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CREDIT OPINION
22 April 2022

Update

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RATINGS

TenneT Holding B.V.

Domicile	Arnhem, Netherlands
Long Term Rating	A3
Type	LT Issuer Rating - Dom 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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TenneT Holding B.V.

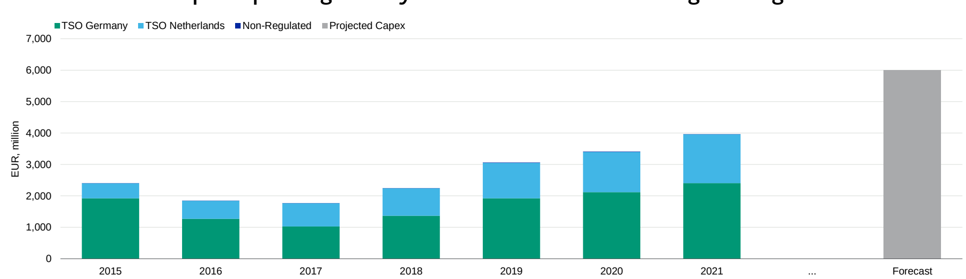
Update to credit analysis

Summary

The credit quality of TenneT Holding B.V. (TenneT, A3 stable) is underpinned by the company's monopoly as the licenced provider of electricity transmission services in the Netherlands and its service area in Germany; its relatively stable and predictable cash flow generated under well-defined and stable regulatory frameworks in each country; the supportive and high-credit-quality ownership by the Government of the Netherlands (Aaa/P-1, stable); and timely cost recovery for large investment projects under the German and Dutch regulatory frameworks.

TenneT's credit profile is constrained by its sizeable investment programme, which we estimate at around €6 billion annually on average through 2030, compared with €4.0 billion in 2021 (see Exhibit 1), which will be reflected in weaker credit metrics; a decline in allowed returns for the current regulatory period in the Netherlands, which started in January 2022; and a decrease in returns for the next regulatory period starting in January 2024 in Germany. TenneT's objective of maintaining an A3 rating implies equity support from its owner, the Dutch government, to mitigate these challenges, but we nonetheless expect key credit metrics to remain under pressure through the early 2020s and to be positioned closer to the lower end of our guidance for the rating.

Exhibit 1
TenneT's annual capital spending is likely to reach €6 billion on average through 2025



Sources: TenneT and Moody's Investors Service

TenneT's A3 rating incorporates a two-notch uplift from its Baseline Credit Assessment (BCA) of baa2, taking into account its ownership by the Dutch State and its strategic importance to national energy policy.

Credit strengths

- Status as a monopoly provider of electricity transmission network operations in the Netherlands and for its designated region in Germany
- Stable and predictable cash flow, underpinned by the well-defined and relatively stable regulatory frameworks in both countries
- Strong, demonstrated support by TenneT's 100% owner, the Dutch government, resulting in a two-notch uplift from the company's standalone credit quality
- Experienced management, and successful execution of complex onshore and offshore transmission projects

Credit challenges

- Substantial investment programme, which continues to grow, weighing on key credit metrics
- Reduction in allowed returns in the Netherlands for the current, recently started regulatory period, and in Germany from 2024, the first year of the next regulatory period
- In Germany, limited scope for outperformance on certain cost allowances in the current regulatory period and uncertainty around efficiency parameters for the next period

Rating outlook

The stable rating outlook reflects our expectation that TenneT will continue to meet the minimum ratio guidance for its current rating over the next 18 months, with funds from operations (FFO)/net debt at least in the high-single digits in percentage terms, despite the extensive investment programme and lower allowed regulatory returns. This is because we assume that the Dutch government will procure equity from 2023 to support Dutch investments, and that equity funding for German investments will be procured from 2024.

Factors that could lead to an upgrade

Given the significant increases in planned investments over the next five years and the lower allowed returns over the next few years, a rating upgrade is unlikely. However, an upgrade could be warranted if, during the main investment phase, FFO/net debt remains at least in the low teens in percentage terms on a sustained basis.

Factors that could lead to a downgrade

The ratings could be downgraded if FFO/net debt was to decrease below the high-single digits in percentage terms; and retained cash flow (RCF)/net debt decreased below 5% as a result of an increase in capital spending or a failure to secure equity funding for capital spending in Germany from 2024.

Key indicators

Exhibit 2

TenneT Holding B.V.

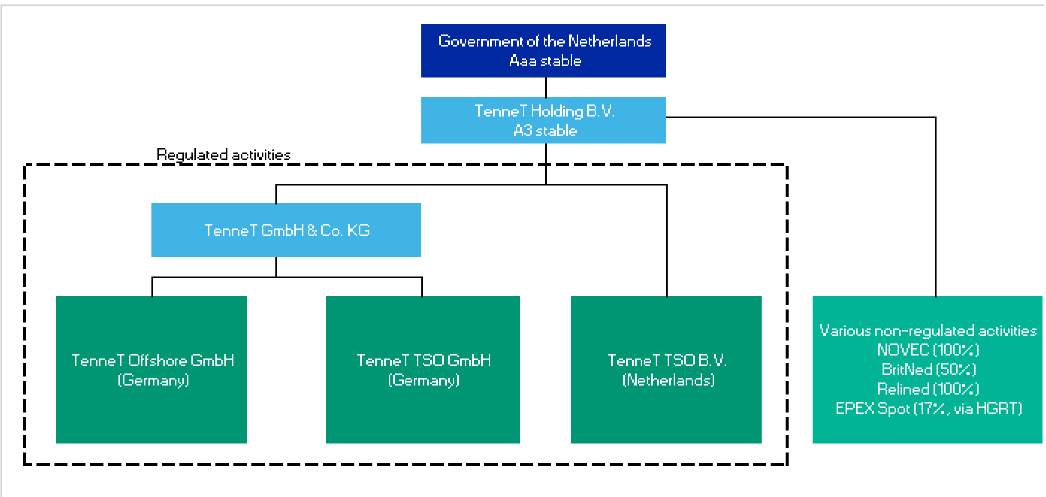
	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21
(FFO + Interest Expense) / Interest Expense	6.6x	6.8x	8.4x	10.1x	3.4x
Net Debt / Fixed Assets	58.6%	60.6%	57.1%	65.6%	64.3%
FFO / Net Debt	12.9%	12.4%	15.0%	15.2%	3.4%
RCF / Net Debt	10.5%	10.0%	13.4%	13.9%	2.1%
Underlying FFO / Net Debt	13.2%	11.9%	12.3%	12.2%	10.7%

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Net debt calculations include 50% equity treatment on the perpetual capital securities in our adjustment to TenneT's financial statements. The instrument qualifies for basket "C" treatment under our Cross Sector Rating Methodology Hybrid Equity Credit (September 2018). Underlying FFO is calculated based on TenneT's underlying EBIT calculations, reviewed by its auditors, as per annual reports.
Source: Moody's Financial Metrics™

Profile

TenneT Holding B.V. is the fully state-owned holding company of TenneT TSO B.V. and TenneT GmbH & Co. KG, the latter an intermediate holding company for the group's German subsidiaries TenneT TSO GmbH and TenneT Offshore GmbH. TenneT TSO B.V. is the sole owner and operator of the Netherlands' high-voltage transmission grids. TenneT TSO GmbH is the owner and operator of the high-voltage electricity transmission network that runs north to south through large sections of Germany. With a total grid length of around 24,500 kilometres, TenneT's network area covers around 43 million end-users in the Netherlands and Germany.

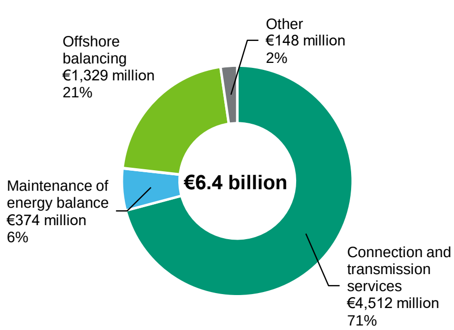
Exhibit 3
Simplified organisational structure as of 31 December 2021



Source: TenneT

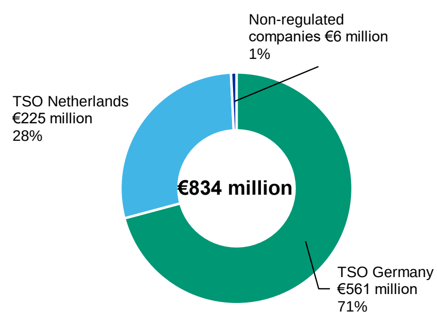
Nearly all of TenneT's revenue and operating income stem from regulated network activities in the Netherlands and Germany. The remaining activities, including participations in the North West European energy exchange (EPEX Spot) and the merchant cable operator BritNed, are strongly associated with the core business.

Exhibit 4
Split of 2021 underlying revenue by activity



Operation of energy exchanges is less than 0.1% and thus is excluded from the pie chart.
Sources: TenneT and Moody's Investors Service

Exhibit 5
Split of 2021 underlying operating profit (EBIT) by business segment



Sources: TenneT and Moody's Investors Service

Detailed credit considerations

Low business risk, underpinned by developed regulatory frameworks

TenneT derives most of its earnings from its monopoly electricity transmission activities in the Netherlands, where it is the national transmission system operator (TSO), and in Germany, where it is the largest of the four TSOs. Around 60%-70% of TenneT's operating profit, or EBIT, is derived from its German network activities, a trend that will continue because we expect around the same share of TenneT's investments for the 10-year period through 2031 to be incurred in Germany. While both the German and Dutch regulatory frameworks are well-defined and relatively stable, our overall assessment of stability and predictability of the group's operations is weighed towards the German regulatory framework and its characteristics, which has a few weaknesses compared with the Dutch regulatory framework. Specifically, the German framework has the following differences with the Dutch framework:

» **1. A shorter track record.** Incentive-based regulation in Germany started in 2009, with only two completed regulatory periods, whereas liberalisation of electric transmission in the Netherlands started in 2001 with seven completed regulatory periods. Most other Western European jurisdictions commenced similar regulation in the late 1990s to the mid-2000s with at least three, but often four or more, completed regulatory periods.

» **2. Lower degree of transparency.** In recent years, most national regulatory authorities (NRAs) have adopted increasingly consultative approaches before taking key regulatory decisions. In contrast, the German energy regulator (*Bundesnetzagentur*, BNetzA) continues to initially consult mostly on a private level with the energy networks, although public consultation is required for major changes and amendments. However, key regulatory parameters, such as the regulated asset base or a detailed financial model, are not publicly disclosed. The Dutch regulator (the Authority of Consumer and Markets, ACM) adopts a consultative approach, with determinations largely driven by regulatory inputs in a mechanistic manner, and publishes a financial model alongside the final determination.

» **3. Sequential decision-making with delays.** Unlike most other NRAs in Western Europe, BNetzA tends to publish decisions on specific aspects in a fragmented, phased manner. For example, the decision on allowed equity returns for the upcoming period starting in 2024 was published in October 2021, while cost-efficiency parameters will likely be published only in 2023. In the Netherlands, decisions on all key aspects of the regulatory framework for the regulatory period are summarised in the Method Decisions.

Exhibit 6

Stability and predictability of regulatory regime by country

TenneT scores 'A'

Aaa	Aa	A	Baa
Great Britain[1]	Czech Republic	Belgium - Flanders	Belgium - Wallonia
Ireland (RoI & NI)[3]	Finland	Estonia	Poland
	France	**Germany**	Slovakia
	Italy	Portugal	Spain
	Netherlands[2]		
	Norway		

(1) Only onshore incumbent network operators, excludes Offshore Transmission Operators (OFTOs) (Aa). (2) Excludes N.V. Nederlandse Gasunie (A1 stable) and TenneT (A). (3) Ireland and ROI for electricity distribution and transmission only.
Source: Moody's Investors Service

On 2 September 2021, the European Court of Justice ruled that Germany failed to comply with the obligation of complete independence of the energy regulator from the government. While we expect the independence and transparency of BNetzA to increase in the future, the process and the timing of the implementation of necessary changes remain uncertain.

German operations (the current regulatory period 2019-23): Increased cash flow visibility through 2023, but tighter spending allowances on investment measure projects; declining allowed equity returns

Cash flow visibility for TenneT's German operations has increased through 2023 (which is the end of the current third regulatory period for German electricity networks) following affirmation in July 2019 of the allowed equity returns for the third regulatory period that commenced 1 January 2019 and runs through 31 December 2023. However, allowed equity returns are significantly lower than in the prior regulatory period (6.91% compared with 9.05% [both nominal, pre-tax, post-trade tax] on most of TenneT's assets[1]). This lower return will weaken cash flow-based metrics (the BNetzA, like the federal energy regulator in Belgium, only sets the allowed equity return rather than the allowed return on the whole regulated asset base, with German network companies' actual cost of debt feeding into the overall cost assessment). This lower return is principally because of cuts in the risk-free rate, reflecting the continued low interest environment since the global financial crisis and a lower market risk premium.

The regulatory framework is supportive of the large investment requirements of the German electricity TSOs, and reflects the benefits to German TSOs from allowed returns on capital invested during the construction period (for enhancement capital spending recognised under the so-called investment measures); a generic operating spending allowance for investment measures in construction; a cost-sharing mechanism for payments to offshore wind farms; and an overall liability cap for connection delay damages. These components are supportive because capital spending requirements will significantly increase, particularly in the offshore segment, from the already high levels through 2035 under the latest German network development plan, approved in January 2022.

Limited scope for outperformance

TenneT's ability to outperform regulatory cost allowances will principally be driven by whether or not its realised rate of annual cost productivity improvement is greater than regulatory assumptions. In this period, the regulator reduced the sectorwide general productivity factor for electricity (X-gen electricity) to 0.9% per year (under court appeal) from 1.5% in the previous regulatory period, a smaller decline than for gas networks, for which it was lowered to 0.49% (in the first two regulatory periods, both gas and electricity networks received the same regulator-defined productivity value).

On 10 July 2019, the regional court in Düsseldorf requested the BNetzA to re-evaluate the sectorwide general productivity for gas (X-gen gas). With regard to the sectorwide general productivity for electricity (X-gen electricity), on 16 March 2022 the Düsseldorf regional court revoked BNetzA's decision and ordered the regulator to reassess the factor, based on the court's interpretation of the law. Positively, TenneT's company-specific cost-efficiency factor is very high at 99.92% in this period, slightly higher than in the previous period (97%), making regulatory allowances slightly less demanding than in the previous period.

The BNetzA has tightened some regulatory cost allowances in this period relating to "investment measure" projects. TenneT historically achieved significant outperformance against the regulatory operating expense (opex) allowance for connecting offshore wind farms to the transmission grid during the construction phase. As actual opex and capital spending costs for offshore connections are now pass-through activity, TenneT will no longer benefit from this. The opex lump-sum allowance for new onshore investment measure applications (made since 1 January 2019) is also now 0.2% during the construction phase, while the 0.8% remains applicable after starting operations, a change from the prior 0.8% construction phase lump-sum allowance. The impact of this change is however not significant for earnings.

German operations (the next regulatory period 2024-28): Further cut in allowed equity return will weaken metrics from 2024

On 20 October 2021, the BNetzA published its decision on the return on equity for electricity and gas networks for the next regulatory period starting in 2024 for electricity and 2023 for gas. The regulator has set the allowed return on equity at 5.07% pre-tax for new assets and 3.51% pre-tax for old assets, compared with 6.91% and 5.12% (both pre-tax) in the current period, respectively. The decrease in allowed returns mostly reflects the persistently low-yield environment leading to a further reduction in the risk-free rate. In its determination, the BNetzA commented that it reserves the right to adjust the rate of return on equity, should the interest rate environment change unexpectedly in the next regulatory period.

Other parts of the regulatory determination, including the productivity factors (X-ind and X-gen), are still to be determined by the regulator and will be published at a later stage, likely next year. Some changes could mitigate the impact of the decrease in allowed return, such as the approved transitional switch from the investment measure mechanism towards a capital cost adjustment model from the next regulatory period.

Dutch operations (the current regulatory period 2022-26): Significant decrease in real return, but introduction of "real-plus" return mitigates the impact on cash flow

On 20 September 2021, the ACM published its final Method Decisions for the current period for TenneT's transport, system and offshore activities in the Netherlands. The allowed return decreased from 3.0% (real, pre-tax) in 2021 to 2.0% ("real-plus", pre-tax) for transmission and system operations in 2022 and to 2.4% ("real-plus", pre-tax) for offshore operations, also in 2022. The main changes in allowed return compared with the 2017-21 period are the following:

- the **cost of debt** (which is based on an index of interest rate for a group of utilities) and the **risk-free rate** embedded in the calculation of the cost of equity reflect the low-yield environment, both of which will be settled ex post based on actual values.
- the **gearing** assumption has been decreased to 45.25% from 50% based on peer comparison
- the **asset beta for the offshore task** has been increased by one standard deviation to reflect the higher investment needed for this task
- move to a **"real-plus" return** from a real return, where half of the forecast inflation is included in the allowed return while the regulated asset base is inflated year over year by the other half

Exhibit 7

The effect of low interest rates has been mitigated by the move to a "real-plus" return from 2022

Comparison of TenneT's allowed return in the Netherlands in regulatory periods

	2017-2021 TSO + offshore		MD 2022-26 TSO		MD Offshore
	2017	2021	2022	2026	2022-26
Risk free rate	2.27%	1.33%			
Risk premium	0.91%	0.81%			
Interest rate bond index			1.26%	0.89%	0.89%
Transaction costs	0.15%	0.15%	0.15%	0.15%	0.15%
Nominal Cost of Debt	**3.32%**	**2.29%**	**1.41%**	**1.04%**	**1.04%**
Nominal risk free rate for CoE	1.28%	1.28%	-0.01%	-0.01%	-0.01%
Market risk premium	5.05%	5.05%	5.00%	5.00%	5.00%
Asset beta	0.44	0.42	0.39	0.39	0.48
Equity beta	0.77	0.74	0.63	0.63	0.78
Nominal Cost of Equity	**5.18%**	**5.02%**	**3.15%**	**3.15%**	**3.89%**
Gearing assumption	50%	50%	45.25%	45.25%	45.25%
Tax rate	25.0%	25.0%	25.0%	25.0%	25.0%
Nominal WACC pre-tax	**5.11%**	**4.49%**	**2.9%**	**2.8%**	**3.3%**
Inflation	0.90%	1.42%			
Real WACC pre-tax	**4.2%**	**3.0%**			
Inflation			0.88%	0.88%	0.88%
"Real plus" WACC pre-tax			**2.0%**	**1.9%**	**2.4%**

MD = Method Decisions.

Sources: ACM and Moody's Investors Service

The final Method Decisions for 2022-26 also include productivity factors. The final static efficiency factor is meant to decrease from 97.28% in 2022 to 89.1% in 2026 and is challenged in court by TenneT. The frontier shift, which is a dynamic efficiency benchmarking approach, was set at 0.5% per year for 2022-26.

Continued sizeable investment programme will increase leverage

TenneT has a sizeable investment programme on the Dutch and German electricity transmission grids (both onshore and offshore), which we estimate to amount to at least €60 billion over the next 10 years, given the company's statement to spend at least €6 billion each year by 2025, up from €4 billion in 2021. This compares with net property, plant & equipment of €23.8 billion as of year-end 2021.

Investment projects include the connection of new, primarily renewable generation sources, the strengthening of existing transmission assets and the removal of bottlenecks in both transmission networks. Around two-thirds of this total programme relates to investments in Germany (onshore and offshore).

Exhibit 8
Overview of TenneT's largest planned investment projects

Country	Type	Key projects
Germany	Onshore[1]	**DC** - SuedOstLink (jointly with 50Hertz; SuedLink (jointly with TransnetBW); DC25 Heide/West - Polsum (jointly with Amprion) **AC** - Ostbayernring; Wahle - Mecklar; Conneforde - Cloppenburg - Merzen; Stade - Landesbergen; Westküstenleitung; Ostküstenleitung; Raitersaich - Altheim; Pirach - Pleinting; Oberbachern - Ottenhofen;
Germany	Offshore	More than 7 GW connected (mainly DC), expecting almost 10GW by 2025 (with addition of DolWin5, DolWin6 and BorWin5) 20GW by 2030 targeted (with other German TSOs)
Netherlands	Onshore	**380kV projects**: North West 380; South West 380 (East and West); Expansion Krimpen-Geertuidenberg; Capacity expansion Noord-Holland
Netherlands	Offshore	Hollandse Kust, 3.5GW to be connected by 2025 (5x 0.7GW wind farms) IJmuiden Ver (6GW) in 2028-2030 (3x 2GW DC wind farms)

(1) Some of the DC projects in Germany are being built by two German TSOs because the proposed lines go through the licence areas of both TSOs. For example, the costs of the SuedLink project (a 2x 2 GW HVDC North-South connection) are being shared equally between TenneT and TransnetBW (owned by Energie Baden-Wuerttemberg AG [Baa1 stable]).
Source: Moody's Investors Service

Key driver for the growing level of investments are the ambitious decarbonisation objectives of the German and Dutch governments: The Netherlands aim to lower carbon emissions by 55%, possibly even 60%, from the 1990 levels by 2030, underpinned by a raised target of 20.7 gigawatts (GW) of offshore wind installations, laid down in the North Sea Plan 2022-27. Further details of the country's updated energy policy will be incorporated in the modernised Energy Act (*Energiewet*), which TenneT expects to be implemented in the second half of 2022, subject to parliamentary debate and legal approval.

In Germany, transmission grid projects are detailed in the 2035 German network development plan through 2035 (NEP 2035), which was approved by the regulator in January 2022. Total investment through 2035 for the four German TSOs has been estimated to reach up to €79 billion during the drafting process, mostly related to connection of new renewable capacity in particular offshore wind parks.

Assuming an average annual level of €6 billion of investments by TenneT over the coming decade, funded by an average of €2.0 billion-€2.3 billion of annual retained cash flow (RCF), which incorporates the company's stated lower dividend payout ratio of 35%[2] (rather than 50%) for the remainder of this decade; and around €800 million equity contributions per year (again on average, details in the next paragraph), it is evident that TenneT's debt levels will rise substantially.

Further equity support including high profit retention will be required to maintain leverage metrics in line with the rating level

As a result of the group's rising investment needs in recent years (see Exhibit 1), TenneT's sole shareholder, the Dutch government, has supported the company's capital structure with €1.19 billion of equity contributions over 2017-19 and also provided additional hybrid capital in 2017, 2018 and 2020 with an associated net increase in hybrid equity credit of €800 million.

Equity requirements are calibrated to meet TenneT's capital management objectives, which include maintaining a senior unsecured long-term credit rating of at least A3 and leverage metrics, expressed as FFO/net debt, in the higher end of the 8.0%-8.5% range.

Regarding new equity for the Dutch TSO activities, the Dutch government and TenneT are looking into further ways to support TenneT's growing capital needs. In a letter dated 31 March 2021 from the Dutch Minister of Finance to the House of Representatives, the Minister gave an update on TenneT's increasing capital needs over the next decade, with a planned capital contribution from the Dutch state totaling €3.8 billion over 2023-26 related to investments in the Netherlands. In September 2021, the Dutch State included a total of €4.25 billion of equity contributions in the state budget for 2023-30. The final decision regarding the size and timing of the equity contribution will follow an external assessment commissioned by the Dutch state that will be completed this year.

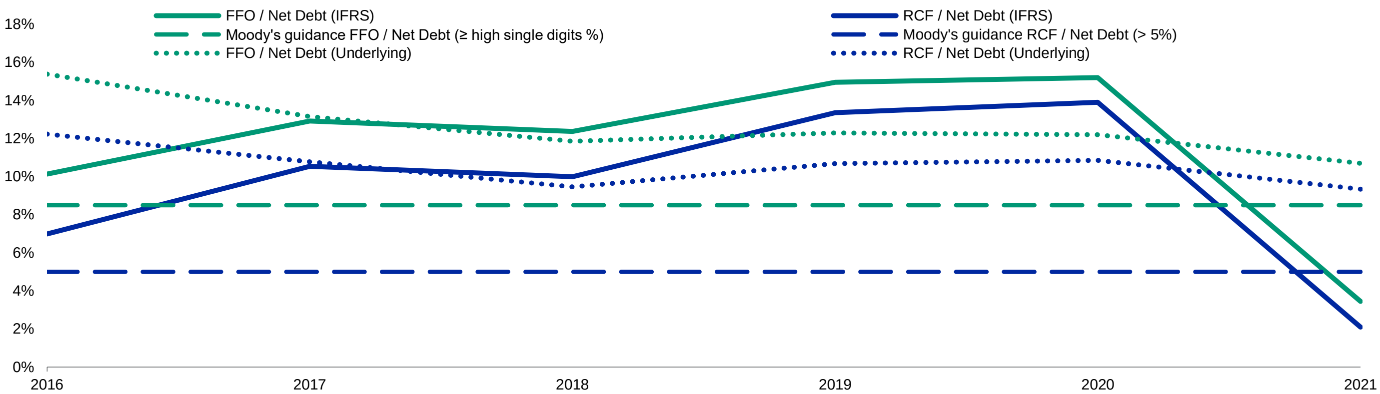
The exclusive talks held in 2020 between the Dutch and the German governments regarding the potential sale of a stake in TenneT to the German state were halted because of differing views of the two governments on the size and related governance rights of the potential stake sale. Thus, the Dutch government is yet to decide the source of support for the German share of capital needs which amount to roughly €4 billion for the next 10 years. TenneT's German business is not likely to need support until 2024.

Given the planned step-up in investment levels and the lower allowed returns in both jurisdictions, we expect TenneT to need to follow a prudent financial policy to maintain FFO/net debt at least in the high-single digits in percentage terms throughout the early 2020s. Under IFRS, we expect the ratios to display some volatility as revenue recorded under accounting standards reflect the tariff changes that are partially founded in cost overruns or underspend of prior years that are offset with a time lag of usually two to three years. Since the regulatory frameworks that are relevant for TenneT incorporate rules to include such true-ups in future tariffs, the underlying profitability of the company follows a smoother trajectory because revenue is adjusted immediately for the period, as if the true-up were to occur in real time. We regard such underlying profitability as a more appropriate expression of the company's financial profile when gauging compliance with our guidance.

Exhibit 9

IFRS metrics are more volatile than underlying credit ratios due to regulatory true-ups

Credit metrics under IFRS and underlying performance



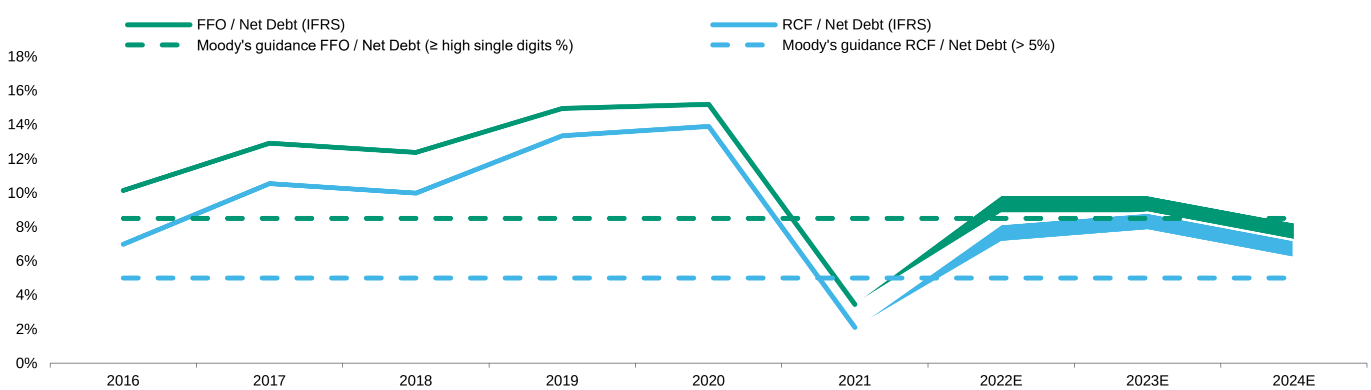
Sources: TenneT and Moody's Investors Service

We believe TenneT has limited financial capacity at the current rating level over the period to 2024 without further measures to support its financial profile.

Exhibit 10

Limited financial capacity at the current rating level through 2024

Credit metrics excluding future equity injections



Projections: Assumptions include no further measures taken to support financial profile aside from continuation of the current dividend policy.

Source: Moody's Investors Service

ESG considerations

TenneT Holding B.V.'s ESG Credit Impact score is moderately negative CIS-3

Exhibit 11
ESG Credit Impact score

CIS-3
Moderately Negative

NEGATIVE IMPACT
POSITIVE IMPACT

For an issuer scored CIS-3 (Moderately Negative), its ESG attributes are overall considered as having a limited impact on the current rating, with greater potential for future negative impact over time. The negative influence of the overall ESG attributes on the rating is more pronounced compared to an issuer scored CIS-2.

Source: Moody's Investors Service

TenneT's ESG Credit Impact score is moderately negative (**CIS-3**), indicating that its ESG attributes have a limited impact on the current rating, with greater potential for future negative impact over time. TenneT's **CIS-3** reflects moderately negative exposure to environmental and social risks, balanced by neutral-to-low governance risk.

Exhibit 12
ESG Issuer Profile scores

ENVIRONMENTAL	SOCIAL	GOVERNANCE
E-3	S-3	G-2
Moderately Negative	Moderately Negative	Neutral-to-Low

Source: Moody's Investors Service

Environmental

TenneT's environmental risk is moderately negative (**E-3** Issuer Profile score), driven by the moderately negative exposure to physical climate risk of its electricity transmission network assets because of rising sea levels, as most of its assets are above ground, and moderately negative exposure to carbon transition risk as the company faces large investment levels in the coming decade to accommodate the energy transition. This is balanced by neutral-to-low risk from water management, waste and pollution and natural capital.

Social

TenneT's exposure to social risk is moderately negative (**S-3** Issuer Profile score), reflecting its exposure to the risk that public concern over environmental, social or affordability issues could lead to adverse regulatory or political intervention, similar to other regulated electricity and gas networks operators. These risks are balanced by neutral-to-low risks to health and safety, human capital, customer relationships and responsible production.

Governance

Governance is broadly in line with other utilities and does not pose specific risks (**G-2** Issuer Profile score). As a government-owned company, we assess that the independence of TenneT's board is weak. However, this is balanced by other aspects of governance strength that are derived in part by government ownership, compliance and reporting, management credibility and track record, as well as financial policy and risk management.

ESG Issuer Profile scores and Credit Impact scores for the rated entity/transaction are available on www.moodys.com. 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.

Government support considerations

TenneT's A3 rating incorporates a two-notch uplift to its standalone credit quality, taking into account its full ownership by the Dutch government and the strategic importance to national energy policy. Evidence of government support includes the aforementioned €1.19 billion equity contribution to partly fund the group's investment programme. The Dutch government is planning further equity support of €3.8 billion over 2023-26 and a total of €4.25 billion over 2023-30, with a final decision on details to be made in 2022 following an external assessment of capital needs for TenneT's Dutch investment programme.

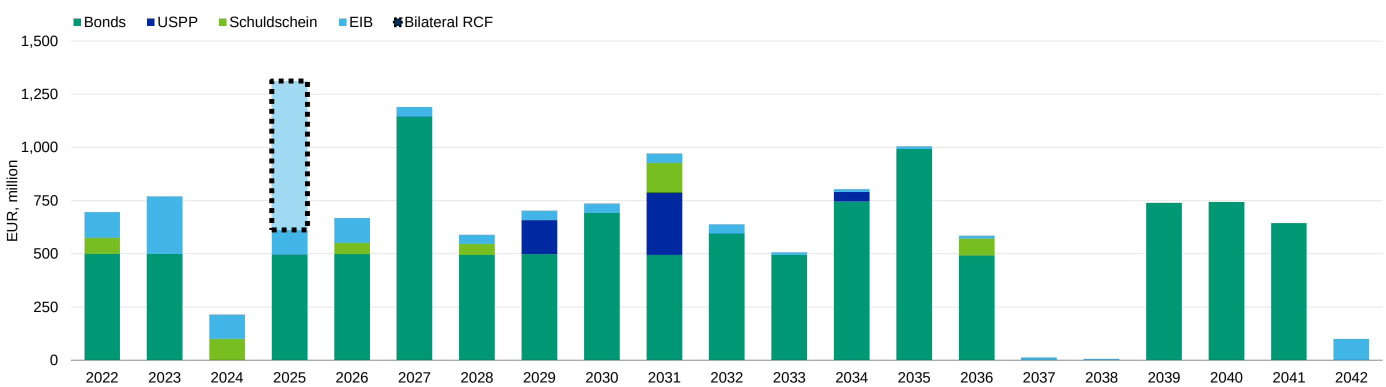
The latest committed equity contributions followed TenneT TSO B.V.'s designation as the national offshore electricity TSO in the Netherlands, which requires TenneT TSO to construct 3.5 GW of offshore wind connections (Phase 1 offshore wind). TenneT's investment programme facilitates Dutch energy policy objectives, and government support is therefore strong, given the importance of providing grid connections for new renewables connected to the transmission grid. The Dutch government's plan to phase out all coal by 2030 under the law adopted in December 2019 further accentuates grid reinforcements and expenditure for the onshore grid.

Liquidity analysis

We expect TenneT to maintain good liquidity over the next 12-18 months, supported by operating cash flow from its regulated businesses; a €3.6 billion syndicated committed revolving credit facility with €3.3 billion maturing in November 2026 and €0.3 billion maturing in November 2024; a €250 million European Investment Bank (EIB; Aaa stable) facility related to TenneT's Eemshaven - Vierverlaten onshore project, all undrawn as of 31 December 2021; and unrestricted cash and cash equivalents of €2 million as of 31 December 2021.

These sources are sufficient to cover the repayments of around €1.35 billion under bond and loan agreements that are due in 2022-23, noting that this amount includes a €500 million bond that was repaid in February; annual dividend payments (including hybrid interest and dividends to third parties) of €250 million-€300 million; and a share of planned investments.

Exhibit 13
TenneT has a well-balanced debt maturity profile
Breakdown of interest bearing debt as of 30 June 2021

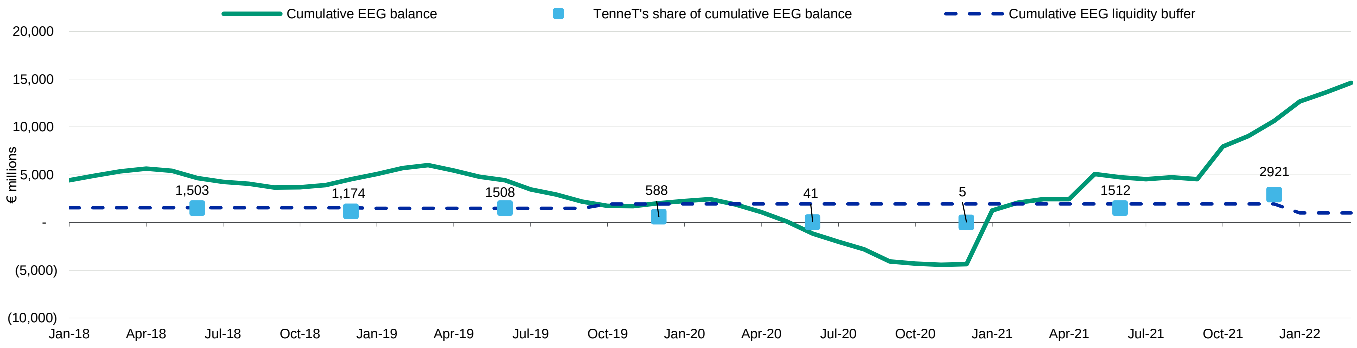


Non-call period of €1.1 billion of green hybrids ends on 1 June 2024 and that of €1 billion of green hybrids ends on 22 July 2025, both excluded from the chart. In 2025, a maturing €700 million bilateral revolving credit facility is included, which was drawn as of 31 December 2021.
Sources: TenneT and Moody's Investors Service

Cash on TenneT's balance sheet also includes funds from the sale of renewable energy, around €3.4 billion as of 31 December 2021. Under the German Renewable Act (Erneuerbare Energien Gesetz, or EEG), TenneT is required to buy renewable energy from producers at set feed-in-tariffs and sell it on the spot market. The difference is covered through a surcharge payment, determined annually in October for the forthcoming calendar year (set at €3.723 ct/kilowatt hour for 2022), which is added to the consumer tariffs.

High electricity prices in 2021 led to substantial cash inflows from the EEG sales, but the liquidity is not available for TenneT's operations. The German government in March 2022 decided to reduce the surcharge to zero from 1 July 2022 as a means to lower end-customer energy costs. Instead, the monies will come from the federal Energy and Climate Fund (Energie- und Klimafonds, EKF). From 2023, the EKF will ultimately replace the end-user surcharge.

Exhibit 14
In 2021, high electricity prices led to a high positive EEG balance for the German TSOs, while the COVID-related drop in wholesale electricity prices led to a significant shortfall in 2020



Sources: www.netztransparenz.de and TenneT

Methodology and scorecard

TenneT is rated in accordance with the Regulated Electric and Gas Networks rating methodology, published in April 2022, and the Government-Related Issuers Methodology, published in February 2020.

Exhibit 15

Rating factors

TenneT Holding B.V.

Regulated Electric and Gas Networks Industry [1][2]	Current FY 12/31/2021		Moody's 12-18 Month Forward View As of April 2022 [3]	
Factor 1 : Regulatory Environment and Asset Ownership Model (40%)	**Measure**	**Score**	**Measure**	**Score**
a) Stability and Predictability of Regulatory Regime	A	A	A	A
b) Asset Ownership Model	Aa	Aa	Aa	Aa
c) Cost and Investment Recovery (Ability and Timeliness)	A	A	A	A
d) Revenue Risk	A	A	A	A
Factor 2 : Scale and Complexity of Capital Program (10%)				
a) Scale and Complexity of Capital Program	Ba	Ba	Ba	Ba
Factor 3 : Financial Policy (10%)				
a) Financial Policy	Baa	Baa	Baa	Baa
Factor 4 : Leverage and Coverage (40%)				
a) FFO Interest Coverage (3 Year Avg)	3.4x	Baa	7.7x - 9.2x	Aaa
b) Net Debt / Fixed Assets (3 Year Avg)	64.3%	Baa	67.7% - 70.4%	Baa
c) FFO / Net Debt (3 Year Avg)	3.5%	B	8.3% - 8.8%	Ba
d) RCF / Net Debt (3 Year Avg)	2.1%	Ba	6.7% - 7.6%	Baa
Rating:				
a) Scorecard-Indicated Outcome		Baa3		Baa1
b) Actual BCA Assigned		baa2		baa2
Government-Related Issuer				**Factor**
a) Baseline Credit Assessment				baa2
b) Government Local Currency Rating				Aaa
c) Default Dependence				Moderate
d) Support				Strong
e) Final Rating Outcome				A3

(1) All ratios are based on 'Adjusted' financial data and incorporate Moody's Standard Adjustments for Non-Financial Corporations. (2) As of 12/31/2021. (3) This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures. (4) Projected financial metrics are based on underlying performance, whereas reported metrics are based on IFRS and so will be affected by volatility in volumes and auction receipts, as well as true-up adjustments for over- and under-recovery against allowed regulatory revenue.

Source: Moody's Financial Metrics™

Ratings

Exhibit 16

Category	Moody's Rating
TENNET HOLDING B.V.	
Outlook	Stable
Issuer Rating -Dom Curr	A3
Senior Unsecured -Dom Curr	A3
Jr Subordinate -Dom Curr	Baa3
Commercial Paper -Dom Curr	P-2
Other Short Term -Dom Curr	(P)P-2

Source: Moody's Investors Service

Appendix

Exhibit 17

Peer comparison

TenneT Holdings B.V.

	TenneT Holding B.V. A3 Stable			Statnett SF A2 Stable			N.V. Nederlandse Gasunie A1 Stable			Eurogrid GmbH Baa1 Stable		
(in USD million)	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-19	FYE Dec-20	LTM Jun-21	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-19	FYE Dec-20	LTM Jun-21
Revenue	4,950	5,735	6,536	1,042	1,121	1,261	1,431	1,566	1,640	12,017	12,600	12,022
EBITDA	2,247	2,714	982	636	753	743	1,006	1,037	939	653	656	705
Total Debt	12,355	17,719	17,727	5,210	5,777	6,045	4,289	4,440	3,937	3,264	4,973	4,616
Net Debt	12,127	17,135	17,725	4,961	5,535	5,622	4,238	4,418	3,894	2,857	4,610	2,473
(FFO + Interest Expense) / Interest Expense	8.4x	10.1x	3.4x	5.5x	7.7x	8.7x	9.0x	10.8x	11.1x	7.5x	8.0x	8.6x
Net Debt / Fixed Assets	57.1%	65.6%	64.3%	66.2%	67.6%	67.0%	43.1%	39.6%	37.8%	49.2%	66.6%	36.0%
FFO / Net Debt	15.0%	15.2%	3.4%	10.0%	12.8%	11.1%	20.9%	21.5%	19.7%	15.8%	11.8%	21.6%
RCF / Net Debt	13.4%	13.9%	2.1%	8.9%	10.2%	8.5%	14.9%	13.5%	12.0%	11.1%	8.6%	15.8%

All figures and ratios are calculated using Moody's estimates and standard adjustments. FYE = Financial year-end. LTM = Last 12 months. RUR* = Ratings Under review, where UPG = for upgrade and DNG = for downgrade.
Source: Moody's Financial Metrics™

Exhibit 18

Moody's-adjusted net debt breakdown TenneT Holdings B.V.

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21
As Reported Total Debt	7,742	8,720	10,096	13,012	14,173
Pensions	186	208	361	407	353
Leases	348	636	0	0	0
Hybrid Securities	509	559	558	1,063	1,063
Non-Standard Adjustments	(9)	(9)	(9)	0	0
Moody's Adjusted Total Debt	8,776	10,114	11,006	14,482	15,589
Cash & Cash Equivalents	(55)	(8)	(203)	(477)	(2)
Moody's Adjusted Net Debt	8,721	10,106	10,803	14,005	15,587

All figures and ratios are calculated using Moody's estimates and standard adjustments.
Source: Moody's Financial Metrics™

Exhibit 19

Moody's-adjusted FFO breakdown

TenneT Holdings B.V.

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21
As Reported Funds from Operations (FFO)	1,254	1,327	1,929	2,136	661
Leases	76	133	0	0	0
Capitalized Interest	(8)	(8)	(9)	0	0
Hybrid Securities	(19)	(15)	(17)	(20)	(29)
Alignment FFO	(36)	(50)	(165)	201	76
Cash Flow Presentation	0	0	0	(189)	(171)
Non-Standard Adjustments	(141)	(136)	(123)	0	0
Moody's Adjusted Funds from Operations (FFO)	1,126	1,251	1,616	2,129	538

(1) All figures and ratios are calculated using Moody's estimates and standard adjustments. (2) Non-standard adjustments pertain to share in profit of joint venture and associates. (3) Cash flow presentation became an individual adjustment starting 2020 and has been historically accounted for under Non-standard adjustments in 2017-2019.
Source: Moody's Financial Metrics™

Exhibit 20

Select historical adjusted financials

TenneT Holdings B.V.

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21
INCOME STATEMENT					
Revenue	3,976	4,269	4,422	5,025	5,524
EBITDA	1,530	1,675	2,007	2,378	830
EBITDA margin %	38.5%	39.2%	45.4%	47.3%	15.0%
EBIT	825	842	1,034	1,304	(335)
EBIT margin %	20.8%	19.7%	23.4%	26.0%	-6.1%
Interest Expense	201	217	218	233	229
Net income	445	420	546	764	(386)
BALANCE SHEET					
Total Debt	8,776	10,114	11,006	14,482	15,589
Cash & Cash Equivalents	55	8	203	477	2
Net Debt	8,721	10,106	10,803	14,005	15,587
Net Property Plant and Equipment	14,870	16,677	18,924	21,353	24,231
Total Assets	19,577	21,304	22,964	26,795	31,187
CASH FLOW					
Funds from Operations (FFO)	1,126	1,251	1,616	2,129	538
Cash Flow From Operations (CFO)	1,503	1,362	1,146	(305)	4,676
Dividends	208	241	173	182	211
Retained Cash Flow (RCF)	919	1,010	1,443	1,947	327
Capital Expenditures	(1,838)	(2,457)	(2,849)	(3,582)	(3,008)
Free Cash Flow (FCF)	(542)	(1,336)	(1,876)	(4,068)	1,457
INTEREST COVERAGE					
(FFO + Interest Expense) / Interest Expense	6.6x	6.8x	8.4x	10.1x	3.4x
LEVERAGE					
FFO / Net Debt	12.9%	12.4%	15.0%	15.2%	3.4%
RCF / Net Debt	10.5%	10.0%	13.4%	13.9%	2.1%
FCF / Net Debt	-6.2%	-13.2%	-17.4%	-29.0%	9.3%
Debt / EBITDA	5.7x	6.0x	5.5x	6.1x	18.8x
Net Debt / EBITDA	5.7x	6.0x	5.4x	5.9x	18.8x
Net Debt / Fixed Assets	58.6%	60.6%	57.1%	65.6%	64.3%

(1) IFRS-based credit metrics reflects volatility in volumes and auction receipts, as well as true-up adjustments for over- and under-recovery against allowed regulatory revenue. (2) All metrics are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations

Source: Moody's Financial Metrics™

Endnotes

1 This rate applies on post 2006 assets and was affirmed on 9 July 2019 following appeal.

2 Of underlying profit (less dividend paid to non-controlling interest and dividend on the existing hybrid).

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MOODY'S INVESTORS SERVICE