonus is applicable for 5 years.

HOW TO COPE WITH GROWING EMISSIONS OF THE ROAD TRANSPORT ?

- Use of Natural Gas
- Use of Hydrogen
- Investment in rail bound transport
- Promotion of E-Mobility

RAILWAY NETWORK AND HIGH SPEED TRAINS

	2005	2010	2015	2020
Total Railway Network (km)	10,973	11,940	12,532	12,803
Electrified Railroads (km)	2,274	3,161	3,854	5,753
High Speed Train Network (km)	0	397	888	1,213
Freight Transport (Mill t)	19.2	24.4	25.9	34.6
Passenger Transport (Mill)	76.3	84.2	95.3	99.5 (2019:164.5)



Source: lojiport.com



Source: railturkey.org

RAILBOUND TRANSPORT IN METROPOLITAN AREAS

- 13 metropolitan municipalities operating subway and tram systems
- Istanbul: 251 km network in operation, 171 km under construction
- Izmir: 179 km in operation, 31.7 km under construction
- Ankara: 100 km in operation, 4.1 km under construction



HAS E-BUS A FUTURE IN URBAN TRANSPORT?

- China widely using E-Buses for public transport, India plans to tender for 50,000 E-buses
- Manisa Municipality with the largest fleet in Turkey, followed by Izmir
- Romania leading in SEE
- Six Turkish companies producing ten indigenous E-Bus models
- Karsan, Temsa, Anadolu Isuzu, BMC, Bozankaya, Otokar
- Used in Belgium, Czech Republic, France, Germany, Greece, Norway, Portugal, Romania, Slovakia, Sweden, Turkey and Ukraine
- Karsan e-Jest model market leader in Europe with 51.2 % market share in 2021 in its class



IS ELECTRIC CAR AN OPTION FOR SEE ?

- Up to one millions EV expected to be on the streets by 2030 (today 6,000) in Türkiye,
- Ford started to deliver all-electric commercial vehicles from its Kocaeli factory in April 2022,
- Indigenous Turkish all-electric car TOGG: Roll out of first car in 2023
- No incentives yet

Years	Electric	Hybrid	Total
2015	119	106	225
2016	44	950	994
2017	77	4,451	4,528
2018	155	3,876	4,031
2019	222	11,015	11,237
2020	844	16,941	10,049
2021	2,849	20,915	23,764

(Source: TEHAD)

* Excluding direct imports of individuals



Source: Business Standard

REGULATION ON PUBLIC EV CHARGING STATIONS

- Published on April 2, 2022
- Non-refundable funding up to 75% of the investment
- Combination of the charging station with RE generation and storage facility
- Stations on highways need at least 50% fast charging DC units
- Online platform of the regulator to see the locations, availability, prices and to make reservation
- As of May 31, 2022 five licenses for charging station networks issued
- In 2030 100,000 charging stations needed (existing 3,500)



DO WE NEED BATTERY STORAGE ?

- Batteries are needed both for further integration of RE and for E Mobility
- Regulation on the energy storage systems published in May 2021, licensing started in Oct 2021
 - Energy Storage integrated with generation
 - Energy Storage integrated with consumption
 - Standalone energy storage
- Several battery storage projects integrated with RE generation under implementation
- Progresiva A.Ş. investing in a standalone storage in Silivri with 1,000 MWh capacity



Production Plants

- Yiğit Akü: First LFP battery factory in Ankara
- Aspilsan: Since May trial production of lithium-ion battery cell plant with 220 MWh capacity by Kayseri
- Pomega A.Ş.: Erecting LFP battery cell factory in Polatlı with 1,000 MWh capacity
- TOGG/Farasis JV: Invest in Lithium-ion battery plant in Gemlik with 20 GWh capacity
- Ford/Koç Holding/SK On: Plan a 2.8 bill \$ NMC battery plant by Ankara with 30-45 GWh capacity



Thank you

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