SCHIZOPHRENIC ENERGY PHASE

GINA COHEN – 2.12.2021

gina@ginaenergy.com website: www.hebrewenergy.com Phone: +972 544-203480

Israel in Energy Transition

Israel

Coal: To end by end 2026 (could it be earlier)

Renewables: Only 7%; 30% goal by 2030 likely unachievable; electric cars far from achieving goal

Exploration: Israel now has Chevron & Mubadala, Energean drilling Q122; MEW not opening for now offshore licensing

Exports to Jordan & Egypt: Progressing better than anticipated

Exports via Egypt LNG or FLNG/EastMed Poseidon: Shell, Petronas & diversion issues; Feasibility studies conducted; Awaiting new policies

Jordan Egypt PA

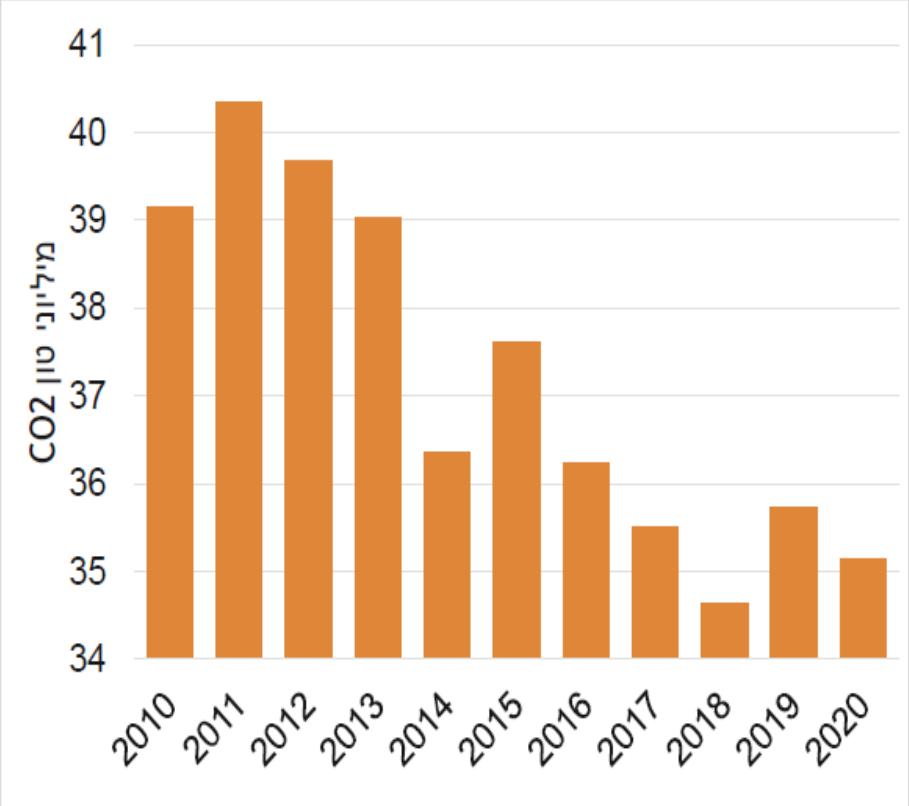
Jordan: 2.5 TWh renewable out of 21 TWH (1500 MW)

Egypt: Power: 90% gas, 10% renewables (small volumes of fueloil)

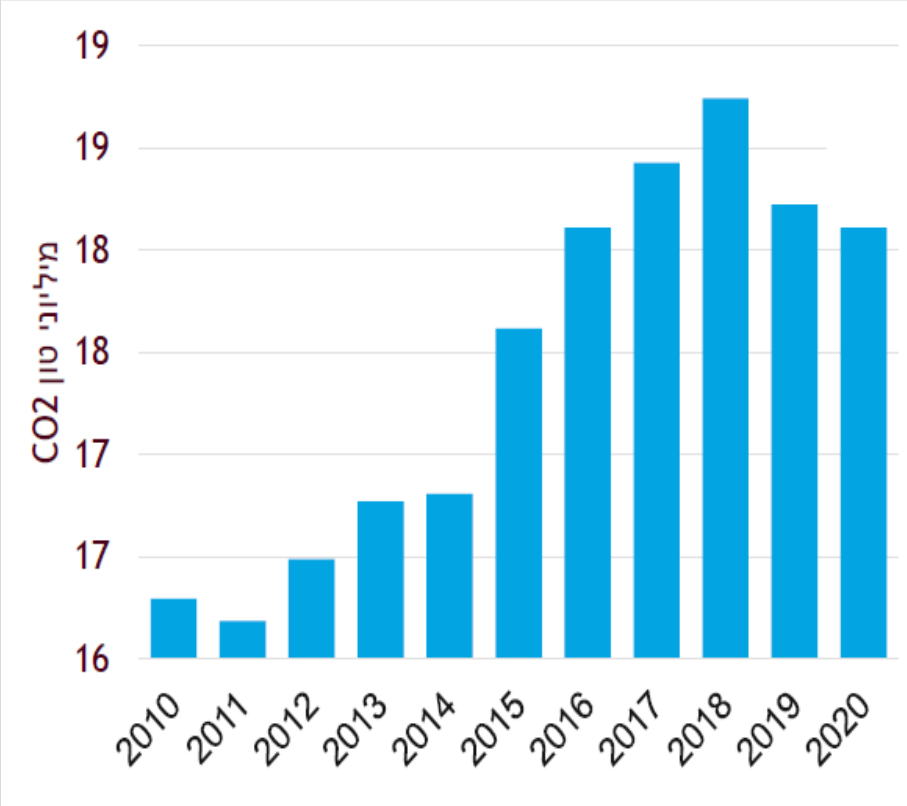
PA Not developed gas, no progress on gas purchases or Jenin IPP

GHG from power & Transportation in Israel (mt)

CO^2 Emissions from Power



CO^2 Emissions from Transportation



East Med Issues

Regional **Tensions**

Turkey: Gunboat diplomacy; EU/NATO frictions; US-Turkey relations; but new "talks" with Israel & Greece

EEZ disputes: Turkey -- Cyprus -- Israel --Palestine - Lebanon – Libya

Cyprus: Cypro; high electricity prices; Aphrodite limbo, FSRU delay

Egypt: Gas hub aspirations; uncertainty of S&D; LNG SRMC of $6.3

Other: Increasingly aggressive Iran in region; weakening of EU due to socioeconomic problems

Global **Dynamics**

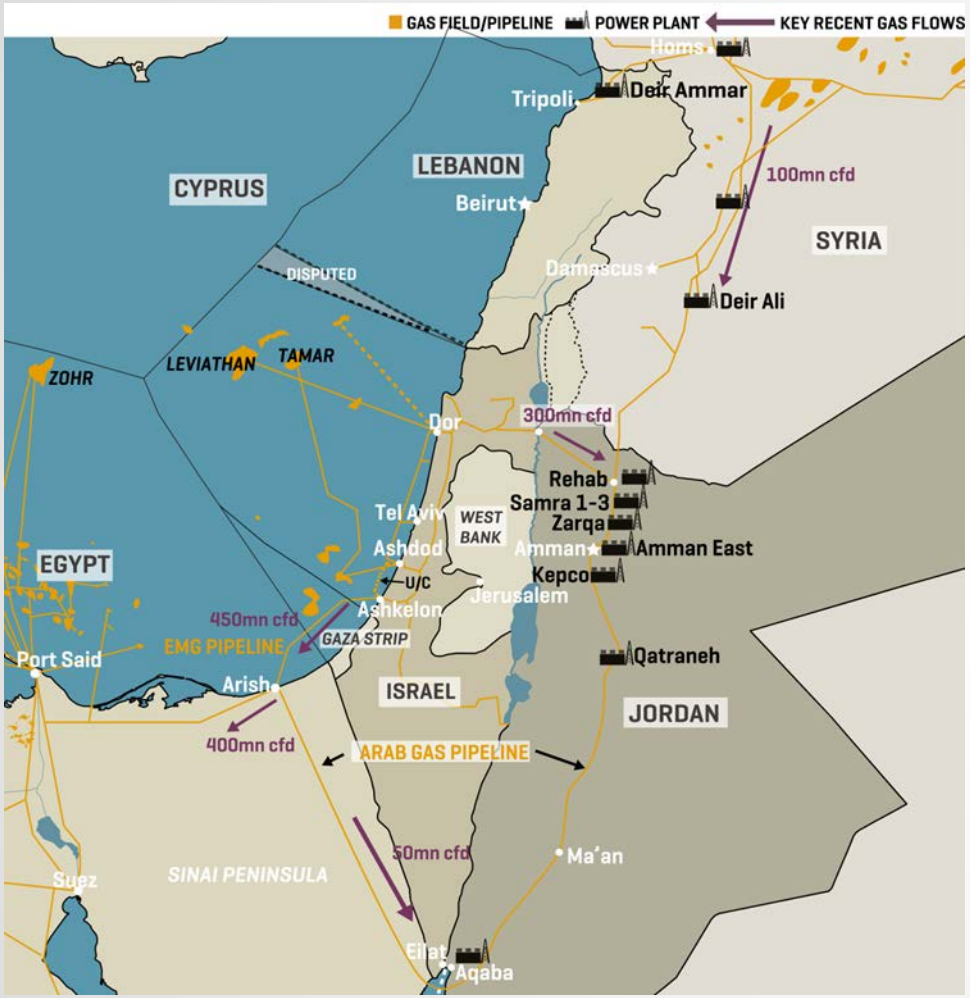
IOCs & financial institutes continue to reduce investments in fossils

Most global economies committed to net-0 emissions by 2050

EU shifting to Green New Deal and Fit-for-55 package

IEA Roadmap to Net-zero by 2050 calls for suspending new O&G E&P by mid-2020s & predicts LNG exports peak this decade before prices decline

Egyptian gas to Lebanon via Jordan & Syria



- 300-600 mmcmg/y; WB must fund Syria Lebanon leg
- Gas flows: Have been from Egypt to Jordan; No gas flowed from Jordan to Syria, or Lebanon since 2010
- Gas from Egypt will flow no further than Jordan. Jordan uses AGP in north southbound to supply gas fr Leviathan to CCGT plants at Samra (1.24GW), Zarqa (485MW)
- 50-60mn cfd that Jordan imports from Egypt via the AGP only goes as far as the 600MW steam turbine power plant at Aqaba. Additional Egyptian volumes would enable supplies to extend north to 370MW Qatraneh plant & maybe the Amman East & Kepco
- Sections of the pipe in Syria are used to distribute its own 600mm cfd gas (330 km). Lines "OK", repairs needed on Lebanese lines.
- Gas would ultimately end up at Lebanon's 460MW Deir Ammar CCGT plant near Tripoli, the only plant in the country capable of receiving gas. Additional gas could be burned in Syria's power stations and exported to Lebanon that has only 2GW of capacity. The only cross-border connections are low voltage and these have suffered recent damage, would cost $3.5mn to fix lines

Positive geopolitical implications for: Israel, Syria, Egypt + US involvement

East Med Issues

Looking **Ahead**

Re-assess common interests in the region to address urgent issues

Pursue rapprochement, diplomacy and conflict resolution

Create geopolitical climate to supports gas infrastructure, e.g. G-2-G agreements; regional rather than global exports

Develop power interconnectors with neighboring & EU (EuroAsia/Africa) Israel Jordan UAE signed MOU on water-power exchange

technology CCS, hydrogen, batteries, cut methane & flaring; (only nuclear in "area" is UAE)

Reduce financial uncertainty for gas producers

Re-examine option of gas exports to PA, Turkey, E Europe

Establish regulations for FLNG units, liquefaction and LNG exports

Distinguish hype, photo ops, MOUs FROM FACTS