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CREDIT OPINION
8 November 2021

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.

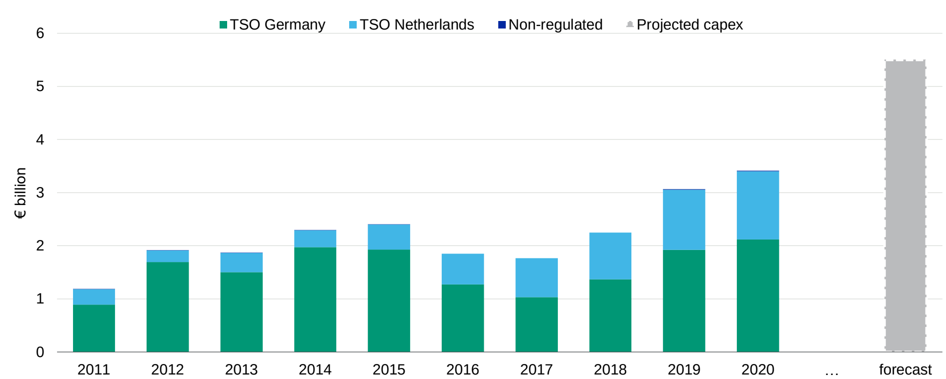
Update following rating affirmation

Summary

The credit quality of TenneT Holding B.V. (TenneT, A3 stable) is underpinned by (1) the company's monopoly position as the licenced provider of electricity transmission services in the Netherlands and its service area in Germany; (2) the relatively stable and predictable cash flow the company generates under well-defined and stable regulatory frameworks in each country; (3) supportive and high credit quality ownership by the Government of the Netherlands (Aaa/P-1, stable); and (4) timely cost recovery for large investment projects under the German and Dutch regulatory frameworks.

TenneT's credit profile is constrained by (1) its mounting investment programme, growing to €5 billion-€6 billion annually in the coming years from €3.4 billion in 2020, which will weaken key credit metrics; (2) lower allowed returns under the current regulatory period; and (3) a further decrease in returns for the next regulatory periods starting in January 2022 in the Netherlands and in January 2024 in Germany. TenneT's capital objective of maintaining an A3 rating should mitigate these challenges despite key credit metrics likely to remain under pressure through the early 2020s and closer to the tighter end of our guidance range for the rating.

Exhibit 1
TenneT's annual capital spending is expected to reach €5-6 billion annually in the coming years



Projected capex corresponds to the midpoint of TenneT's guidance of capex growing to €5-€6 billion in the coming years.
Source: 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 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 TenneT's standalone credit quality

» Experienced management and successful execution of complex on- and offshore transmission projects

Credit challenges

» Lower allowed returns in current regulatory periods, and limited scope for outperformance on certain cost allowances in Germany

» Substantial investment programme continues to grow, depressing key credit metrics

» Further reduction in allowed returns in the Netherlands and in Germany at the start of the next regulatory periods in 2022 and 2024, respectively

Rating outlook

The stable 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, under the assumption 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 is 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 expenditure or failure to secure equity funding for capital expenditure in Germany from 2024.

Key indicators

TenneT Holding B.V.

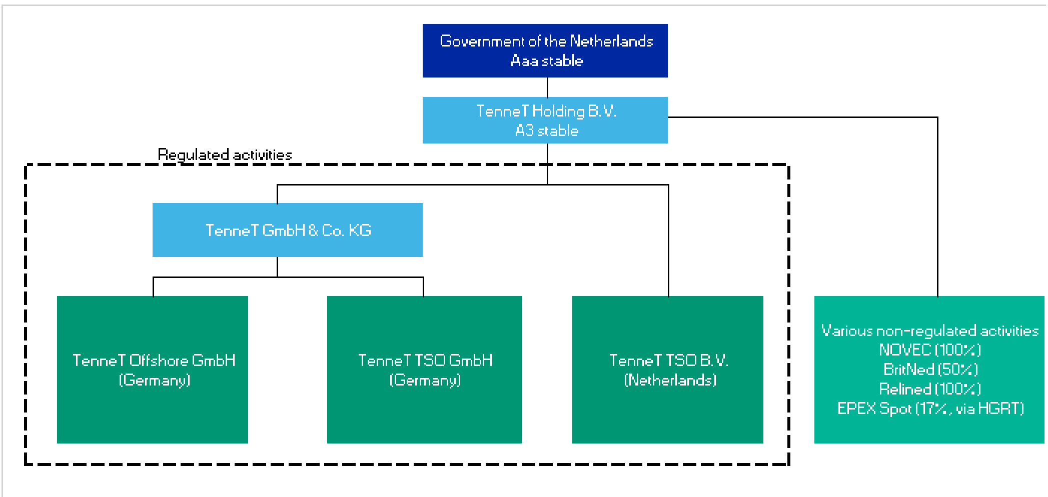
	31/12/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020
FFO Interest Coverage	5.5x	6.6x	6.8x	8.4x	10.1x
Net Debt / Fixed Assets	58.9%	58.6%	60.6%	57.1%	65.6%
FFO / Net Debt	10.1%	12.9%	12.4%	15.0%	15.2%
RCF / Net Debt	7.0%	10.5%	10.0%	13.4%	13.9%

Note: Financial metrics in 2020 have been negatively impacted in 2020 by TenneT's temporary funding of negative EEG balances through a total of €2 billion liquidity facilities of which €1.5 billion were drawn at 31 December 2020. Excluding this EEG-related debt, metrics for 2020 would have been as follows: Net debt / fixed assets of 58.4%, FFO / net debt of 17.1% and RCF / net debt of 15.6%. The full amount of EEG-related debt was repaid in January 2021.
All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Net debt calcualtions 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).
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 later 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 24,000 kilometres (km), TenneT's network area covers over 42 million end-users in the Netherlands and Germany.

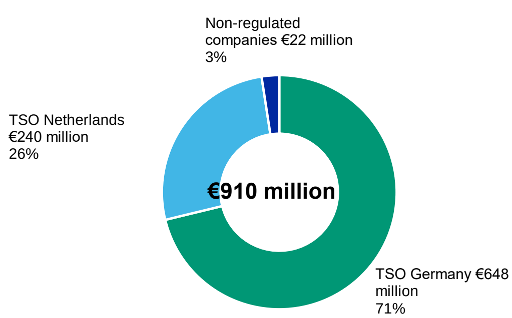
Exhibit 3
Simplified organisational structure as of 31 December 2020



Source: TenneT

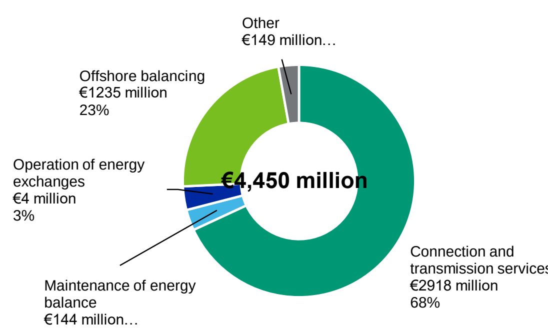
More than 95% of TenneT's revenue and operating income stem from regulated network activities in the Netherlands and Germany. The remaining activities, including participations in the North West European energy exchange (EPEX Spot) and the merchant cable operator BritNed, are strongly associated with the core business.

Exhibit 4
Split of underlying operating profit by business segment



Source: TenneT and Moody's Investors Service

Exhibit 5
Split of 2020 underlying revenue by business segment



Source: 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 one of the largest of the four TSOs. Around 70% of TenneT's operating profit, or EBIT, is derived from its German network activities, a trend that will continue as we expect around the same share of TenneT's investments for the 10-year period through 2029 will 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 vis-à-vis the Dutch regulatory framework. Specifically, the German framework reflects the following differences compared 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 six 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, the BNetzA tends to publish decisions on specific aspects in a fragmented, phased manner. For example, the decision on allowed equity returns was published in summer 2016, while cost-efficiency parameters were published in late 2018. 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)	Finland	Estonia	Poland
	France	**Germany**	Slovakia
	Italy	Portugal	Spain
	Netherlands[2]		
	Norway[3]		

(1) Only onshore incumbent network operators, excludes OFTOs (Aa); (2) Excludes N.V. Nederlandse Gasunie and TenneT (A).
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 the BNetzA to increase in the future, uncertainties remain on the process and timing of implementation of changes.

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

TenneT has increased cash flow visibility for its German operations 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 compared to 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 (1) the risk-free rate, reflecting the continued low interest environment since the global financial crisis; and (2) a lower market risk premium.

The regulatory framework is supportive of the large investment requirements of the Germany electricity TSOs and reflects the benefits to German TSOs from (1) allowed returns on capital invested during the construction period (for enhancement capital spending recognised under the so-called investment measures); (2) a generic operating spending allowance for investment measures in construction; (3) a cost-sharing mechanism for payments to offshore wind farms; and (4) an overall liability cap for connection delay damages. These components are supportive given that capital spending requirements will significantly increase, particularly in the offshore segment, from the already high levels through 2030 under the latest German network development plan, approved in December 2019 (discussed in detail below).

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 sector-wide general productivity factor for electricity (X-gen electricity) to 0.9% per annum (under court appeal) from 1.5% in the previous regulatory period, a smaller decline than for gas networks, where it was lowered to 0.49% (in the first two regulatory periods, both gas and electricity received the same regulatory defined productivity value).

On 10 July 2019, the regional court in Düsseldorf requested the BNetzA to re-evaluate the sector-wide general productivity for gas (X-gen gas). There is yet to be a hearing set to re-evaluate the sector-wide general productivity for electricity (X-gen electricity). 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 opex allowance for connecting offshore wind farms to the transmission grid during the construction phase. As actual opex and capex 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 - 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 final allowed return on equity is higher than the draft return on equity that had been consulted on in July 2021 of 4.59% (pre-tax, minimum) for new assets and 3.03% (pre-tax, minimum) for old assets as the regulator has introduced a 0.395% surcharge to the calculation of the risk premium corresponding to duration and liquidity premium. The decrease in allowed returns mostly reflects the persistently low yield environment leading to further reduction in the risk-free rate. In its determination, the BNetzA has 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. Some changes could partly 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 - current regulatory period 2017-21: amended regulatory determinations modestly credit positive

TenneT has good cash flow visibility for its Dutch operations until the end of 2021 when the current regulatory period ends. The Method Decisions, the regulator's final determination, for the period 2017-21 were published in July 2018 and originally included a gradual reduction in the allowed return (weighted average cost of capital, WACC), to 3% (real, pre-tax). Following successful appeals by network operators, new Method Decisions were published in January 2019, with the average WACC unchanged over the period but starting and finishing 20 basis points (bps) higher and lower, respectively. The Dutch network operators appealed the decision to lower the 2021 WACC and the appeal body College van Beroep voor het bedrijfsleven (CBb), ruled in December that the 2021 WACC in the original Method Decision should apply, while the amended 2016 WACC of 4.5% real, pre-tax for non expansion investments remained.

Concurrently, the court also ruled that preventive maintenance costs (in addition to corrective maintenance) for TenneT's offshore operations should be a pass through.

Under the regulatory framework, TenneT is able to recover investment costs for all offshore projects and certain onshore national coordination projects during construction. Timely recovery of these investments is supportive to TenneT's credit given the group's significant and growing offshore capital spending programme. While allowed returns are significantly lower than those of other European TSOs whose operations are also governed by a real framework, reducing operating cash flow, this is partially offset by the group's low average cost of debt (estimated around 1.8% as of year-end 2020, excluding EEG-related debt) which is below the regulator's assumption, which falls from 3.58% to 2.29% over the period for existing assets[2]) for the duration of the current regulatory period.

The amended Method Decisions reduce the risk of underperformance against certain other cost allowances, in particular (1) procurement costs for energy and ancillary services that we had expected to increase over time but where the allowance was held fixed over the period (the bonus malus system that existed in the prior regulatory period was reinstated); and (2) the operating spending allowance of 1% of the investment value of the offshore grid. TenneT sought and received full recovery of preventive and corrective maintenance costs pursuant to the CBb ruling on 28 November 2019[3].

Dutch operations: Method Decisions for 2022-26 include a significant decrease in real return, introduce "real-plus" return which partially mitigates the impact on cash flow

On 20 September 2021, the ACM has published its final Method Decisions for the period 2022-26 for TenneT's transport, system and offshore activities in the Netherlands. The allowed return will decrease from 3.0% (real, pre-tax) in 2021 to 2.0% ("real-plus", pre-tax) for transmission and system operations and to 2.4% ("real-plus", pre-tax) for offshore operations. The main changes in allowed return compared to 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
- 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 in inflated year on year by the other half

Exhibit 7

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

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

	2017-2021 TSO + offshore		Draft MD 2022-26		Draft MD offshore	Final MD 2022-26 TSO		Final MD offshore
	2017	2021	2022	2026	2022-26	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%	1.26%	0.89%	0.89%
transaction costs	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
Nominal Cost of Debt	**3.32%**	**2.29%**	**1.41%**	**1.04%**	**1.04%**	**1.41%**	**1.04%**	**1.04%**
nominal risk free rate for CoE	1.28%	1.28%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%
market risk premium	5.05%	5.05%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
asset beta	0.44	0.42	0.39	0.39	0.48	0.39	0.39	0.48
equity beta	0.77	0.74	0.63	0.63	0.78	0.63	0.63	0.78
Nominal Cost of Equity	**5.18%**	**5.02%**	**3.15%**	**3.15%**	**3.89%**	**3.15%**	**3.15%**	**3.89%**
gearing assumption	50%	50%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%
tax rate	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Nominal WACC pre-tax	**5.11%**	**4.49%**	**2.9%**	**2.8%**	**3.3%**	**2.9%**	**2.8%**	**3.3%**
inflation	0.90%	1.42%	1.80%	1.80%	1.80%			
Real WACC pre-tax	**4.2%**	**3.0%**	**1.1%**	**1.0%**	**1.5%**			
inflation						0.88%	0.88%	0.88%
"Real plus" WACC pre-tax						**2.0%**	**1.9%**	**2.4%**

MD=Method Decisions

Source: ACM, Moody's investors Service

The final Method Decisions for 2022-26 also include productivity factors that are less demanding than in the draft with a final static efficiency factor decreasing from 97.28% in 2022 to 89.1% in 2026. The frontier shift of 0.5% p.a. is the same in the draft and final Method Decisions 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 at around €50-€60 billion over the next 10 years, necessitating a jump in annual spend in the coming years to €5-€6 billion annually from €3.4 billion in 2020. Moody's relies partly on estimates of programme costs from the Network Development Plan 2030 (2019) and based on inputs from the German TSOs. Much of the rising cost is aimed at connecting new, primarily renewable generation sources, strengthening existing transmission assets and removing bottlenecks on both transmission networks.

TenneT's planned capital spending over the next 10 years has more than tripled in the last seven years, from around €16 billion in 2014 to our estimate of €50-60 billion for the next 10 years (as of 2021).[4] This compares with net PP&E of €20.9 billion as of year-end 2020. Around two-thirds of this total programme relates to investments in Germany (onshore and offshore).

Exhibit 8
Summary 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; DC 21b Wilhelmshaven2-Uentrop (jointly with Amprion) **AC** - Ostbayernring; Wahle - Mecklar; Conneforde - Cloppenburg - Merzen; Stade - Landesbergen; Westküstenleitung; Ostküstenleitung; Raitersaich - Altheim; Wahle - Wolmirstadt; Mecklar - Grafenrheinfeld; Conneforde - Soltrum; Dollern - Ovenstadt
Germany	Offshore	More than 7 GW connected (mainly DC), expecting almost 10GW by 2025 (with addition of DolWin5, DolWin6 , BorWin5) and additional 0.9GW by 2027 (BorWin6) 20GW by 2030 and 40GW by 2040 targeted (with other German TSOs)
Netherlands	Onshore	**380kV projects**: North West 380; South West 380 (East and West); Expansion Diemen - Lelystad - Ens; Capacity expansion Noord-Holland
Netherlands	Offshore	3.5GW to be connected by 2023 (5x 0.7GW wind farms) Additional 6.1GW in 2024-2030 (3x 0.7GW HVAC projects; 2x 2GW HVDC projects)
	Interconnectors[2]	COBRAcable, operative since September 2019 (Netherlands - Denmark) NordLink, completion expected in 2021 (Germany - Norway)

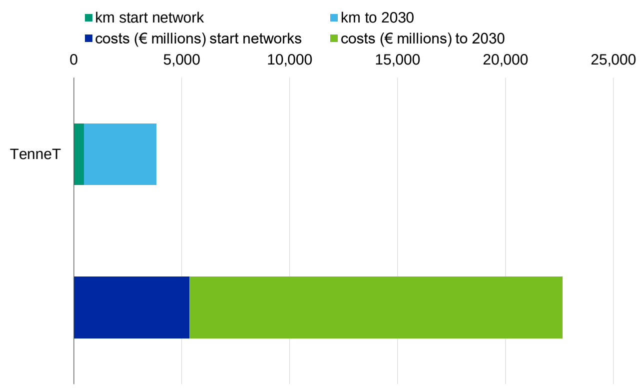
(1) Some of the DC projects in Germany are being built by two German TSOs given the proposed lines go through the licence areas of both TSOs. For example, the costs of the SuedLink project (a 2x 2 GW HVDC North-South connection) are being shared equally between TenneT and TransnetBW (owned by Energie Baden-Wuerttemberg AG [A3 negative]). (2) Interconnectors not connecting Germany and the Netherlands.
Source: Moody's Investors Service

Implementing ambitious energy policy objectives in Germany and the Netherlands will drive high investment levels throughout the early and mid-2020s

As a result of the time associated with obtaining the relevant permissions for onshore projects in Germany and the ambitious decarbonisation objectives of the German and Dutch governments, we expect TenneT's investment levels to remain sizeable throughout the 2020s, as reflected in the capital spending guidance provided by the company and the 2030 German network development plan (NEP 2030), finalised in December 2019.

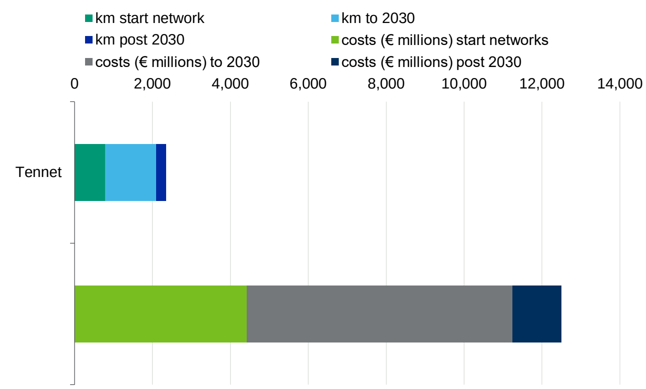
An updated German NEP through 2035 (NEP 2035) will be published in 2021, the second draft of which was published in April 2021 and includes a significant increase in grid investment estimated to reach up to €79 billion of total investment through 2035 for the four German TSOs, mostly related to connection of new renewable capacity in particular offshore wind parks.

Exhibit 9
TenneT Onshore
NEP 2030



Note: includes start networks; excludes existing maintenance capex
Source: Network Development Plan 2030 (2019); Moody's Investors Service estimates

Exhibit 10
TenneT Offshore
NEP 2030



Note: includes start networks; excludes existing maintenance capex
Source: Network Development Plan 2030 (2019); Moody's Investors Service estimates

In the Netherlands, the merging of the Dutch Electricity Act (E-Act, 1998) and the Gas Act into a modernised Energy Act (*Energiewet*) will incorporate directives from the existing Climate Agreement[5] (*Klimaatakkoord*) and the Third Energy Package, among others, with initial public consultations held in the first half of 2020. TenneT expects implementation in the second half of 2022, although subject to parliamentary debate and legal approval. The *Energiewet,* in addition to existing policy measures, will drive investments of around €1.2 billion for 2020 to nearly €1.8 billion by 2024, or a c.13% year-on-year increase, before they taper off.

Most of these investments relate to building 3.5 GW of offshore wind farms in the Dutch sector of the North Sea through 2023. A further 6.1 GW in offshore wind energy capacity will be built between 2024 and 2030. The build-out will facilitate the Dutch government's policy objective of at least a 49% reduction in CO_2 levels from the 1990 levels, which includes phasing out all coal-fired power plants by 2030. These investments and their timing will depress TenneT's key financial metrics, particularly as the next regulatory period will start as these costly investments take shape, and the allowed returns across jurisdictions on a real-return basis are forecast to decline.

Track record of equity support; continued prudent financial policy required to manage demands of further capital spending increase

In recent years, TenneT has taken a series of measures to strengthen its capital structure given the further increase in planned investments. Furthermore, TenneT has defined capital management objectives, which include maintaining a senior unsecured long-term credit rating of at least A3.

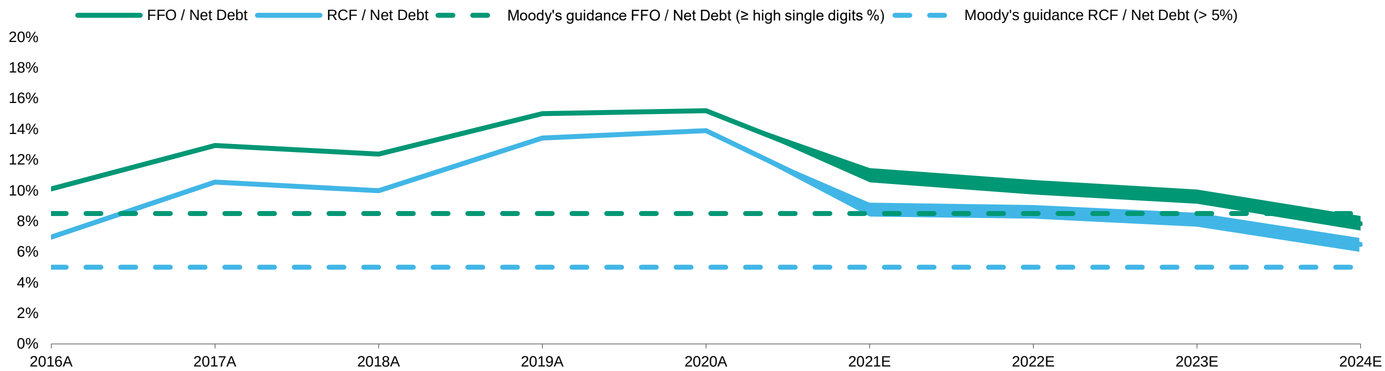
The €1.19 billion committed equity contribution from the Dutch government over 2017-19 clearly demonstrated support for TenneT's investment programme in the Netherlands. The upsizing of TenneT's hybrid capital in 2017, 2018 and 2020 with an associated net increase in hybrid equity credit of €800 million and the continued lower dividend payout ratio of 35%[6] (rather than 50%) for the remainder of this decade, also strengthens TenneT's position in the face of rising investment needs.

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 2023-2026 related to investments in the Netherlands. In September 2021, the Dutch State has included a total of €4.25 billion of equity contributions in the state budget for the period 2023-2030. The final decision regarding the size and timing of the equity contribution will follow an external assessment commissioned by the Dutch state to be completed in 2022.

The exclusive talks held in 2020 between the Dutch and the German governments regarding a potential sale of a stake in TenneT to the German state have been halted due to differing views between the two governments on the size and related governance rights of the potential stake sale. The source of support for the German share of capital needs totaling c.€3.65 billion for the next 10 years is yet to be decided by the Dutch government. Support for TenneT's German business is not expected to be needed until 2024.

Given the planned step-up in investment levels and the lower allowed returns in both jurisdictions, we expect TenneT to need to maintain a prudent financial policy to maintain FFO/net debt at least in the high single digits in percentage terms throughout the early 2020s. We believe TenneT has limited financial headroom at the current rating level over the period to 2023 (and the end of the current regulatory period in Germany) without further measures to support its financial profile.

Exhibit 11
Limited financial headroom at the current rating level until 2023
Credit metrics excluding future equity injections



Historical: (1) TenneT's historical IFRS-based metrics reflect volatility in volumes and auction receipts as well as true-up adjustments for over- and under-recovery against allowed regulatory revenue. When these are stripped out, the underlying performance is less volatile, with reported FFO/net debt between 13.7% and 14.8% over the 2017-19 period.
Projections: Assumptions include no further measures taken to support financial profile aside from continuation of the current dividend policy.
Source: Moody's Investors Service

Strong support by TenneT's owner, the Dutch government, results in a two-notch uplift to its standalone credit quality

TenneT's A3 rating incorporates a two-notch uplift to its standalone credit quality, taking into account its ownership by the Dutch government and the strategic importance to national energy policy. Government support was most recently illustrated by the aforementioned €1.19 billion committed equity contribution from the Dutch government, in support of the group's investment programme. TenneT received the final instalment of €410 million in December 2019. The Dutch government is considering further equity support of €3.8 billion over the period 2023-2026 and a total of €4.25 billion over 2022-2030, with a final decision 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 3.5GW 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.

ESG Considerations

Environmental considerations incorporated into our credit analysis for TenneT acknowledge the company's lack of exposure to generation and therefore low carbon transition risk. As a facilitator of energy transition in the Netherlands and Germany, TenneT's transmission investments continue to grow significantly year over year to deliver on the countries' decarbonisation efforts. Given the declining allowed equity returns in the wake of these investment requirements, TenneT faces increased pressure on financial metrics and thus indirect environmental risks. However the company is exposed to environmental risks as they relate to the integrity of its electric cables and insulation by use of sulphur hexafluoride, or SF6, a highly potent greenhouse gas that is thousand times more pollutive than carbon dioxide.

Social risks are primarily related to the company's construction activities, particularly onshore, above and below ground cable activities and their societal impact on neighborhoods and scenic landscapes. TenneT's ability to construct transmission assets depends on regulatory approvals that assess potential environmental and social issues. From a governance perspective, financial policies that result in a strong financial position are important for managing the company's business, environmental and social risks.

Liquidity analysis

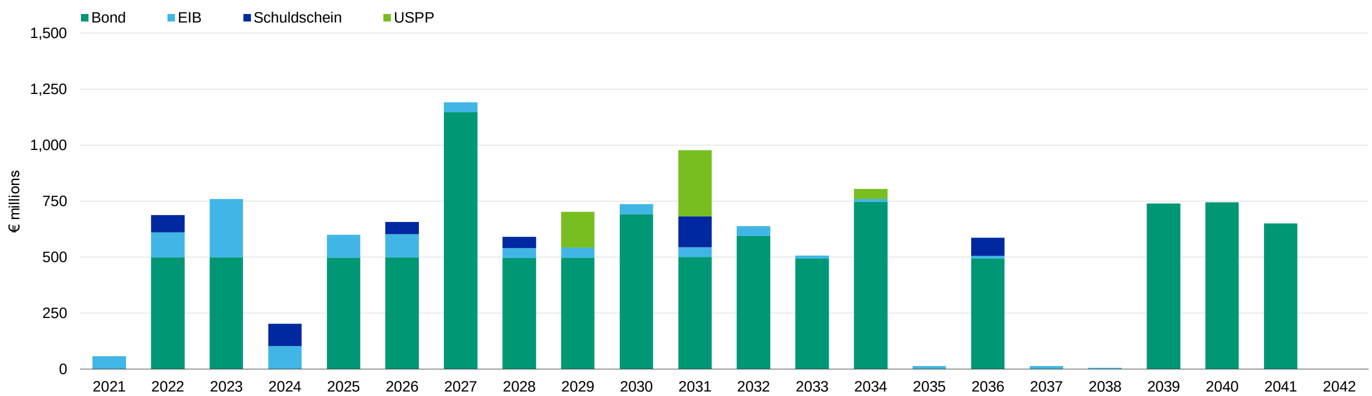
We expect TenneT to maintain good liquidity over the next 12 months, supported by (1) operating cash flow from its regulated businesses; (2) a €3.3 billion committed revolving credit facility with €3.0 billion maturing in November 2026 and €0.3 billion maturing in November 2024, both undrawn at 30 June 2021; (3) a €250 million EIB facility related to TenneT's SouthWest 380kV project undrawn as of 30 June 2021; and (4) unrestricted cash and cash equivalents of €2 million as of 30 June 2021. TenneT signed an additional €250 million EIB facility in September 2021 (undrawn in November 2021).

These will be sufficient to cover the €660 million of bond and loan maturities in the following 12 months, dividend payments (including hybrid interest and dividends to third parties) of €250-300 million and planned investments.

Exhibit 12

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

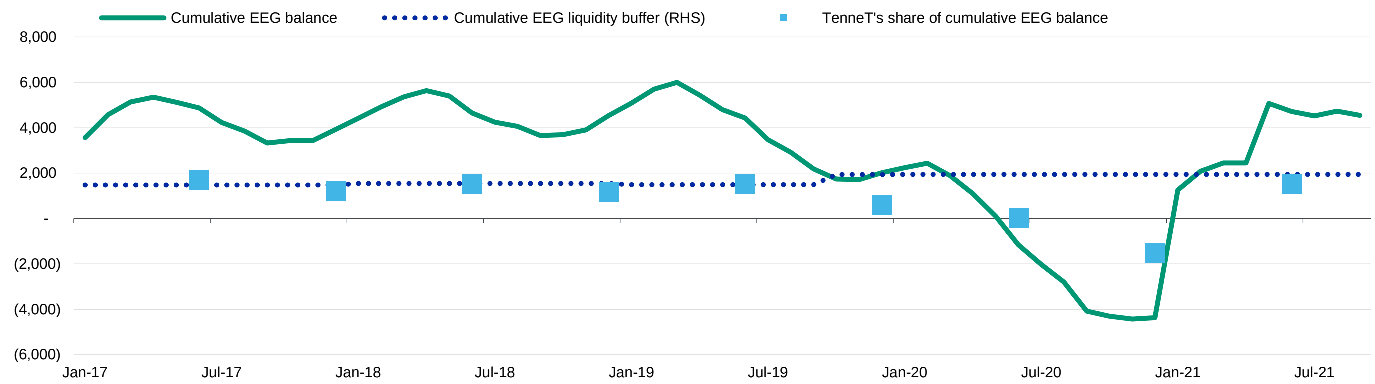
Source: TenneT and Moody's Investors Service

Under the German Renewable Act (Erneurbare Energien Gesetz, or EEG), TenneT is also required to buy renewable energy at set feed-in-tariffs and sell it on the spot market. The difference is covered through a surcharge payment, determined annuallyIn October for the forthcoming calendar year. (set at 6.5 €ct/kWh for 2021), which is added to the consumer tariffs.

Given the impact of the coronavirus outbreak in 2020 which led to significant unforeseen variations in renewable energy volumes and wholesale electricity prices, German TSOs including TenneT have accumulated significant EEG receivables on their balance sheet. TenneT had to raise an additional €1.5 billion of committed financing and €0.5 billion of uncommitted financing in 2020 to cover the EEG surcharge costs. The German government will finance the EEG in 2021 as a result of the Climate Programme 2030 (*Klimaschutzprogramm 2030*) for a total of €10.8 billion to be shared between the four German TSOs, with TenneT receiving 32% of the total in 3 installments (€1.63 billion in January 2021, €960 million in May 2021 and €864 million in October 2021). TenneT had €1.5 billion outstanding on EEG-related loans at 31 December 2020 to fund the EEG negative balance at the end of 2020. The full amount on these EEG-related loans was repaid in January 2021 following the reception of the first payment from the German government.

Exhibit 13

Unforeseen variations in renewables energy volumes and wholesale electricity prices have led to negative EEG balance for the German TSOs in 2020



Source: www.netztransparenz.de and TenneT

Methodology and scorecard

TenneT is rated in accordance with the Regulated Electric and Gas Networks rating methodology, published in March 2017, and the Government-Related Issuers (GRIs) rating methodology, published in February 2020.

Exhibit 14

Rating factors

TenneT Holding B.V.

Regulated Electric and Gas Networks Industry Grid [1][2]	Current FY 12/31/2020		Moody's 12-18 Month Forward View As of November 2021 [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)	8.5x	Aaa	8x -9x	Aaa
b) Net Debt / Fixed Assets (3 Year Avg)	61.3%	Baa	63 % - 68%	Baa
c) FFO / Net Debt (3 Year Avg)	14.3%	Baa	9% - 12%	Ba
d) RCF / Net Debt (3 Year Avg)	12.6%	Baa	8% - 11%	Baa
Rating:				
a) Scorecard-indicated Outcome		Baa1		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 12/31/2020. (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 impacted 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 15

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 16

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-18	FYE Dec-19	FYE Dec-20	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-18	FYE Dec-19	FYE Dec-20
Revenue	5,041	4,950	5,735	1,064	1,042	1,121	1,477	1,431	1,566	12,177	12,017	12,600
EBITDA	1,978	2,247	2,714	654	636	753	918	1,006	1,037	778	653	656
Total Debt	11,561	12,355	17,718	4,903	5,210	5,777	4,391	4,289	4,440	3,288	3,264	4,973
Net Debt	11,552	12,127	17,134	4,502	4,961	5,494	4,360	4,238	4,418	1,484	2,374	4,610
(FFO + Interest Expense) / Interest Expense	6.8x	8.4x	10.1x	6.5x	5.5x	7.7x	8.7x	9.0x	10.8x	6.0x	7.5x	8.0x
Net Debt / Fixed Assets	60.6%	57.1%	65.6%	66.6%	66.2%	67.1%	44.0%	43.1%	39.6%	26.9%	40.9%	66.6%
FFO / Net Debt	12.4%	15.0%	15.2%	11.3%	10.0%	12.9%	16.8%	20.9%	21.5%	24.0%	19.0%	11.8%
RCF / Net Debt	10.0%	13.4%	13.9%	10.5%	8.9%	10.2%	10.0%	14.9%	13.5%	15.7%	13.4%	8.6%

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 17

Adjusted net debt breakdown TenneT Holdings B.V.

(in EUR million)	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20
As Reported Total Debt	7,504.0	7,742.0	8,720.0	10,096.0	13,012.0
Pensions	179.0	186.0	208.0	361.0	407.0
Leases	150.0	348.0	636.0	0.0	0.0
Hybrid Securities	259.5	508.5	558.5	558.5	1,061.5
Non-Standard Public Adjustments	(10.0)	(9.0)	(9.0)	(9.0)	0.0
Moody's Adjusted Total Debt	8,082.5	8,775.5	10,113.5	11,006.5	14,480.5
Cash & Cash Equivalents	(157.0)	(55.0)	(8.0)	(203.0)	(477.0)
Moody's Adjusted Net Debt	7,925.5	8,720.5	10,105.5	10,803.5	14,003.5

(1) All figures and ratios are calculated using Moody's estimates and standard adjustments; (2) The operating lease adjustment significantly increased from 2017 because operational lease commitments for German power plants previously recorded under grid related commitments were reclassified to operational lease commitments.
Source: Moody's Financial Metrics™

Exhibit 18

Adjusted FFO breakdown

TenneT Holdings B.V.

(in EUR million)	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20
As Reported Funds from Operations (FFO)	872.0	1,254.0	1,327.0	1,929.0	2,136.0
Leases	9.6	75.6	132.7	0.0	0.0
Capitalized Interest	(10.0)	(8.0)	(8.0)	(9.0)	0.0
Hybrid Securities	(16.5)	(18.5)	(15.0)	(16.5)	(19.5)
Alignment FFO	55.0	(36.0)	(50.0)	(165.0)	201.0
Unusual Items - Cash Flow	2.0	0.0	0.0	0.0	0.0
Non-Standard Public Adjustments	(109.0)	(141.0)	(136.0)	(123.0)	(189.0)
Moody's Adjusted Funds from Operations (FFO)	803.1	1,126.1	1,250.7	1,615.5	2,128.5

(1) All figures and ratios are calculated using Moody's estimates and standard adjustments; (2) The operating lease adjustment significantly increased from 2017 because operational lease commitments for German power plants previously recorded under grid related commitments were reclassified to operational lease commitments; (3) Non-standard adjustments pertain to share in profit of joint venture and associates.
Source: Moody's Financial Metrics™

Exhibit 19

Select historical adjusted financials

TenneT Holdings B.V.

(in EUR million)	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20
INCOME STATEMENT					
Revenue	2,843	3,976	4,269	4,422	5,025
EBITDA	959	1,530	1,675	2,007	2,378
EBITDA margin %	33.7%	38.5%	39.2%	45.4%	47.3%
EBIT	353	825	842	1,034	1,304
EBIT margin %	12.4%	20.8%	19.7%	23.4%	26.0%
Interest Expense	180	201	217	218	233
Net income	141	445	420	546	764
BALANCE SHEET					
Total Debt	8,083	8,776	10,114	11,006	14,480
Cash & Cash Equivalents	157	55	8	203	477
Net Debt	7,926	8,721	10,106	10,803	14,003
Net Property Plant and Equipment	13,461	14,870	16,677	18,924	21,353
Total Assets	17,789	19,577	21,304	22,964	26,795
CASH FLOW					
Funds from Operations (FFO)	803	1,126	1,251	1,616	2,129
Cash Flow From Operations (CFO)	425	1,503	1,362	1,146	(305)
Dividends	250	208	241	173	182
Retained Cash Flow (RCF)	554	919	1,010	1,443	1,947
Capital Expenditures	(1,806)	(1,838)	(2,457)	(2,849)	(3,582)
Free Cash Flow (FCF)	(1,630)	(542)	(1,336)	(1,876)	(4,068)
INTEREST COVERAGE					
(FFO + Interest Expense) / Interest Expense	5.5x	6.6x	6.8x	8.4x	10.1x
LEVERAGE					
FFO / Net Debt	10.1%	12.9%	12.4%	15.0%	15.2%
RCF / Net Debt	7.0%	10.5%	10.0%	13.4%	13.9%
FCF / Net Debt	-20.6%	-6.2%	-13.2%	-17.4%	-29.0%
Debt / EBITDA	8.4x	5.7x	6.0x	5.5x	6.1x
Net Debt / EBITDA	8.3x	5.7x	6.0x	5.4x	5.9x
Net Debt / Fixed Assets	58.9%	58.6%	60.6%	57.1%	65.6%

(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 2.19% for expansion investments.

3 https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:CBB:2019:634

4 TenneT publicly disclosed its ten-year investment program in its financial results through the 2018 reporting period.

5 https://www.rijksoverheid.nl/documenten/rapporten/2019/06/28/klimaatakkoord

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

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