

MENA Power Investment Outlook 2020-2024

BETWEEN FIGHTING A PANDEMIC AND MANAGING RENEWABLES

1st IAEE Online Conference: ENERGY, COVID, AND CLIMATE CHANGE

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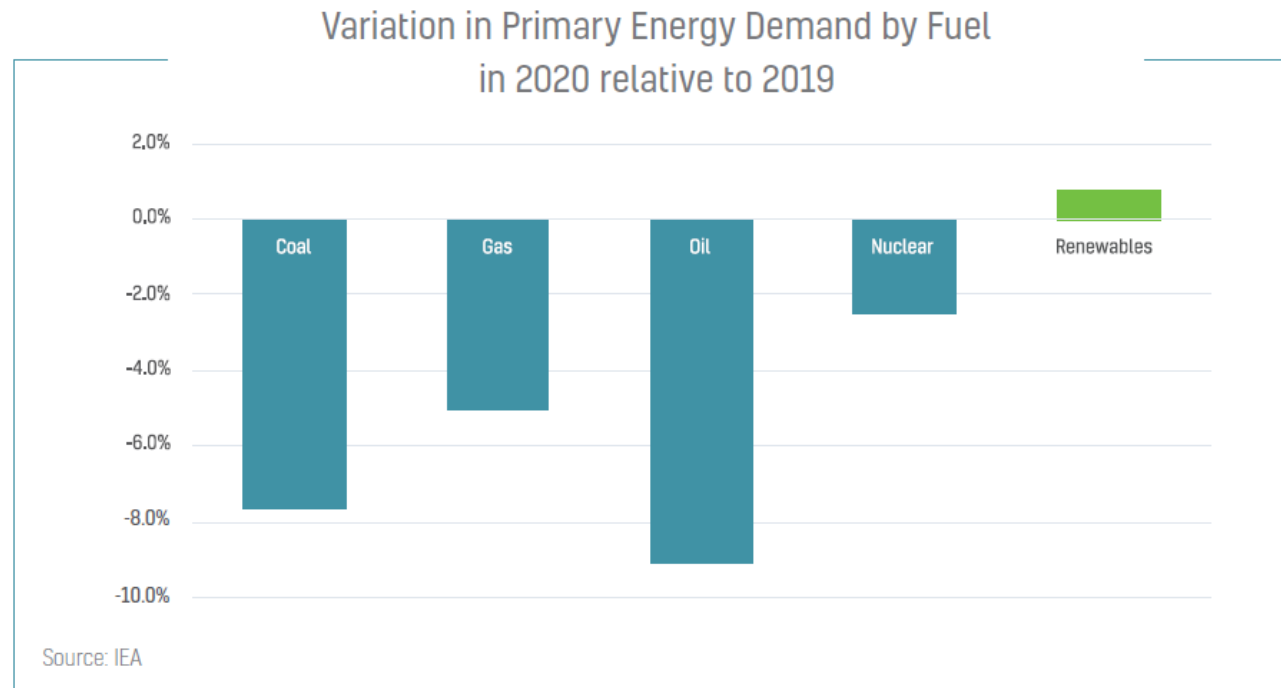


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Overall reduction in electricity demand amid resilience of renewables

Impact on power demand

- Reduction in global electricity demand in 2020, 5% vs. 2019
- Electricity demand in 2020 dropped by:
 - 4.8% in US
 - 3% in China
 - 5.7% in India
 - 8.2% in EU

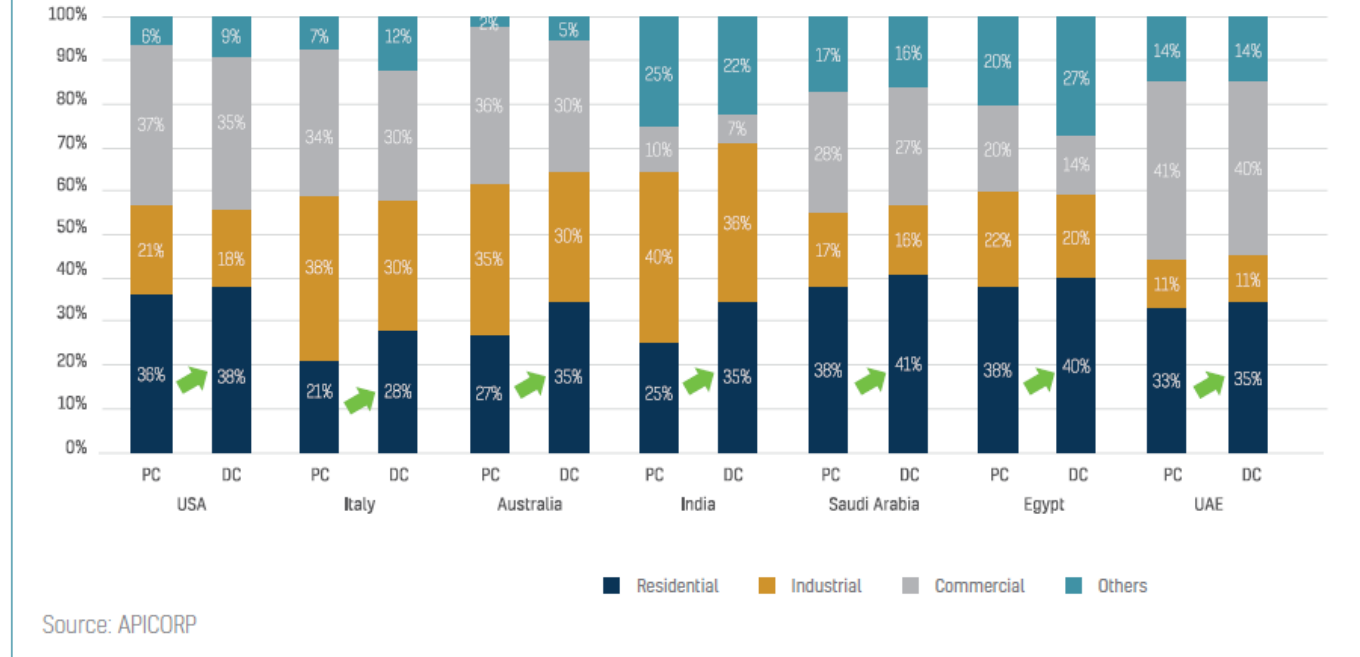


The increase in residential power demand mitigated the overall drop in total power demand in MENA

Impact on power demand

- Increase in the share of the residential sector's electricity consumption
- MENA region:
 - Residential sector (41%)
 - Industrial sector (21%)
 - Commercial sector (20%)
 - Agriculture and transport, network losses (18%)

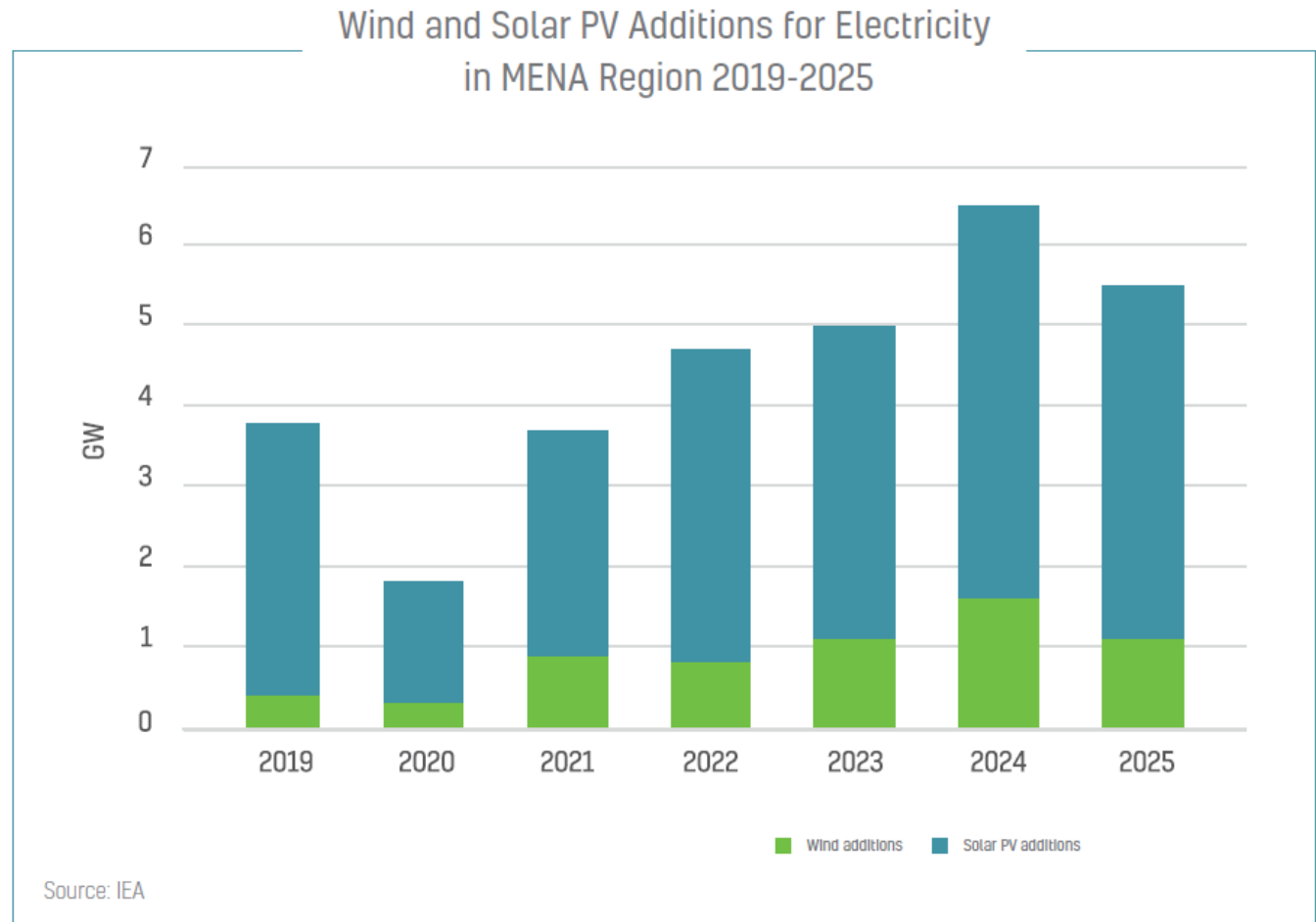
Increase in residential power demand at expense of commercial and industrial power demand during Covid (DC-2020) vs. pre-Covid (PC-2020) for selected countries



Robust solar PV and wind additions in MENA over the next 5 years

Shift in the power supply mix

- Global renewables-based generation increased
 - 30% in 2020, up 3% from 2019
- MENA region will add
 - 1.5 GW in 2020
 - 3 GW in 2021
 - 20 GW over the next five years

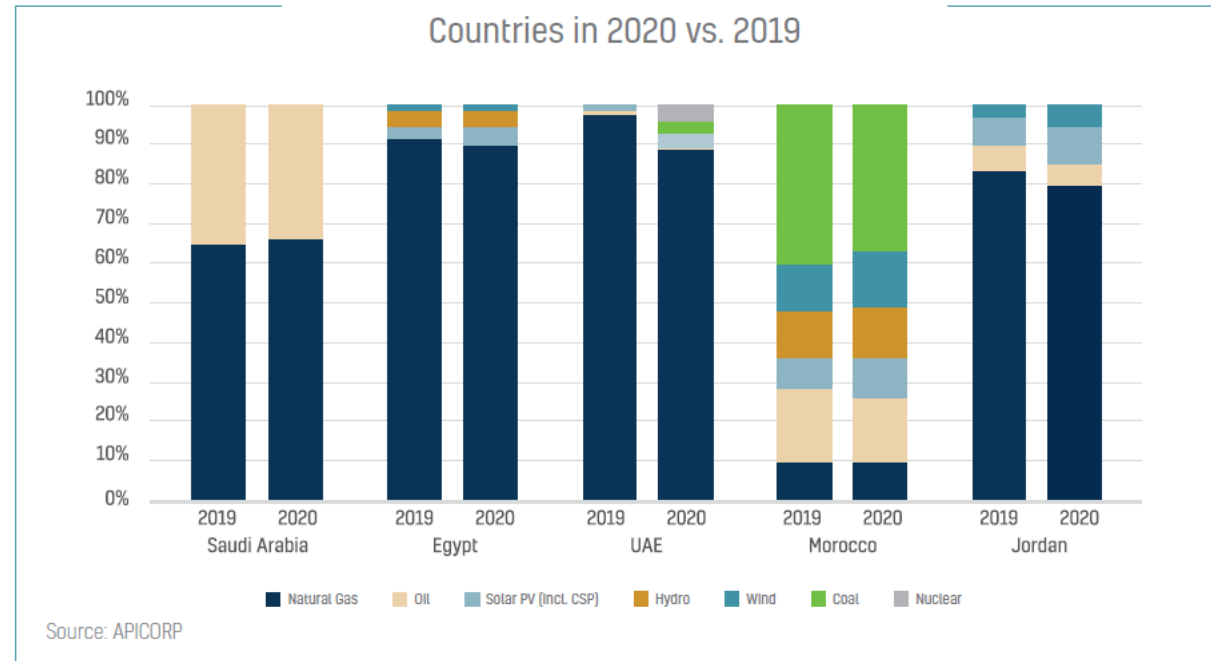


2020 experienced a drop in natural gas in favor of mostly renewables in the power generation mix in MENA

Shift in the power supply mix

- Fossil fuels, coal and nuclear will remain indispensable in the power supply mix
- Natural gas makes up 90% of the power generation mix in Egypt, UAE and Algeria
- The share of natural gas in the power generation mix in 2020 fell by:
 - 2% in Egypt
 - 9% in the UAE
 - 5% in Jordan

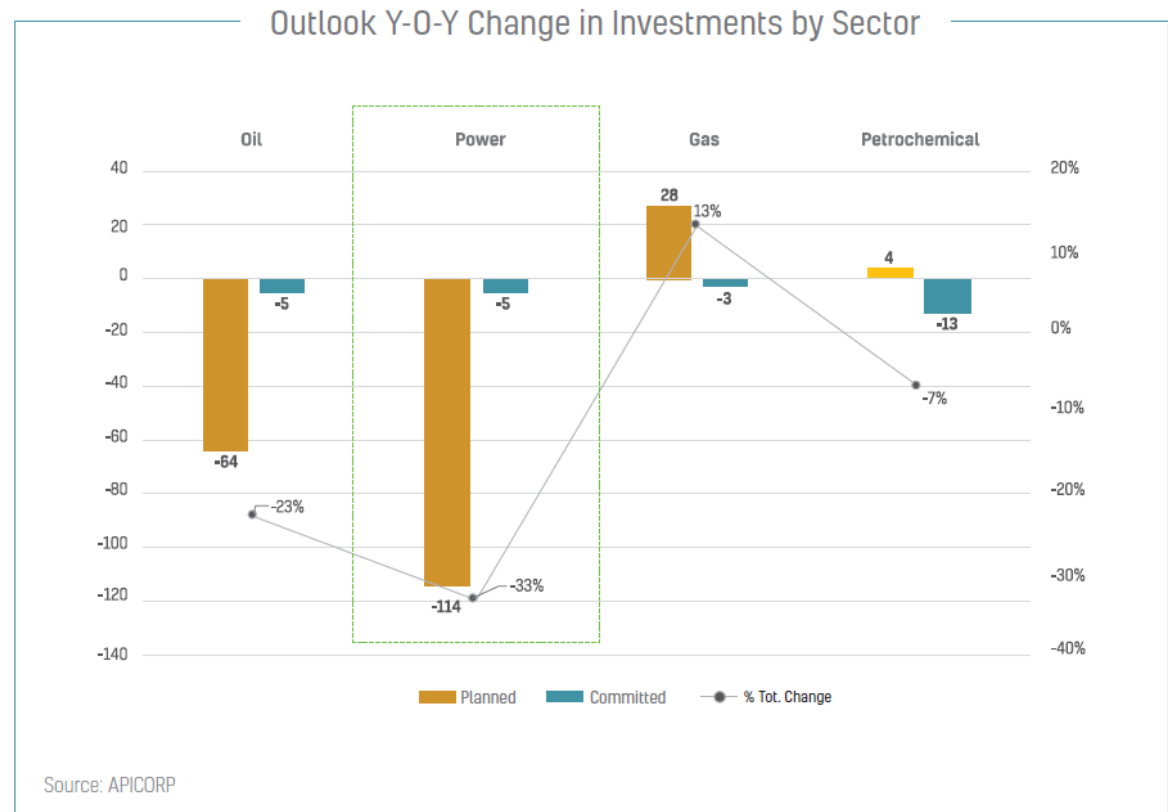
The Power Generation Mix in Selected MENA Countries in 2020 vs. 2019



The power sector experienced the largest drop in planned investments compared to other sectors

Impact on power projects investments

- Committed investments held steady in comparison with the previous outlook, while planned investments decreased by USD 114 billion, a 33% drop
- Several planned projects moving to committed status in 2020
- Other factors include increased surplus capacities in Egypt and Saudi Arabia, as well as stalled projects in Iran, Iraq, Tunisia and Lebanon as a direct impact of the pandemic

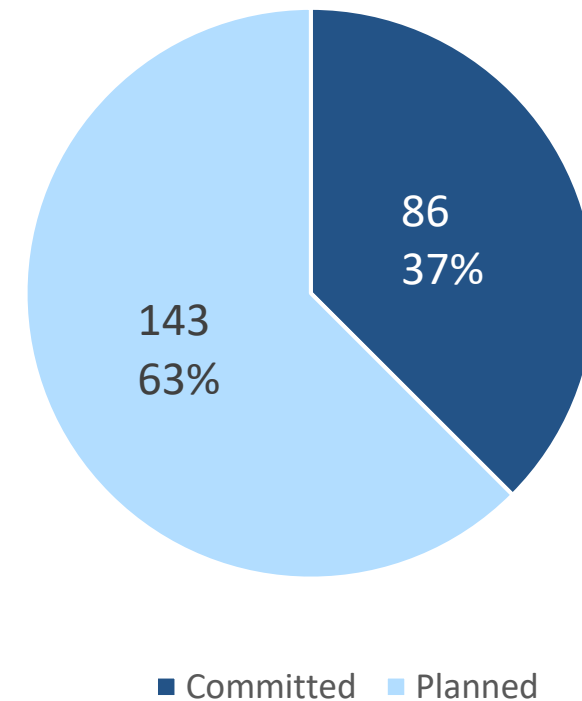


Planned projects represent two-thirds of the total value of the 2020-2024 MENA project pipeline

Impact on power projects investments

- Committed Investments are projects in execution phase (post-FID) while planned investments are in pre-execution phase (pre-FID)
- Committed investments to total investments are a measure of the rate of execution of projects in a country or region
- UAE, Egypt, Iran, Iraq and KSA rank highest in committed projects by value
- KSA, Egypt, UAE, Algeria and Kuwait rank highest in planned projects by value

MENA 2020-24 Committed vs Planned Investments (USD bn)

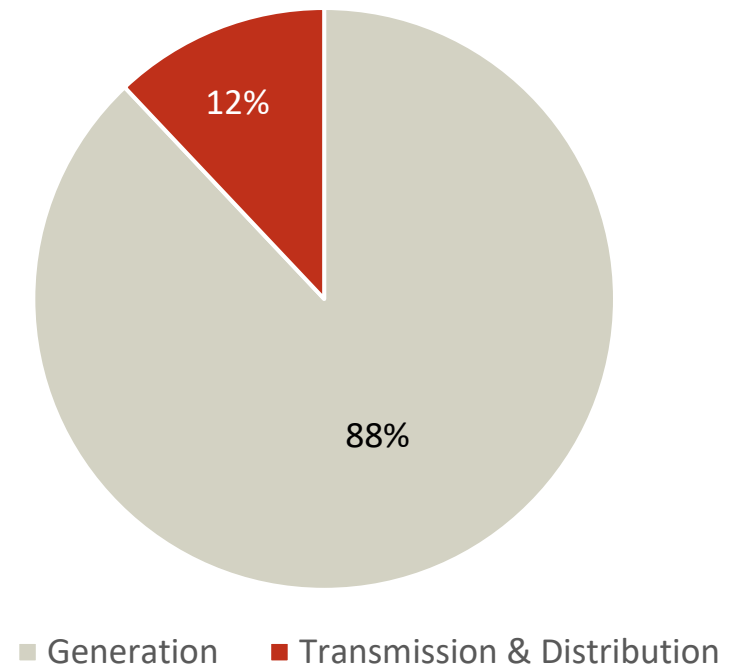


Investments in T&D are lagging in MENA as compared to the global average

Impact on power projects investments

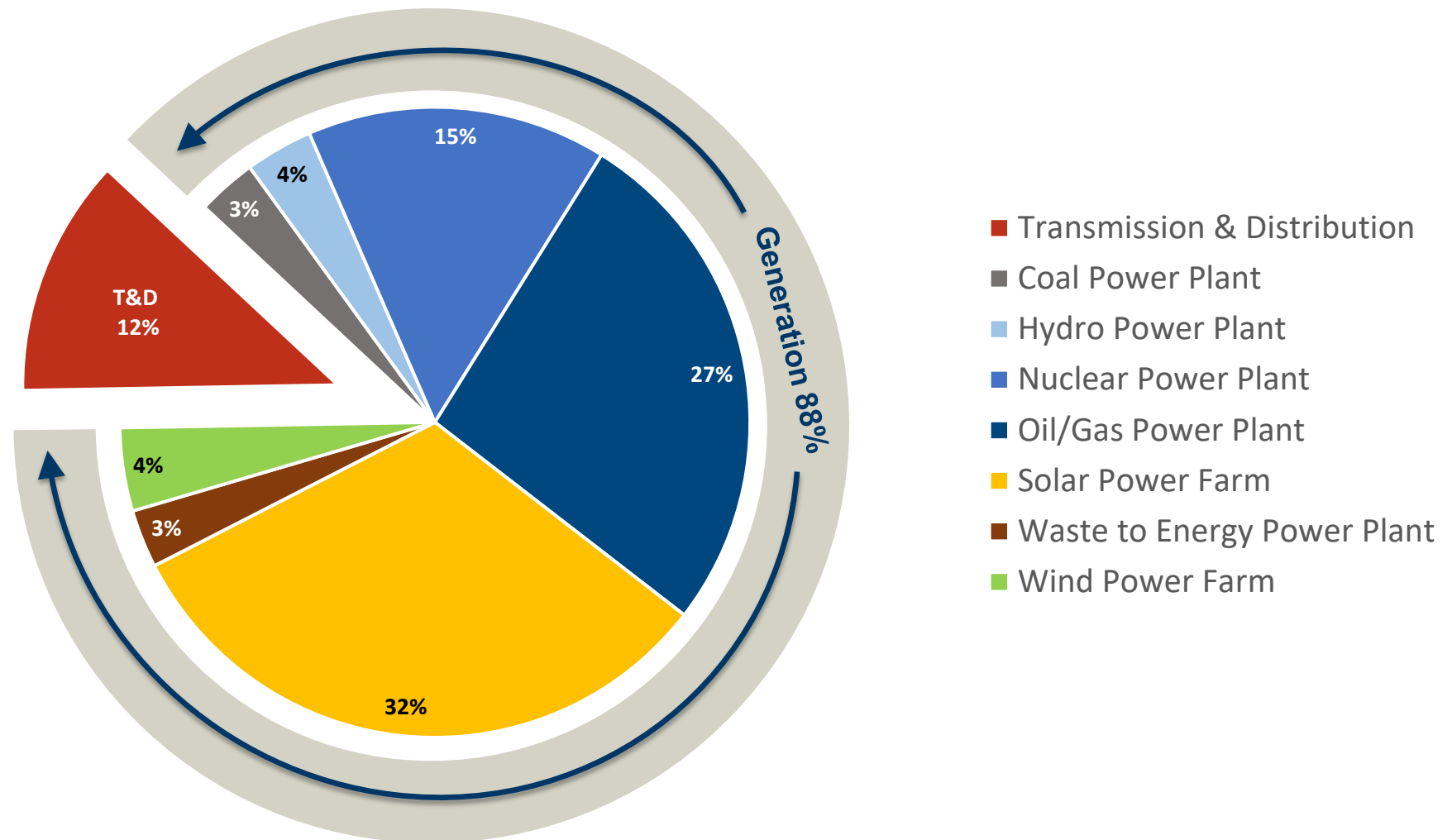
- High RE targets will ramp up investments in T&D - required to connect distributed grids, implement smart metering and storage solutions
- Transmission is mostly footed by the public sector
- Distribution is slowly opening for private sector participation (Morocco, Lebanon, Oman, UAE, KSA, and recently Egypt)

MENA 2020-24 Power Investments allocation by value chain



Around 43% of power generation investments are renewables projects

Impact on power projects investments



Low risk projects were backed by strong government payment guarantees

MENA power market highlights

- Egypt accelerated progress on the USD 29.5 billion El Dabaa Nuclear Power Plant (4.8 GW) for which groundworks and site preparation commenced in October 2020
- Saudi Arabia prioritized the financial restructuring of SEC
 - Reclassification of USD 44.77 bn worth of liabilities
 - Cancellation of government fees
 - Adoption of RAB model

Highly leveraged power projects

Financed based on non-recourse or limited recourse structure
60:40 to 80:20 D/E ratio range

Lower risk projects

Backed by strong government payment guarantees

85:15 D/E ratio

Low-cost renewable and gas accelerate the penetration of hydrogen and other low- carbon or net-zero products

MENA power market highlights

- Relatively low natural gas prices advantages blue hydrogen - key role in medium term – CCUs cost is a key driver
- As renewables costs decline, green hydrogen competitiveness is improving – electrolyzers cost is a key driver
- Market updates in Saudi Arabia, UAE, Oman, Kuwait, Egypt, Morocco

Green hydrogen

Produced from renewable energy sources

Blue hydrogen

Produced from hydrocarbons with carbon capture utilization and storage technology (CCUS)

Key takeaways from APICORP's MENA Power Investment Outlook 2020-2024



The power sector continues to play a vital role in driving economic recovery post-pandemic

Policy efficiency and digitalization are key factors shaping future power markets and needed investments

MENA has potential for more interconnectivity and to emerge as an exporting region for net-zero and low-carbon products (hydrogen, ammonia, methanol etc.)

- The Arab Petroleum Investments Corporation (APICORP) is a multilateral development bank rated "Aa2" by Moody's and "AA" by Fitch, established on November 23, 1975. Its incorporation is in accordance with a multilateral agreement between the governments of the ten member states of the Organization of Arab Petroleum Exporting Countries (OAPEC).
- APICORP is headquartered in Dammam, Kingdom of Saudi Arabia, and has a branch in the Kingdom of Bahrain, regulated by the Central Bank of Bahrain.

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