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## Israel's Natural Gas Industry

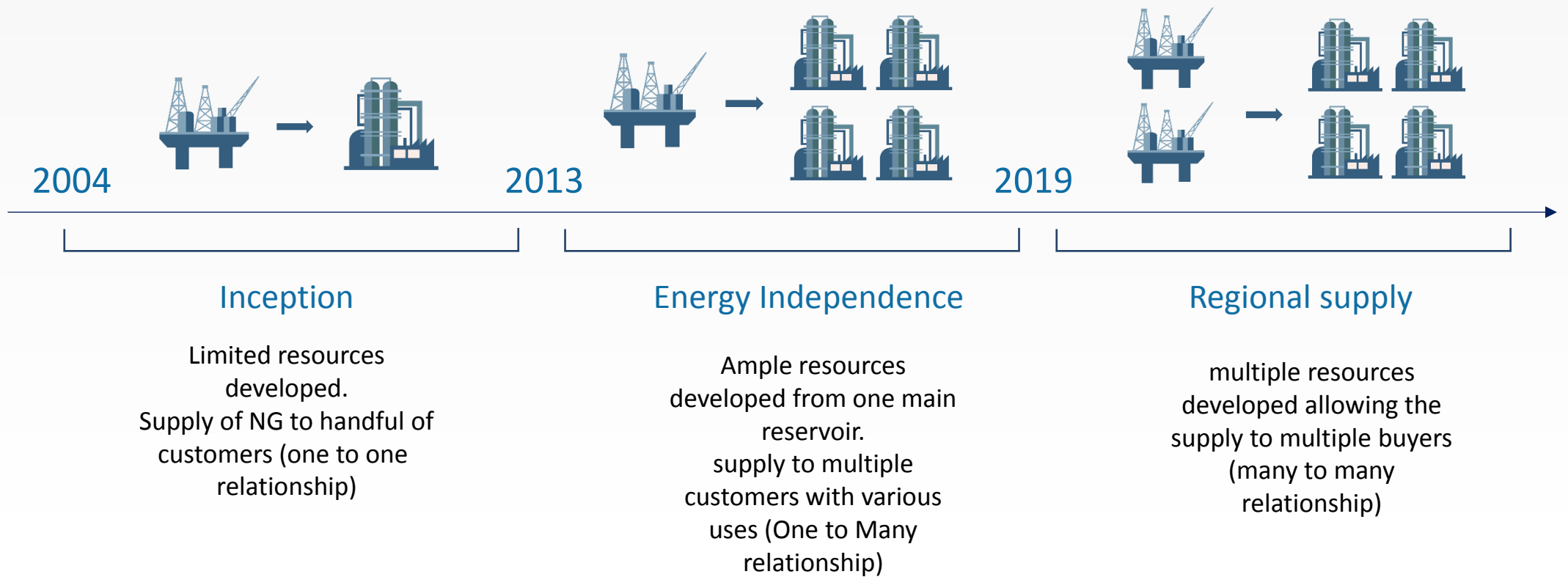
June 2018

Ori Loewenstein

# Israel as an Energy Island

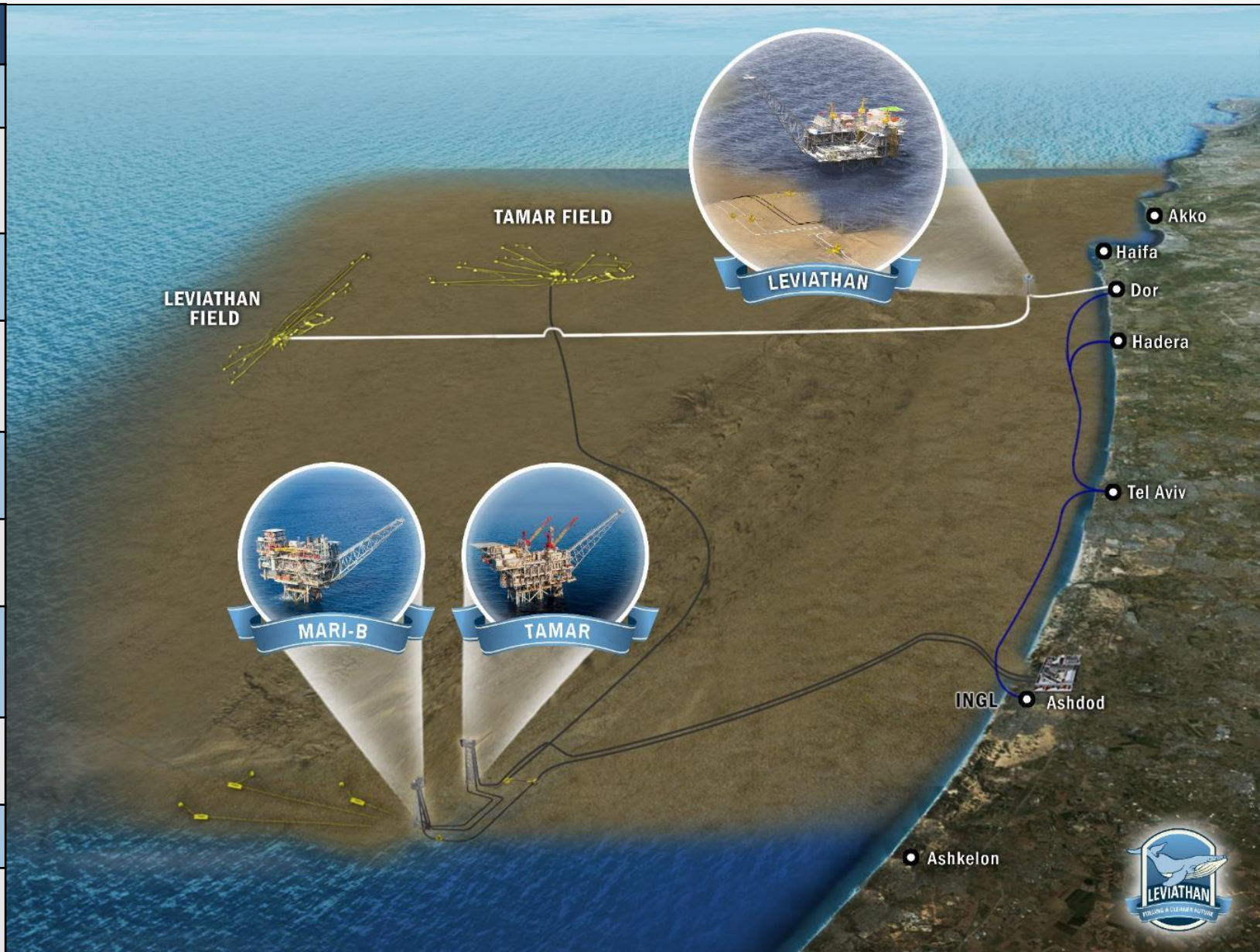


# From Energy Dependence To Regional Supply



# Development Comparison

Description	Mari-B	Tamar	Leviathan
Year of First Gas	2003	2013	2019/2020
Installed Capacity (MMscfd)	600	1,200	1,200 DSM 2,100 REM
Installed Capacity (BCM/y)	6.2	12.4	12.4 DSM 21.7 REM
Water Depth at Platform (m)	237	237	86
Water Depth at Wells (m)	Platform Wells	1700	1700
Tieback Distance (km)	2	150	117
Deck Weight (MT)	4,700	13,000	25,000 DSM/LSM 35,000 w/ REM
Jacket Weight (MT)	13,400	20,000	15,000
Deck Size (m)	34 x 59	38 x 66	102 x 80 est.
Onshore Area (dunams)	31	40	< 4 (CVS & DVS)



# Tamar – Snapshot

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- Field discovered January 2009
- Largest natural gas discovery in the world during 2009
- The Tamar structure covers 250 sq km
- Field is located 90 km offshore Haifa
- Considered the world longest sub-sea tieback (150km in length)
- Noble sanctioned Tamar development in September 2010 and achieved first gas production in March 2013

**150 km**

Longest Subsea Tieback In The world

**1,678 M**

Water Depth At Wells

**5 YRS**

Producing Gas

**12.4 BCM/Y**

Production Capacity

**>60%**

of Israel's electricity generation

**Tamar Platform**  
950ft, 290 m



**Moshe Aviv Tower**  
801ft, 244m



# Leviathan – Snapshot

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The Leviathan Field is located in the I/15 Leviathan North and I/14 Leviathan South leases, approximately 125 km west of Haifa, Israel, and 35 km west of the Tamar Field in the Eastern Mediterranean

- Initial development will supply gas to Israel's domestic users as well as Jordanian and Egyptian customers
- Field Development plan consists of two stages:
  - Phase 1 - ~1.2BCF/d of installed capacity
  - Phase 2 – additional 0.9BCF/d achieving total supply capacity of 2.1BCF/d

**622 BCM** ESTIMATED RESERVES

**1,700 M** WATER DEPTH AT WELLS

**12.4 BCM/Y** PRODUCTION CAPACITY

**37,750 MT** DECK WEIGHT

# Leviathan – Development status

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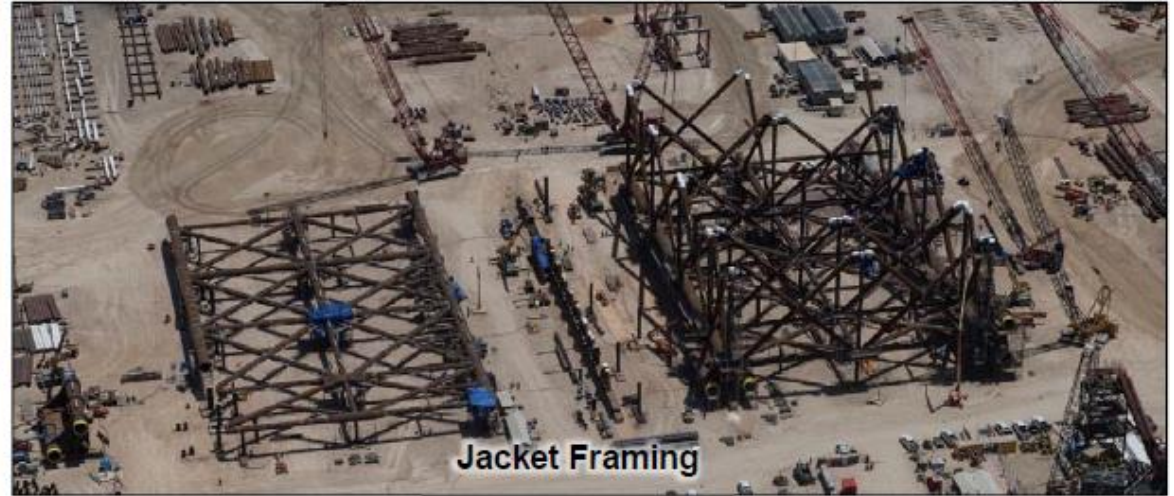
- Overall Project is over 50% complete.
- Continue Safe Work Practices and Safety Leadership training in Israel and Houston.
- Completed shore crossing execution at the Coastal Valve Station (CVS).
- Completed installation of the first 18” gathering pipeline.
- Received subsea tree #1 & # 2 in Israel.
- Commenced factory acceptance testing (FAT) of the Subsea Distribution Assembly (SDA).
- Completed stacking all levels of the living quarters.
- Completed fabricating 7 of 8 jacket legs.
- Received 212 of 278 equipment packages at Kiewit yard; 96 installed on the decks.
- Completed drilling of three out of the four Leviathan wells.



# Leviathan – Development status



# Leviathan – Development status



# Leviathan – Development status



Tree #2 Arrival



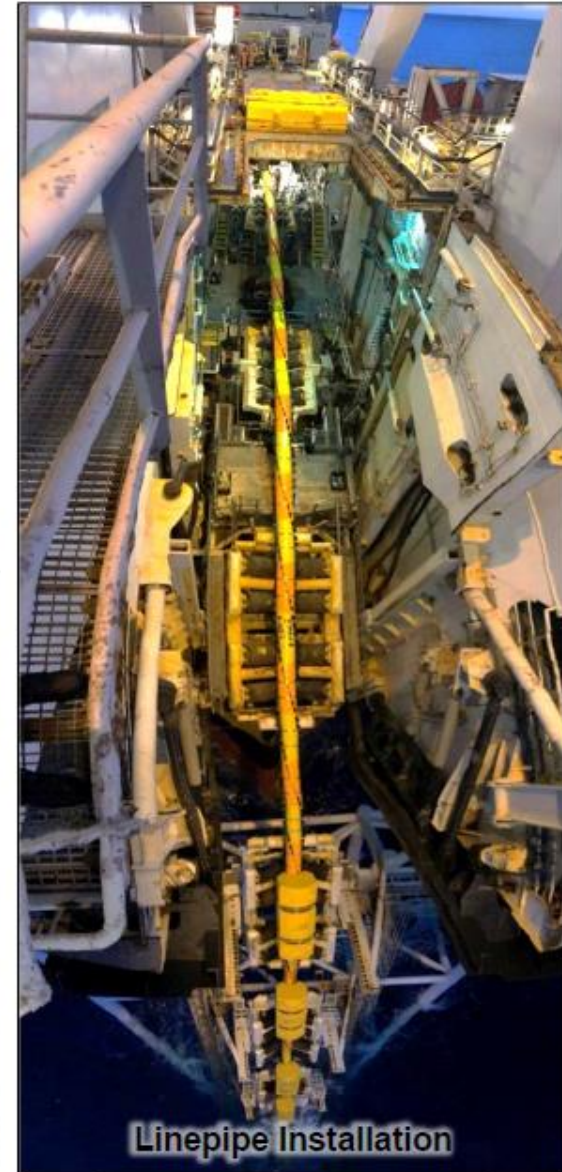
MEG Filter Frames



Subsea Distribution Assembly



SCM



Linepipe Installation

# Local Companies Awarded Work for Leviathan Development

**BARAN GROUP**  
**THE STANDARDS INSTITUTION OF ISRAEL**  
**RCTEM**  
**NNOGA** SIMPLY SOPHISTICATED  
**TELDOR** Cables & Systems Ltd.  
**פרויקט אוקיינוס**  
**OPHIR** A Newport Corporation Brand  
**TMNG** MEMBER OF TAHAL GROUP  
**inbal valves**  
**ISRAEL SHIPYARDS Ltd** OUR EXPERIENCE - YOUR BENEFIT  
**FILBAR FILTERS LTD** מסננים לתעשייה בע"מ  
**CONTROP** Turning Vision Into Reality  
**בנות** תקשורת מחשבים בע"מ  
**ADMIR TECHNOLOGIES** Geotechnical solutions in civil engineering  
**HABONIM** Industrial Valves & Actuators  
**EcoTraders** סביבה ואנרגיה  
**מרשל מ** MARSHAL ENGINEERING מרשל הנדסה  
**HAIM TIMOR** CONSULTING & INSPECTION SERVICES LTD.  
**OPGAL** Beyond the Visible  
**Doron Shalev Engineering Ltd.**  
**HAM-LET** ADVANCED CONTROL TECHNOLOGY  
**א.צ. אבידן בע"מ**  
**amiad** WATER SYSTEMS  
**ARKAL** **FILTMAT** **AMIAD**  
**M.I.P. SECURITY**  
**RDV SYSTEMS**  
**CHAMO AHARON** Energy infrastructure Constructors  
**LUDAN Engineering Co. Ltd.**  
**MARINE TIES LTD** Port & offshore services  
**AMPHIBIO** Environmental Quality & Water Resources  
**F.H.** Friedman & Hershkovitz Ltd.  
**LAHAKAVIATION** REACH FOR THE SKY  
**KAMOR** Shipping & Tanker Services Ltd  
**G4S**  
**noble energy**

# QUESTIONS ?

