

MOODY'S

INVESTORS SERVICE

CREDIT OPINION

7 February 2022

Update

✓ Rate this Research

RATINGS

Leviathan Bond Ltd.

Domicile	Israel
Long Term Rating	Ba3
Type	Senior Secured - Fgn Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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Leviathan Bond Ltd.

Update to credit analysis

Summary

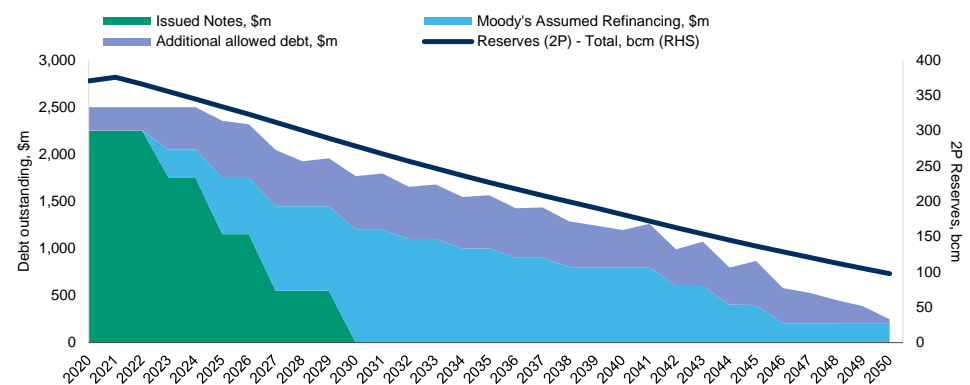
[Leviathan Bond Ltd.](#) (Leviathan Bond, Ba3 stable) is a special purpose vehicle owned by Delek Drilling Limited Partnership (Delek Drilling) that was established to raise financing secured against Delek Drilling's 45.34% interest in the Leviathan gas field. Leviathan is located off the coast of Israel in the eastern Mediterranean and was commissioned in December 2019.

Leviathan Bond's credit quality reflects the very long life of Leviathan's gas reserves, with production expected to continue into the 2060s, the strong track record of the sponsor and operator, and its portfolio of long-term offtake agreements. It also benefits from strong historic and expected demand growth in Israel, driven by demographic growth and improvement in living standards.

However, credit quality is constrained by oversupply and intense competition within the Israeli domestic gas market. The value of offtake agreements is limited by mechanisms that could allow Leviathan's largest customer to reduce volumes under certain circumstances, and by the weak credit quality of key counterparties. Leviathan Bond also has weaker lender protections than typical project financings, significant refinancing requirements and the ability to increase leverage.

Exhibit 1

Leviathan Bond will require significant refinancing and has potential to increase leverage
Debt balance at year-end, full production scenario



Source: Moody's Investors Service

Credit strengths

- » Long-lived and substantial gas reserves
- » Strong track record of sponsor and operator
- » Long-term offtake agreements

Credit challenges

- » Intense competition from other Israeli gas suppliers
- » Significant and frequent refinancing requirements
- » Material uncertainty with respect to the project's net cash flow given contract terms and weak offtaker credit quality

Rating outlook

The stable outlook reflects our expectation that Leviathan Bond will exhibit an improving ratio of Funds From Operations (FFO) to debt, based on Delek Drilling's share of the Leviathan project's cash flow, supported by a successful ramp-up to full production and progressive deleveraging.

Factors that could lead to an upgrade

- » FFO/debt sustainably above 25%
- » Material new take-or-pay gas sale and purchase agreements with high-quality offtakers that improve cash flow visibility

Factors that could lead to a downgrade

- » FFO/debt persistently below the mid-teens in percentage terms
- » Deterioration in cash flow visibility
- » Failure to achieve targeted production levels
- » Failure to refinance maturities in a timely fashion

Key indicators

Exhibit 2

Key Operating and Financial Metrics Leviathan Bond

	2020	2021 proj.	2022 proj.	20233 proj.
Total off-take (bcm)	7.25	10.6-10.8	7.5-11.0	8.0-11.0
CFADS interest coverage	3.6x	3.4-3.6x	2.5-3.5x	3.0-4.0x
FFO / Debt	6.0%	19-21%	10-20%	12-20%

Note: FFO/Net Debt is depressed in 2020 as only part year cash flow are considered. Low end of projected ranges for 2022 and 2023 is based on Moody's "low volume" scenario that assumes Leviathan sells the minimum TOP quantities to domestic customers and makes no export sales, and that only 75% of uncontracted volumes are sold.

Source: Moody's Investors Service

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

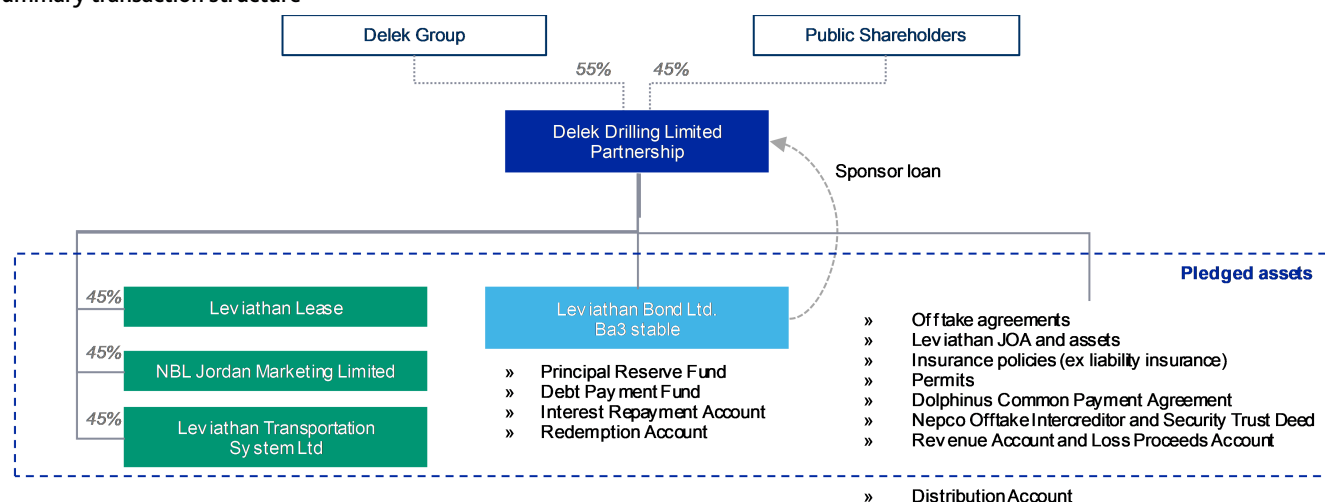
Profile

Leviathan Bond is a special purpose vehicle owned by Delek Drilling. The senior secured bonds are secured by a first ranking fixed pledge over specified assets, including Delek Drilling's rights and interests in the Leviathan lease and associated permits, the joint operating agreement and assets including the Leviathan platform and reserve funds held at Leviathan Bond and Delek Drilling.

The Leviathan Field is located 130 km west of Haifa in the Eastern Mediterranean and the project is operated by Chevron Mediterranean, a subsidiary of [Chevron Corporation](#) (Chevron, Aa2 stable). First gas was achieved on 31 December 2019. As of March 2021, the field had 1P proved reserves of 343.1 bcm and 26.6 million barrels of condensate, and 2P proved + probable reserves of 384.1 bcm and 29.8 million barrels of condensate. Production life is expected to exceed 30 years, subject to extension of the lease beyond 2044.

Exhibit 3

Summary transaction structure



Source: Delek Drilling, Moody's Investors Service

Detailed credit considerations

Substantial gas reserves and low operating costs support cash flow generation

As of March 2021, NSAI certified that the field contained 1P proved reserves of 343.1 bcm and 2P proved+probable reserves of 384.1 bcm, as well as around 30 million barrels of condensate.

Exhibit 4

Reserve estimates

As of March 2021

	100% of field			Delek Drilling share		
	Natural Gas (BCF)	Natural Gas (BCM)	Condensate (mmbbl)	Natural Gas (BCF)	Natural Gas (BCM)	Condensate (mmbbl)
1P (Proved) Reserves	12,111.1	343.1	26.6	5,491.2	155.6	12.1
Probable Reserves	1,449.3	41.1	3.2	657.1	18.6	1.5
Total 2P (Proved+Probable) Reserves	13,560.4	384.1	29.8	6,148.3	174.2	13.5
Possible Reserves	1,161.4	32.9	2.6	526.6	14.9	1.2
Total 3P (Proved+Probable+Possible) Reserves	14,721.8	417.0	32.4	6,674.9	189.1	14.7

Source: NSAI

NSAI's reserve estimates are based on the four producing wells that are currently operational and Leviathan-8 to be drilled in the near future. NSAI believes that a total of 19 wells would be required to extract the full resource base including contingent resources,

currently estimated at 646 bcm (2P+2C), although we expect any future drilling programme to be much smaller than this. Production life is expected to exceed 30 years, based on the five wells, and could be extended into the 2060s with further development work.

In July 2021, the Leviathan partners announced that they would drill an additional development and production well, Leviathan-8, in 2022, subject to regulatory approvals. The well is expected to cost \$248 million.

We expect Leviathan's cash flow to be supported by its low production costs, \$0.73/mmbtu in 2020, and a large portfolio of fixed-price contracts under which it generated revenue of around \$5.00/mmbtu in 2020 (rising to \$5.35/mmbtu in Q3/2021). Cash flow will weaken in 2027 (2029 in our low production scenario) when additional taxes become payable.

Operator has strong operating track record and post commissioning production has been strong

Chevron Mediterranean (formerly Noble Energy Mediterranean) has a strong operating track record at the neighbouring Tamar and Mari B fields. Since Tamar's first gas sales in March 2013, production levels at that reservoir have been consistently in line with or above base case projections. We do not expect the acquisition of Noble Energy by Chevron to adversely affect operational performance.

Since commissioning in December 2019, the Leviathan platform has experienced uptime and production in line with expectations. Uptime in 2021 was 98.5%, and the platform achieved output of between 2.7 BCM and 2.8 BCM in each of the first three quarters of 2021, above our assumption of 2.5 BCM and close to maximum capacity of around 3.0 BCM. This production was achieved despite faults early in the platform's operation, which delayed commissioning of the turbo expander (TEX) system on the platform.

Long-term offtake agreements, but significant volume risk and weak offtakers

Leviathan has long-term offtake contracts in the form of Gas Sale and Purchase Agreements (GSPAs) that provide some visibility over revenue into the early 2030s. However, the value of the GSPAs is limited by mechanisms that could allow the largest offtaker, Blue Ocean Energy (Blue Ocean, an affiliate of Dolphinus Holdings Limited), to reduce volumes under certain circumstances, and by the weak credit quality of the key counterparties.

Most contracts are indexed to Brent oil or Israel's regulated electricity generation tariff, but substantially all have floor prices. In the case of Brent-linked contracts, floor prices would protect revenue if Brent fell below \$50/barrel. The annual contracted quantities (ACQs) in these agreements cover around 75% of total capacity and 85% of expected production through 2030.

Exhibit 5

Gas Sale and Purchase Agreements As of December 2020

	Agreement period	Total maximum contract quantity (approx)	Main linkage basis for gas price
Blue Ocean	15 years		60 Brent with floor price, subject to adjustment after fifth and tenth years
NEPCO	15 years		45 Brent with floor price
Independent power producers	Some approximately 2.5 years, others 14-20 years		38.3 Most linked to Electricity Production Tariff with a floor price
Industrial customers	Some 5-15 years, rest approximately 2 years		3.8 Most linked to Brent and Electricity Production Tariff with floor price
Israel Electric Corporation	30/06/2021		3.6 Fixed
Total		150.7	

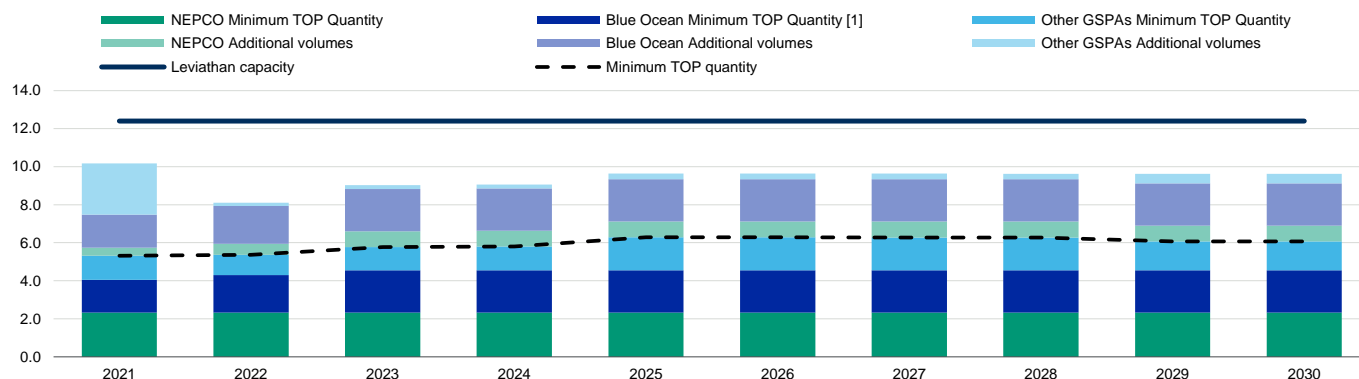
Source: Sponsor data report 2020

Blue Ocean can reduce its purchases to 50% of the ACQ in any year where the average price of Brent crude is below \$50/barrel. Blue Ocean can also reduce purchases by 50% after the fifth year of the contract (2025) and a further 30% after the tenth year of the contract (2030) if the parties cannot agree to price adjustment of up to +/- 10%, subject to certain conditions. Leviathan's contract with Jordan's National Electric Power Company (NEPCO) and domestic contracts also have minimum take-or-pay (TOP) levels below the ACQ. We estimate that, if offtakers purchased only their minimum commitment and Brent fell below \$50/barrel (compared to around \$90/barrel today), only around 50% of capacity would be underpinned by contracts.

Exhibit 6

Minimum contracted volumes underpin around 50% of capacity

Moody's estimate of Leviathan production capacity and contracted quantities (bcm)



[1] Blue Ocean minimum volumes based on Brent below \$50/barrel

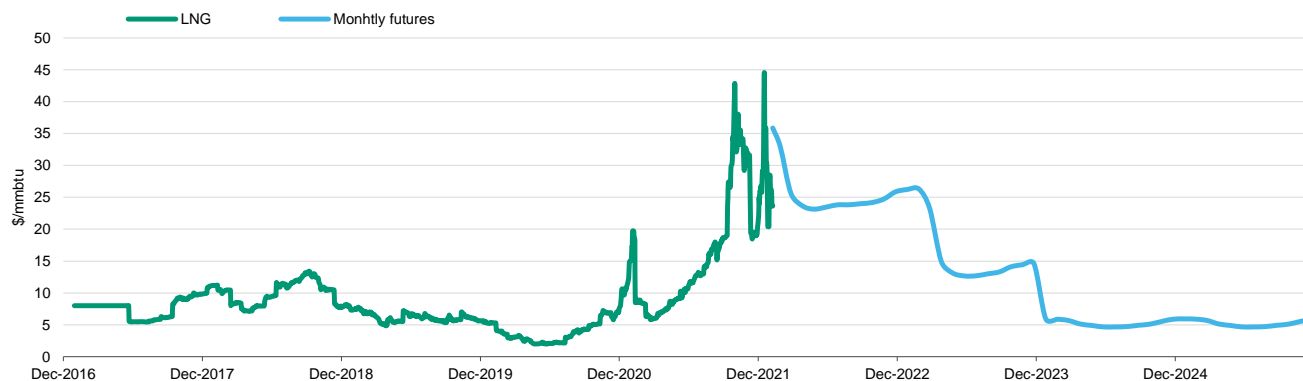
Source: GSPAs, Moody's Investors Service

To date, Blue Ocean has taken its full contracted quantities. The sharp rise of global gas and LNG prices in 2021 increases the likelihood that it will continue to do so, because Egypt has significant LNG export capacity and can sell on international markets at a significant premium to the price paid to Blue Ocean.

Exhibit 7

LNG prices rose sharply in 2021, and remain strong

Japan Korea Market



Source: FactSet

However, the credit quality of the offtakers also limits the value of the GSPAs. Blue Ocean is a private company formed for the sole purpose of buying gas from Israel, and although Delek Drilling understands that Blue Ocean has contracts to resell gas to Egyptian Natural Gas Holding Company (EGAS), a company owned by the [Government of Egypt](#) (B2 stable), we have no visibility into this contract or the ability and willingness of Blue Ocean to fulfill its contractual commitments. Although the [Government of Jordan](#) (B1 stable) guarantees most of NEPCO's borrowing, the country has high debt levels, external vulnerabilities, rising domestic social pressures, low growth and high unemployment.

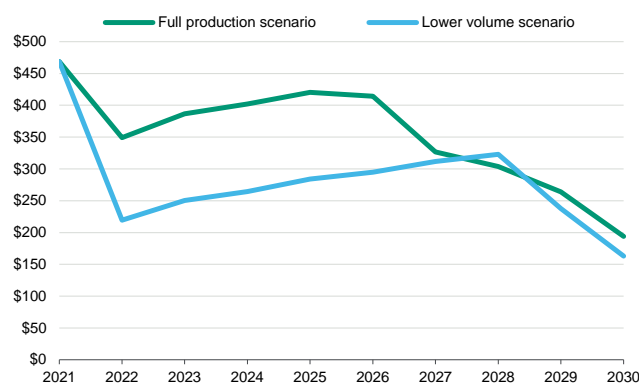
Leviathan's reliance on export sales also increases exposure to geopolitical risk, given Israel's historical conflicts with both Egypt and Jordan. Following protests, the lower house of the Jordanian parliament voted in January 2020 to prohibit gas imports from Israel, although the Jordanian Constitutional Court subsequently ruled that this would be a violation of the country's treaty obligations. In 2011, gas pipelines from Egypt to Israel and Jordan were repeatedly damaged by terrorist attacks. War, military action and acts of terrorism affecting Leviathan or the pipelines are considered force majeure under both the Blue Ocean and NEPCO GSPAs. Although Leviathan has Political Violence insurance that covers property damage and business interruption, up to certain limits, this may not be available on economic terms for the life of the project.

As a result of these limitations, our assessment of Leviathan's credit quality is constrained by material uncertainty with respect to the project's net cash flow, despite its relatively large contracted volumes. This is reflected in a score of B for "Predictability of Net Cash Flows" under Moody's Generic Project Finance methodology (see Rating Methodology and Scorecard Factors, below).

However, we believe Leviathan would be able to replace a large part of any lost volumes should this become necessary. Chevron and Delek, along with Egyptian partner East Gas Company, acquired a 39% share of the East Mediterranean Gas (EMG) pipeline in November 2019, along with the capacity, lease rights and operatorship of the pipeline. This investment and associated agreements give Leviathan the right to use the majority of EMG's capacity. In addition, gas demand in Israel is likely to significantly exceed the minimum volumes contracted for sale into the market, although less than the maximum capacity of the country's gas fields (see Risk of oversupply in market despite rising domestic demand, below).

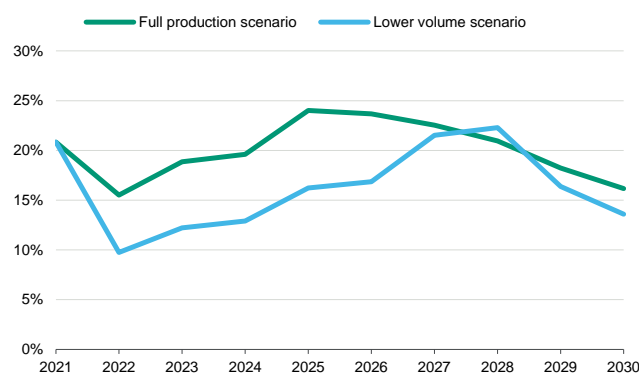
We have considered financial projections under two scenarios that reflect degrees of risk to the GSPAs. In the "full production scenario" we assume that offtakers purchase only the minimum TOP quantities and that uncontracted volumes are sold at an assumed price of \$4/mmbtu. In the "lower volume scenario", we assume that domestic offtakers purchase the minimum TOP quantities but assume no export sales and that only 75% of uncontracted volumes are sold.

Exhibit 8

Funds From Operations

The estimates represent Moody's forward view, not the view of the issuer.
Source: Moody's Investors Service

Exhibit 9

FFO/Debt

The estimates represent Moody's forward view, not the view of the issuer.
Source: Moody's Investors Service

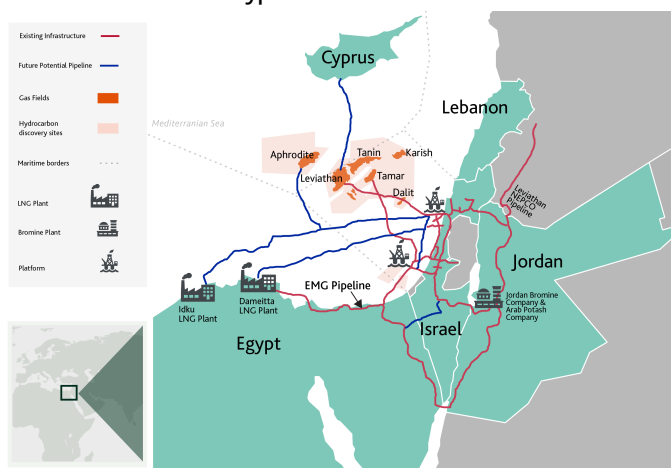
Risk of oversupply in market despite growing domestic demand

While the Tamar field was the sole gas producer in Israel between 2013 and 2019, the start of operations at Leviathan in December 2019 and the expected start of operations in neighbouring Karish field in Q3/2022 will change the competitive dynamics.

According to the economic consultant BDO, gas supply and consumption in Israel grew from 1.7 bcm in 2005 to 12.0 bcm in 2020. Although forecasts differ, there is general agreement that demand will continue to grow. The construction and increased utilisation of gas-fired generation will be a particularly significant driver. In 2015, the Ministry of National Infrastructure, Energy and Water instructed [Israel Electric Corporation](#) (IEC, Baa1 stable) to reduce coal fired generation by 15%, to be replaced with gas fired generation. In 2018, Israel committed to fully phasing out coal generation by 2030, and in 2019 said that this could occur by the end of 2025 and no later than 2026.

As a result, BDO forecasts that gas demand for electricity generation will grow from 8.8 bcm in 2020 to 13.6 bcm in 2026, when the last coal plants have closed. Despite this growth, it is likely that the Israeli market will be unable to absorb the productive capacity of the country's gas fields, even after taking account of Tamar and Leviathan's contracts to export gas to Jordan and Egypt. In 2026, for example, Tamar, Leviathan, Karish and Tanin fields have total 2P production, as estimated by their respective reserve consultants, of 29.8 bcm, of which 8-10 bcm may be exported, leaving 20-22 bcm for the domestic market. BDO estimates that total domestic demand in that year will be 18.5 bcm. As a result, it is likely that the three fields will not produce at their combined maximum capacity, although significantly above the minimum take-or-pay quantities in their offtake contracts.

Exhibit 10
Gas fields in Israel and Cyprus seas



Source: Delek Drilling, Moody's Investors Service

Exhibit 11
Competition in the regional gas market is increasing

Gas field	Date of discovery	Date of first gas	Estimated reserves	Owners
Tamar	Jan-09	Mar-13	297 bcm (2P)	Chevron, Mubadala, Isramco, Tamar Petroleum, Dor, Everest
Leviathan	Dec-10	Dec-19	384 bcm (2P)	Chevron, Delek, Ratio
Karish	May-13			
Tanin	Feb-12	Q3-2022	98.4 bcm (2P)	Energean Israel
Aphrodite	Sep-11	TBD	100 bcm (2C)	Delek, Chevron, Shell

Source: Chevron, Delek Drilling, Energean, NSAI

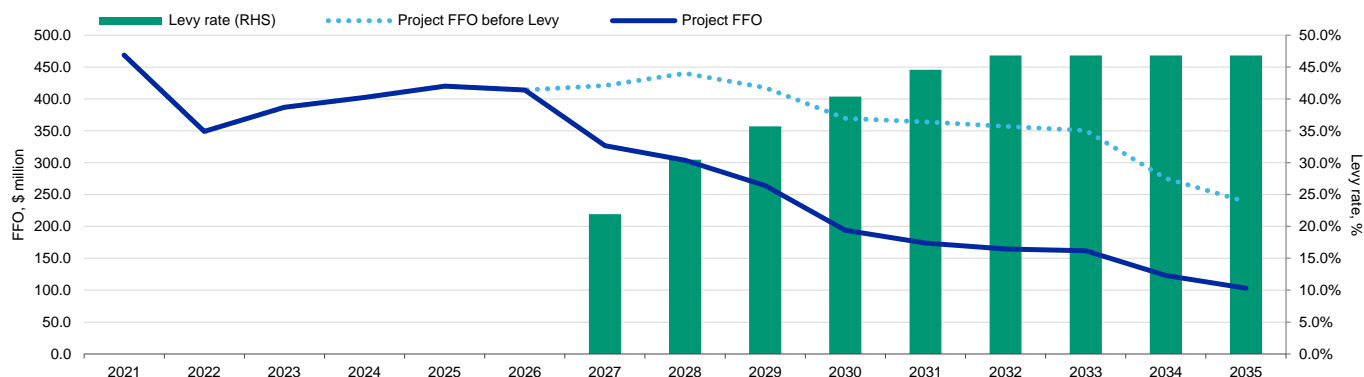
The governments of Israel, Greece and Cyprus have agreed to develop a gas pipeline from Israel to Europe, which may provide a further outlet for Israeli gas production. However, the project faces significant risks and the timing of any development is highly uncertain.

Natural resources levy will cause step-down in cash flow from 2027 in our base case

In addition to a 11.5% royalty rate and 23% income tax, Leviathan is subject to a levy on "windfall" profits, the Levy on Profits from Natural Resources, commonly known as the Sheshinski levy. The levy is a progressive tax amounting to between 20-50% of profits of gas projects after they have achieved a certain return on investment. The maximum levy rate is currently 46.8%, given the prevailing corporate tax rate. The proceeds of this levy will be deposited into a sovereign wealth fund.

We estimate that Leviathan will begin to pay the levy in 2027, with the amount rising from \$130 million to around \$240 million in 2030, which would reduce FFO by around 50%. When the levy rate reaches its maximum level of 46.8% of levyable income, the total government share of the Leviathan field's income – including taxes, royalties and levies – will be more than 60%.

Exhibit 12
The Sheshinski levy will reduce Leviathan cash flow starting 2027 in our full production scenario
Project Funds from Operations before and after the Sheshinski levy



The estimates represent Moody's forward view, not the view of the issuer.

Source: Issuer, Moody's Investors Service

As a result, we expect credit metrics over 2021-27, before the levy becomes payable, to overstate Leviathan Bond's credit quality. However, higher cash flow in the period until 2027 will give Leviathan Bond the capacity to reduce leverage, if it chooses to do so. In downside scenarios, the impact of the levy will be delayed, partly mitigating pressure on cash flow.

Structural considerations

The notes issued by Leviathan Bond benefit from a comprehensive security package. However, creditor protections are weaker than those in many rated project financings. The financing has limited creditor step-in and remedy rights and a lack of financial covenants. In addition, as the notes are secured by Delek Drilling's 45.34% working interest in the Project, creditors would have limited ability to exercise control over the Leviathan project as compared to many rated project financings.

However, risk is partly mitigated by the expected significant value of the bondholder security, which could be realised through a sale of Delek Drilling's working interests in the Project. Such realisation of value would be subject to certain terms of the Leviathan partners' Joint Operating Agreement and would require regulatory approval.

The structure includes a cash flow waterfall that requires several accounts held in the name of the issuer to be funded before funds can be deposited into the Distribution Account and removed from the security. The most significant of these are:

- » **Principal Reserve Fund** that begins to fill twelve months ahead of each maturity date, to a maximum amount of \$150 million;
- » **Debt Payment Fund**, funded at transaction close, of \$100 million; and
- » **Interest Payment Account** other than on scheduled principal repayment dates and 30 days thereafter, up to 50% of the interest due on the next semiannual interest payment date.

In addition, distributions cannot be made if the net present value of future cash flow, as calculated by NSAI using a 10% discount rate, is less than 1.5x net debt. The ability to issue new notes or other pari passu debt is limited by various provisions, which are outlined above and discussed in greater detail in the [new issuer report](#).

Liquidity analysis

Unlike typical project financings, the Leviathan Bond structure does not use amortising debt. The outstanding debt consists of bullets of \$500 million due in June 2023, \$600 million in June 2025, \$600 million in June 2027 and \$550 million in June 2030. Compared to amortising debt structures, non-amortising debt structures involve a greater refinancing risk with a potential strain on liquidity at each maturity date.

We expect Leviathan Bond to refinance at least half of each maturity. This reflects the project's expected long operating life and annual cash flows which are correspondingly low relative to the project's total value. It also reflects the relatively small size of the project's reserve accounts.

Our base case assumes that Leviathan Bond will choose to refinance 50-60% of each maturing note. However, this is an assumption rather than a calculation because the incurrence covenants mean the company is likely to have scope to increase leverage further, subject to meeting financial ratio tests. The extent of this headroom will depend on Brent oil price futures and NSAI's estimate of revenue and costs at each maturity date. One scenario, based on Moody's commodity price assumptions, is set out in exhibit 1.

The requirement for significant and frequent refinancings of the original notes and anticipated future issuance, and the absence of backup liquidity facilities, means Leviathan Bond faces significant exposure to debt market conditions throughout the project's life.

ESG considerations

Government and societal efforts to reduce dependence on carbon-intensive sources of energy pose significant business and credit risk for many oil and gas companies, given the potential for these policies to reduced future demand for oil, gas and refined products. Oil demand is likely to peak in the next 10-15 years, well before natural gas, which will be in use in power generation and industry for longer than oil.

However, environmental trends are supportive for gas demand in Israel in the medium term. In November 2019, the Israeli government announced that it will end coal fired generation no later than 2026, and in June 2020 the government instructed IEC to reduce coal

output by 20% in 2020. While natural gas represented around 67% of electricity generation in 2018, its share will need to increase to around 83% to replace coal-fired generation. This shift will contribute to emission reductions, because the combustion of natural gas emits around 50% less CO₂ per energy unit produced than coal. We therefore believe that gas will continue to play an important role in the Israeli energy mix for the foreseeable future.

On 30 May 2021, the Ministry of Energy announced the third phase of a programme to connect Israeli industry to natural gas, acknowledging the lower cost and air pollution of natural gas over alternative fuels. Under the programme, the Israeli government will provide financial assistance to connect new customers to the country's gas network. In August 2021, the government announced its intention to implement a carbon tax mechanism progressively between 2025 and 2033 for natural gas and between 2023 and 2027 for other fuels.

Leviathan is subject to a number of legal or administrative proceedings alleging prohibited emissions into air and water. For example, in June 2021 the Ministry of Environmental Protection announced that it would impose a penalty for two instances of "cold venting", which is discharging gas without burning it. We do not expect any of these proceedings to have a material effect on the Leviathan project or Leviathan Bond.

Rating methodology and scorecard factors

Leviathan Bond is rated under Moody's [Generic Project Finance Methodology](#), published in January 2022.

Exhibit 13

Leviathan Bond Ltd.

Factor	Subfactor	Score	Metric
1. Business Profile	a) Market position	Baa	Baa
	b) Predictability of Net Cash Flows	B	B
2. Operating Risk	a) Technology	A	A
	b) Capital Reinvestment	A	A
	c) Operating Track Record	Baa	Baa
	d) Operator and Sponsor Experience, Quality and Support	A	A
Project Risk		Medium	
3. Leverage and Coverage	a) CFADS / Interest Expense (Non-Amortizing Debt)	4.00x	A
	b) Project CFO / Adjusted Debt	20.3%	Baa
Preliminary Scorecard Indicated Outcome before Notching:			Baa3
Notching Considerations		Notch	
	1 - Liquidity		-1
	2 - Structural Features		-1
	3 - Refinancing Risk		-1
	4 - Construction and Ramp-up Risk		0
	5 - Priority of Claim, Structural Subordination and Double Leverage		0
Preliminary Scorecard Indicated Outcome before Offtaker Constraint:			Ba3
	Offtaker Constraint Applied?		No
	Level of Offtaker(s) Constraint		n/a
Scorecard Indicated Rating:			Ba3
Assigned Senior Rating			Ba3

Source: Moody's Investors Service

Ratings

Exhibit 14

Category	Moody's Rating
LEVIATHAN BOND LTD.	
Outlook	Stable
Senior Secured	Ba3

Source: Moody's Investors Service

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