Energy Outlook – 2020

Insights from the Rapid, Net Zero and Business-as-usual scenarios – Middle East

The Middle East energy mix diversifies considerably with renewables growing about 10% pa faster than the world's average, although oil and gas retain a significant role in all three scenarios

1. Under all three scenarios, the Middle East retains a significant share of oil and gas in its primary energy demand
2. Renewable energy consumption surges, increasing 100 to 220-fold depending on the scenario
3. The Middle East remains a key oil producer, with its share in global output ranging from 37% to 45% in **BAU** and **Rapid**

-18% to +40%
Primary energy growth over 2018-2050

37% to 79%
Share of oil and gas in primary energy in 2050

37% to 45%
Share in global oil production

-89% to +6%
variation in CO_2 emissions by 2050

- The Middle East's economy grows at a rate of 1.7% per annum over 2018-2050, down sharply from 3.7% in 1990-2018.
- Primary energy consumption increases by 40% in **BAU** and 7% in **Rapid** but drops by 18% in **Net Zero** as energy efficiency and a shift towards a more circular economy enable a demand drop in all sectors.
- Non-combusted is the most resilient source of demand across all scenarios, with consumption almost flat in **Net Zero**. Buildings becomes the largest consuming sector in both **BAU** and **Rapid.** Meanwhile, demand in transport and industry drops in both **Net Zero** and **Rapid**.
- Both oil and gas remain important components of the primary energy mix, with their combined shares dropping from 98% in 2018 to 61%, 37% and 79% in **Rapid**, **Net Zero** and **BAU** respectively.
- The Middle East remains a large oil and gas producer and exporter in all scenarios. Oil production remains constant at 32 mb/d in **BAU** and drops by one-third in **Rapid**, while gas production increases by 50% in **BAU** and remains flat in **Rapid** at 680 bcm.
- Renewables grow by a factor 170, 220 and 100 in **Rapid**, **Net Zero** and **BAU** respectively. In **Net Zero**, solar (9 EJ) represents over half of renewables (17 EJ), ahead of wind.
- The electrification of the energy system is widespread, with the share of power in primary energy ranging from 41% to 63% across all three scenarios by 2050.
- There are a wide range of possible outcomes with regards to CO_2 emissions. Emissions under **BAU** increase by 6% but drop by 60% and 89% in **Rapid** and **Net Zero** respectively, with over 200 Mt per year of CCUS in the Middle East in both scenarios.

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		Level in 2050				Shares in 2050 (%)			Change 2018-2050 (%)			Change 2018-2050 (% p.a.)		
	2018	Rapid	Net Zero	BAU	2018	Rapid	Net Zero	BAU	Rapid	Net Zero	BAU	Rapid	Net Zero	BAU
Primary energy consumption (EJ)														
Total	38	40	31	53	100	100	100	100	7	-18	40	0.2	-0.6	1.1
Oil†	17	9	5	16	46	23	17	29	-47	-70	-10	-2.0	-3.7	-0.3
Gas	20	15	6	26	53	38	20	50	-23	-68	32	-0.8	-3.5	0.9
Coal	0	0	0	1	1	0	0	2	-79	-86	>100	-4.7	-6.0	4.1
Nuclear	0	2	2	2	0	5	7	3	>100	>100	>100	11	12	11
Hydro	0	0	0	0	0	1	1	0	49	86	49	1.2	2.0	1.2
Renewables (incl. biofuels)	0	14	17	8	0	34	55	15	>100	>100	>100	17	18	16
Oil† (Mb/d)	9	6	3	9	46	23	17	29	-39	-63	-3	-1.5	-3.1	-0.1
Gas (Bcm)	553	426	176	729	53	38	20	50	-23	-68	32	-0.8	-3.5	0.9
Transport^	8	6	6	8	20	16	21	15	-17	-17	4	-0.6	-0.6	0.1
Non-combusted^	4	6	4	7	12	16	14	13	44	-3	60	1.1	-0.1	1.5
Buildings^	12	16	10	20	31	39	32	38	33	-16	72	0.9	-0.5	1.7
Industry^	14	12	10	18	37	29	34	33	-15	-25	27	-0.5	-0.9	0.7
Power	13	21	20	22	35	51	63	41	56	48	63	1.4	1.2	1.5
Production														
Oil† (Mb/d)	32	21		32					-34		2	-1.3		0.1
Gas (Bcm)	681	685		1014					1		49	0.0		1.3
Coal	0	0		0					27		76	0.8		1.8
Net CO_2 (Gt)	2.1	0.8	0.2	2.2					-60	-89	6	-2.8	-6.6	0.2

EJ = exajoules

† Oil supply includes crude oil, shale oil, oil sands, natural gas liquids, liquid fuels derived from coal and gas, and refinery gains, but excludes biofuels. Oil demand includes consumption of all liquid hydrocarbons but excludes biofuels. ^ Includes electricity and the associated conversion losses in power generation.