

CREDIT OPINION

31 March 2026

Update



RATINGS

National Central Cooling Company PJSC

Domicile	United Arab Emirates
Long Term Rating	Baa3
Type	LT Issuer Rating - 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.

Contacts

Ekaterina Lipatova +971.4.237.9575
VP-Senior Analyst
ekaterina.lipatova@moodys.com

Ahmed Al-hubaishi +971.4.237.9508
Sr Ratings Associate
ahmed.al-hubaishi@moodys.com

Rehan Akbar, CFA +971.4.237.9565
Associate Managing Director
rehan.akbar@moodys.com

National Central Cooling Company PJSC

Update to credit analysis

Summary

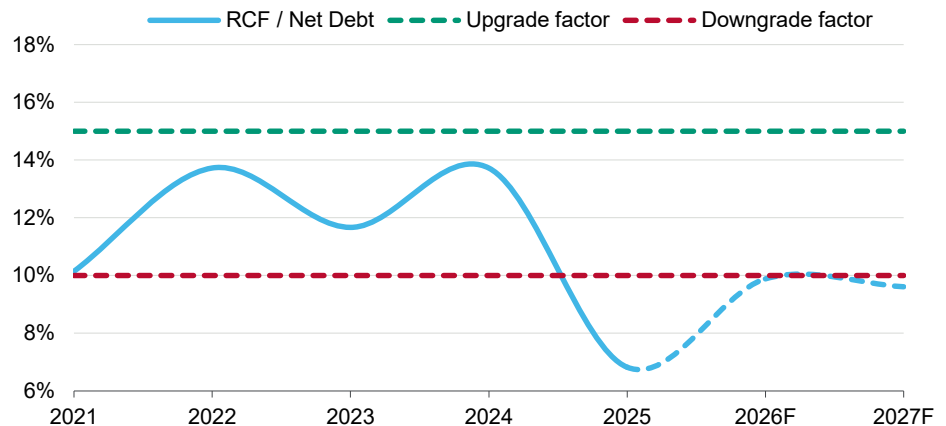
[National Central Cooling Company PJSC's](#) (Tabreed) Baa3 ratings remain supported by the company's (1) strong cash flow resilience because of long-term fixed-charge contracts; (2) low operating risk levels, with most variable costs being passed through; (3) strong competitive positions in the [United Arab Emirates](#) (UAE, Aa2 stable); (4) complementary shareholder base; and (5) good liquidity, supported by the established access to banks and debt capital markets.

At the same time, Tabreed's Baa3 ratings reflect its geographical concentration in a single market and a relatively high level of customer concentration. The company also continues to explore suitable organic and inorganic growth opportunities, including potential investments in large greenfield projects and opportunistic debt-funded acquisitions. This, together with high dividends, limits free cash flow (FCF) and contributes to temporary spikes in leverage. Following the sizeable acquisition of PAL Cooling assets and the introduction of interim dividends in 2025, we expect Tabreed to resume a gradual reduction in leverage, consistent with its financial strategy and public commitment to maintaining an investment-grade rating.

While its operations have not been affected to date, we continue to monitor any potential impact on Tabreed's credit quality from Iran's retaliatory response to US-Israel military strikes and increased geopolitical risk in the Middle East region, as the situation is evolving.

Exhibit 1

Net leverage will recover following the introduction of interim dividends and the debt-funded acquisition of the PAL cooling assets in 2025



All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology.

The forecasts are Moody's opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Credit strengths

- » Strong cash flow resilience from long-term fixed-charge contracts
- » Strong market position in the UAE
- » Low operating risks
- » Complementary shareholder base

Credit challenges

- » Geographical and customer concentration
- » High dividends limit FCF
- » Appetite for debt-funded acquisitions
- » Evolving geopolitical risk in the Middle East region

Rating outlook

The stable outlook reflects our expectation of a sustained operating performance over the next 12-18 months. We also expect Tabreed to resume a gradual reduction in leverage to within the rating guidance after the debt-funded acquisition of PAL Cooling assets and the introduction of interim dividends in 2025.

Factors that could lead to an upgrade

We do not currently expect any further upward pressure on Tabreed's Baa3 ratings, given the company's track record of opportunistic debt-funded acquisitions. However, positive rating pressure could emerge over time if Tabreed is committed to maintaining good liquidity through investment cycles and targets sustainably stronger credit metrics, such that (cash flow from operations pre-working capital + interest expense)/interest expense increases above 5.0x and retained cash flow (RCF)/net debt increases above 15%.

Factors that could lead to a downgrade

The ratings could come under pressure if there is a substantial deterioration in the company's liquidity, or if its operating performance weakens on a sustained basis, such that (cash flow from operations pre-working capital + interest expense)/interest expense decreases below 4.0x or RCF/net debt decreases below 10%. Future acquisitions that lead to a temporary deterioration in the company's financial profile, but show strong prospects of a speedy recovery in Tabreed's credit metrics and improve the company's business profile, are in itself unlikely to result in a rating downgrade.

A downside scenario involving a more prolonged conflict in the Middle East region, with elevated risks of longer-term disruption to Tabreed's assets in the UAE and constrained cash flow generation, including as a result of softer demand, could also exert pressure on the company's ratings.

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

Key indicators

Exhibit 2

National Central Cooling Company PJSC

	2021	2022	2023	2024	2025	2026F	2027F
(FFO + Interest Expense) / Interest Expense	4.2x	4.4x	4.8x	6.1x	5.0x	4.4x	4.0x
FFO / Net Debt	13.3%	17.6%	20.4%	23.9%	17.6%	17.4%	17.8%
RCF / Net Debt	10.1%	13.7%	11.7%	13.7%	6.8%	9.9%	9.6%

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology.

The forecasts are Moody's opinion and do not represent the views of the issuer.

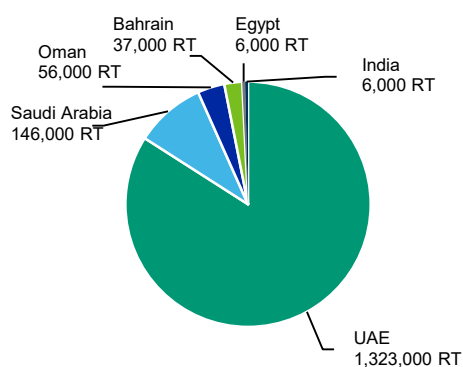
Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Profile

Tabreed is an independent district cooling company operating mainly in the UAE. The company provided a total of 1.6 million refrigeration tonnes of chilled water as of 31 December 2025 through 99 plants, with a reported revenue of AED2.5 billion and EBITDA of AED1.2 billion in 2025. Tabreed is owned by two major shareholders, [Mamoura Diversified Global Holding PJSC](#) (MDGH, 42%, Aa2 stable) and [ENGIE SA](#) (40%, Baa1 stable). The remaining 18% is publicly traded on the [Dubai Financial Market](#).

Exhibit 3

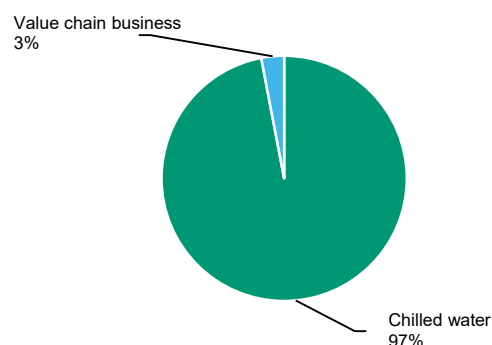
Cooling capacity by country (2025) In refrigeration tonnes (RT)



Source: Company filings

Exhibit 4

Revenue breakdown by business segment (2025)



Source: Company filings

Detailed credit considerations

Strong cash flow resilience supported by long-term contractual arrangements

We consider district cooling as a utility-like service, especially considering the warm climate in the region. Tabreed benefits from strong predictable cash flow underpinned by long-term contracts that are typically over 25 years in length. There is limited contract renewal risk, with less than 10% of the company's contracted capacity maturing within five years and less than 20% maturing within 10 years. The useful life of a district cooling plant is longer than the average contract and offers the option to renew contracts at expiry. We view contract renewal risk as limited, given the generally high costs involved in switching to an alternative cooling source. We also take comfort from the fact that the company takes relatively limited project risk and will only construct a new plant under a contractual off-take agreement that guarantees a return on investment to Tabreed over the life of the contract.

All of Tabreed's contracts follow a take-or-pay structure that ensures strong revenue and earnings resilience. A fixed capacity charge guarantees a return on Tabreed's capital investments. This charge is payable regardless of utilisation and is generally indexed to inflation. On average, 55% of Tabreed's consolidated revenue and around 75% of its reported EBITDA are generated from capacity charges. A variable consumption charge is also contained in most contracts and allows Tabreed to pass through input and other variable costs incurred.

Low operating risk business model and strong operational track record but high customer concentration

The pass-through clauses in most of Tabreed's contracts limit its exposure to fluctuations in the cost of raw materials. Tabreed is using a large amount of electricity in the production of chilled water, as well as a number of other elements, including water and chemical additives. For most contracts, an increase in input costs is billed to the customer with no delay. Tabreed is only exposed to residual risks, such as an increase in working capital from higher customer payables in the event of rising input costs. Tabreed benefits from a strong operational track record of over 20 years, with plant availability exceeding 99.9%. The company is designing, building, operating and maintaining its plants in-house, and it is using reputable third-party suppliers for its refrigerating units. The technology involved is well understood and does not present any major operational risk. Refrigerating units are scaled, which reduces the risk of a complete plant outage in case of technical failure. Critical equipment is often duplicated and all the infrastructure is subject to a comprehensive maintenance schedule.

Tabreed is exposed to a degree of customer concentration, with the top four customers being United Arab Emirates Armed Forces, Dubai's Roads and Transport Authority, [Emaar Properties PJSC](#) (Baa1 stable) and [Aldar Properties PJSC](#) (Baa2 stable). These customers represent more than 55% of consolidated chilled water revenue in 2025. The company mainly operates on a wholesale basis, with contracts signed directly with property developers as opposed to retail customers. This reduces the overhead costs related to the collection of receivables but increases the reliance on a limited number of larger counterparties. Tabreed has significant exposure to government-owned entities, with fully owned government customers representing around 40% of consolidated chilled water revenue and majority-owned government customers an additional 25%. However, we view the credit quality of Tabreed's current customer base as mixed, comprising high-quality government-owned counterparties in [Abu Dhabi](#) (Aa2 stable), [Saudi Arabia](#) (Aa3 stable) and Dubai.

Developing regulatory framework for district cooling services in the UAE

Tabreed operates in a mix of regulated and unregulated but generally supportive markets given strong energy-efficiency advantages of district cooling. Governments have a direct incentive to promote district cooling because it reduces the cost of any energy subsidies and the need for investment in additional electricity generation infrastructure.

In the UAE, the company benefits from concessions in a number of districts in Abu Dhabi and Dubai, which require any new real estate developments to connect to Tabreed's cooling infrastructure.

At the same time, regulatory frameworks for cooling are still at an early stage. In Abu Dhabi, the Department of Energy's District Cooling Regulations and the District Cooling Applicability Regulations were approved in 2019, under which the first license was issued to Saadiyat Cooling in 2021. Dubai's Regulatory and Supervisory Bureau for the electricity and water sector issued new district cooling regulations in 2022 to enhance efficiency and transparency. As of year-end 2025, Tabreed has obtained all required licenses for its assets in both Abu Dhabi and Dubai. Dubai also introduced a regulatory fee for the sector in 2025, although it remains modest.

Strong competitive position in the UAE as the provider of essential district cooling services

Tabreed is a leading provider of district cooling services in the UAE, [Oman](#) (Baa3 stable) and [Bahrain](#) (B2 stable), as well as in Saudi Arabia through joint ventures. These markets have good fundamentals for the district cooling industry. The hot climatic conditions and energy inefficiency of conventional cooling solutions offer strong economic and environmental incentives for the development of district cooling services.

The UAE remains Tabreed's main market and accounted for 84% of its total chilled water capacity in 2025. The company's operating performance continues to benefit from the strong economic conditions in Abu Dhabi and Dubai. Tabreed's dominant position and lack of significant competition in Abu Dhabi supports its competitive position and further reduces contract-renewal risk. In Dubai, Tabreed's market share has materially improved following the acquisition of Emaar's Downtown cooling assets.

Despite its strong market position and highly profitable operations in the UAE, the company is exposed to geographic concentration risk as most of its revenue is generated from the UAE portfolio. Certain event risks or a prolonged economic downturn could lead to a reduction in the expat population or in the number of tourists visiting the UAE, which could translate into weaker operating performance for Tabreed.

Although we expect the UAE to remain Tabreed's key market, the company remains focused on expanding its operations in other countries of the region, including Saudi Arabia, where it is well positioned to benefit from the development of projects related to Saudi Arabia's vision 2030. Tabreed is also considering international diversification, with some minor operations already in [India](#) (Baa3 stable) and [Egypt](#) (Caa1 positive). These markets offer good growth opportunities, given favourable demographics and ambitious climate goals. However, they remain secondary in the company's strategy with no significant investment plans, because of higher economic and regulatory risks it may face as a new entrant compared with its current jurisdictions, where it has built strong relationships and a long operating track record.

Focus on organic and inorganic growth opportunities and high dividend payouts

Tabreed explores suitable organic and inorganic growth opportunities, including potential investments in large greenfield projects and opportunistic debt-funded acquisitions. Following a series of sizeable acquisitions in 2020-21 with a combined consideration of about AED4.0 billion, partly financed with new debt, the company completed another strategic acquisition in 2025. Via a joint venture with CVC DIF, the company acquired a 50% stake in PAL Cooling Holding LLC for an equity contribution of AED1.2 billion funded through a combination of debt and cash. The acquisition added 190,800 refrigeration tonnes to Tabreed's connected capacity, strengthening its leading position in Abu Dhabi, while providing good growth potential under the existing concessions. It will also contribute to Tabreed's strong revenue visibility and long-term cash flow resilience via long-term take-or-pay fixed contracts with guaranteed capacity charges (60% of revenue).

In 2025, Tabreed, in partnership with Dubai Holding Investments, also signed an important concession agreement to provide district cooling services for Palm Jebel Ali, which will further enhance its presence in Dubai. With a 51% share, the company will consolidate this strategic greenfield project, which has a total potential concession capacity of 250,000 refrigeration tonnes. While total investments are estimated at around AED1.5 billion, they will be phased over the development cycle, with spending likely to remain moderate over 2026-27. First revenue recognition is expected by late 2027 to early 2028.

Overall, we expect Tabreed's capital spending to stay at about AED250 million-AED300 million per year over 2026-27. While a significant portion of its investment plan remains uncommitted and can be deployed flexibly over time, we understand that Tabreed will continue to consider opportunistic greenfield projects and acquisitions, although still subject to leverage and cash flow capacity.

In addition, Tabreed's cash flow generation is somewhat constrained by its historically high dividends, with a target payout ratio of more than 50%. Although the introduction of an interim dividend in 2025 caused a temporary spike in the payout, we expect this to normalise from 2026, with dividends likely to return to historical levels of around AED400 million. The company also has some flexibility to adjust payouts to limit pressure on its financial profile; for example, it adopted cash-plus-equity dividends in 2020 and 2021 to retain cash following the acquisitions.

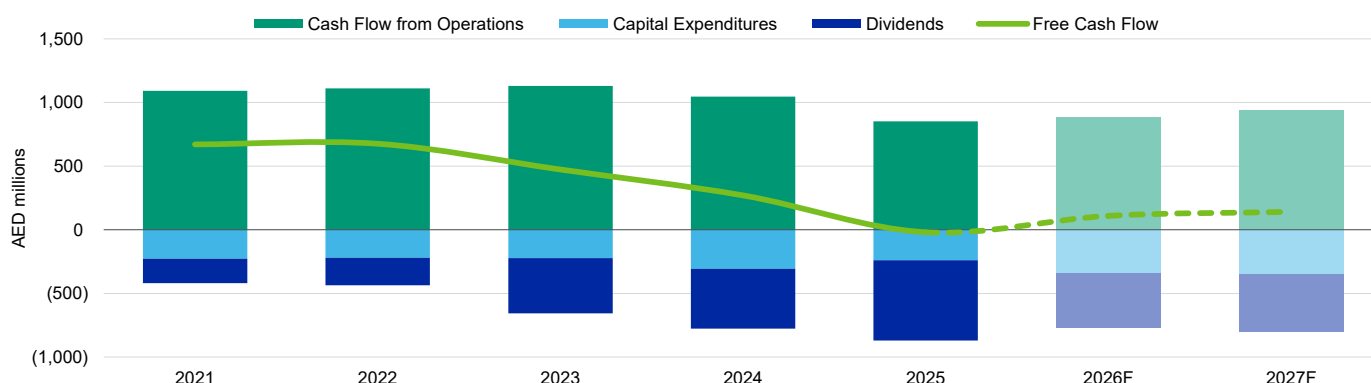
Credit metrics to recover over 2026-27

In 2025, Tabreed's revenue remained broadly flat, with growth of 3% in fixed capacity revenue from new connections offset by lower consumption amid a relatively cold year. The company also maintained a sound reported EBITDA margin of around 52% and a total asset base of AED14.6 billion. On a Moody's-adjusted basis, earnings and profitability were slightly weaker because of one-off transaction costs related to the PAL Cooling acquisition at both the company and joint-venture levels. The introduction of the interim dividends, which led to a temporary increase in payouts over a 12-month period, also strained its Moody's-adjusted RCF, and, together with acquisition-related funding, resulted in its Moody's-adjusted RCF/net debt reducing to 6.8%.

We expect Tabreed's earnings to return to growth in 2026, subject to the company delivering its capital investment pipeline, with annual capacity growth of 3%-5%. Its Moody's-adjusted EBITDA margin will also recover to above 50% (47% in 2025), further supported by the full-year contribution of PAL Cooling's high-margin portfolio on an equity-accounted basis, which is also expected to begin moderate dividend distributions. This, together with stabilised dividends and lower investment plans, is likely to turn FCF mildly positive and allow the company to resume deleveraging, with its Moody's-adjusted RCF/net debt trending towards 10% over 2026-27.

Exhibit 5

Tabreed's FCF will turn positive from 2026 onwards as dividend distributions normalise over a 12-month period following the introduction of interim dividends in Q4 2025



All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. The forecasts are Moody's opinion and do not represent the views of the issuer. Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Tabreed's financial profile benefits from strong cash flow predictability and its prudent financial strategy, including its public commitment to maintaining an investment-grade rating. This supports our view that the company's leverage remains commensurate with the rating category. However, a failure to reduce leverage or any new acquisition that results in a sustained deterioration in the financial profile would lead us to reassess its credit profile.

Complementary shareholder base

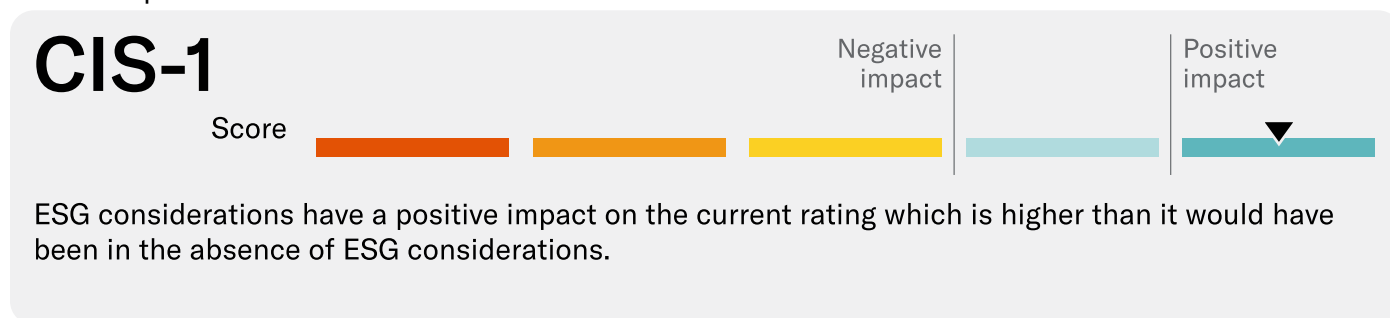
We view MDGH and ENGIE SA as strong commercial and technical backers for Tabreed in the region. Both anchor shareholders provide the company with high standards for financial oversight and governance and strengthen Tabreed's commitment to the stated financial policies. We understand that the company has received extraordinary support from MDGH in the past. However, we assess the company on a standalone basis, and we do not apply any notching for parental support to Tabreed's ratings.

ESG considerations

National Central Cooling Company PJSC's ESG credit impact score is CIS-1

Exhibit 6

ESG credit impact score

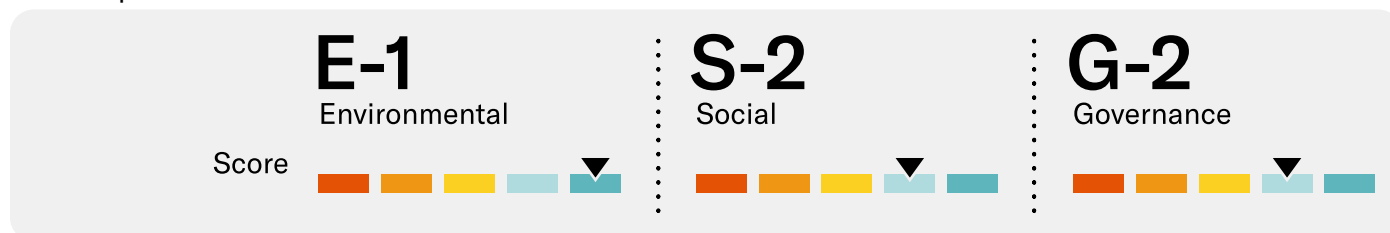


Source: Moody's Ratings

Tabreed's **CIS-1** indicates that ESG considerations have a positive impact on the rating. The strong and growing demand for the company's district cooling services is driven by their cost competitiveness and environmental credentials. Tabreed's plants benefit from economies of scale and use significantly less electricity than alternative cooling solutions. The company's district cooling services are of significant importance to local governments seeking to mitigate the high energy consumption and carbon emissions associated with air conditioning. This also helps the local governments reduce their peak generation capacity investments.

Exhibit 7

ESG issuer profile scores



Source: Moody's Ratings

Environmental

Tabreed's **E-1** reflects its unique business model. The strong and growing demand for the company's district cooling services is driven by their cost competitiveness and environmental credentials. This growth strongly contributes to Tabreed's revenue and margin growth. Tabreed's plants benefit from economies of scale and use significantly less electricity than alternative cooling solutions. This contributes to Tabreed's cost competitiveness, but also benefits local governments seeking to mitigate the high energy consumption and carbon emissions associated with air conditioning, in order to reduce peak generation capacity investments. The company enjoys local concessions that require new buildings to connect to their network and is well positioned to benefit from any regulation in favour of district cooling solutions. Although Tabreed operates in the region that is exposed to significant heat-stress, its business model and the essential nature of cooling services mitigate this risk.

Social

Tabreed's **S-2** reflects its limited exposure to social risks. The company could be subject in the future to potentially adverse regulatory or political interventions. Stricter health and safety practices could also lead to higher operational costs for the company.

Governance

Tabreed's **G-2** reflects its disciplined financial strategy and risk management with public commitment to investment grade rating as well as strong balance sheet that mitigate risks, related to higher leverage at times due to opportunistic debt-funded acquisitions. We also acknowledge a more prudent approach to liquidity management, reflected in the doubling of availability under its revolving credit facility, although some history of delays in proactively addressing upcoming debt maturities remains. While the company is exposed to ownership concentration, we consider its anchor shareholders – Mamoura Diversified Global Holding PJSC (42%) and ENGIE SA (40%) – as supportive and complementary.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Liquidity analysis

Tabreed has good liquidity. In 2025, as part of its prudent liquidity management, the company increased the availability under its green revolving credit facility (maturing in December 2028) to AED1.2 billion from AED0.6 billion. As of 31 December 2025, the company also held around AED650 million in cash and cash equivalents, which, together with internally generated cash flow over the next 18 months, will be sufficient to cover committed and uncommitted capital spending and dividends. Tabreed's debt service requirements also remain modest at only around AED0.2 billion until October 2027, when the AED1.8 billion bond comes due.

Methodology and scorecard

The principal methodology used in rating Tabreed was our Unregulated Utilities and Power Companies rating methodology.

Exhibit 8

Rating factors

National Central Cooling Company PJSC

Unregulated Utilities and Unregulated Power Companies Industry Scorecard	Current FY Dec-25		Moody's 12-18 month forward view	
	Measure	Score	Measure	Score
Factor 1 : SCALE (10%)				
a) Total Assets (\$ Billion)	4.0	B	4.0 - 4.1	B
Factor 2 : BUSINESS PROFILE (35%)				
a) Market Diversification	Ba	Ba	Ba	Ba
b) Cash Flow Stability	A	A	A	A
Factor 3 : LEVERAGE AND COVERAGE (40%)				
a) (FFO + Interest Expense) / Interest Expense	5.0x	Baa	4x - 4.4x	Ba
b) FFO / Net Debt	17.6%	Ba	17.5% - 17.9%	Ba
c) RCF / Net Debt	6.8%	B	9.6% - 9.9%	Ba
Factor 4 : FINANCIAL POLICY (15%)				
a) Financial Policy	Baa	Baa	Baa	Baa
Rating:				
a) Scorecard-Indicated Outcome		Baa3		Baa3
b) Actual Rating Assigned				Baa3

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology.

The forecasts are Moody's opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Appendix

Exhibit 9

Moody's-adjusted EBITDA reconciliation National Central Cooling Company PJSC

(in AED millions)	2021	2022	2023	2024	2025
As reported EBITDA	1,064.9	1,242.7	1,391.6	1,223.5	1,157.5
Unusual	-	(45.0)	(148.8)	-	-
Moody's-adjusted EBITDA	1,064.9	1,197.7	1,242.8	1,223.5	1,157.5

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology.

Source: Moody's Financial Metrics™

Ratings

Exhibit 10

Category	Moody's Rating
NATIONAL CENTRAL COOLING COMPANY PJSC	
Outlook	Stable
Issuer Rating	Baa3
Senior Unsecured	Baa3
TABREED SUKUK PROGRAMME LIMITED	
Outlook	Stable
Bkd Senior Unsecured	Baa3

Source: Moody's Ratings

© 2026 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE LEGAL, COMPLIANCE, INVESTMENT, FINANCIAL OR OTHER PROFESSIONAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating or assessment is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating or assessment process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating or assessment assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at ir.moody.com under the heading "Investor Relations — Corporate Governance — Charter and Governance Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., Moody's Local PA Clasificadora de Riesgo S.A., Moody's Local CR Clasificadora de Riesgo S.A., Moody's Local ES S.A. de CV Clasificadora de Riesgo, Moody's Local RD Sociedad Clasificadora de Riesgo S.R.L. and Moody's Local GT S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. EU: In the European Union, each of Moody's Deutschland GmbH and Moody's France SAS provide services as an external reviewer in accordance with the applicable requirements of the EU Green Bond Regulation. JAPAN: In Japan, development and provision of SPOs and NZAs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used

within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

REPORT NUMBER 1475493