MOODY'S INVESTORS SERVICE

CREDIT OPINION
14 May 2020

Update

Rate this Research

RATINGS

TenneT Holding B.V.

Domicile	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.

Contacts

Charles Berckmann +49.69.70730.718
AVP-Analyst
charles.berckmann@moodys.com

David Sprenger +33.1.5330.3368
Associate Analyst
david.sprenger@moodys.com

Andrew Blease +33.1.5330.3372
Associate Managing Director
andrew.blease@moodys.com

TenneT Holding B.V.

Update following 2019 results

Summary

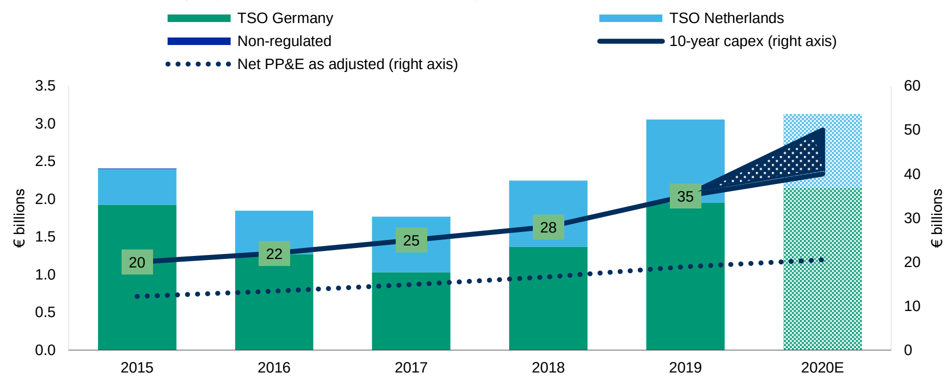
The credit quality of TenneT Holding B.V. (TenneT, A3 stable) is underpinned by (1) the company's monopoly position as the licenced provider of electricity transmission services in the Netherlands and its service area in Germany; (2) the relatively stable and predictable cash flow the company generates 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 €4 billion-€5 billion annually over the next several years from €2-€3 billion currently spent annually, which will weaken key credit metrics; (2) lower allowed returns under the current regulatory period; and (3) an anticipated decline in returns in the forthcoming regulatory period in the Netherlands from 2022. 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

Up and away

TenneT's investment programme has been accelerating since 2018



Notes: prior to 2019, 10-year capex guidance publicly disclosed by TenneT; future 10-year capex is Moody's estimate
Source: Company information and Moody's Investors Service

TenneT's A3 rating incorporates a two-notch uplift from its Baseline Credit Assessment (BCA: 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
- Expectation of further reduction in allowed returns in the Netherlands at the start of the next regulatory period in 2022

Rating outlook

The stable outlook reflects our expectation that TenneT will continue to meet the minimum ratio guidance over the next 18 months, in particular funds from operations (FFO)/net debt of at least high single digits in percentage terms, despite the extensive investment programme and lower allowed regulatory returns.

Given the extent of planned investments, TenneT's current rating level will show limited financial buffer over the period to 2023 (the end of the current regulatory period in Germany) in the absence of TenneT taking measures taken to strengthen its financial profile.

Factors that could lead to an upgrade

Given the significant increases in planned investments over the next decade, primarily in the mid- to late-2020s, 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:

- TenneT's FFO interest coverage is solidly above 3.0x; and
- FFO/net debt is at least in the low teens in percentage terms on a sustained basis

Factors that could lead to a downgrade

- Failure to maintain FFO interest coverage of at least 2.5x;
- A decline in FFO/net debt below the high single digits in percentage terms; and
- Inability to maintain retained cash flow (RCF)/net debt above 5%

Key indicators

Exhibit 2
TenneT Holding B.V.[1]

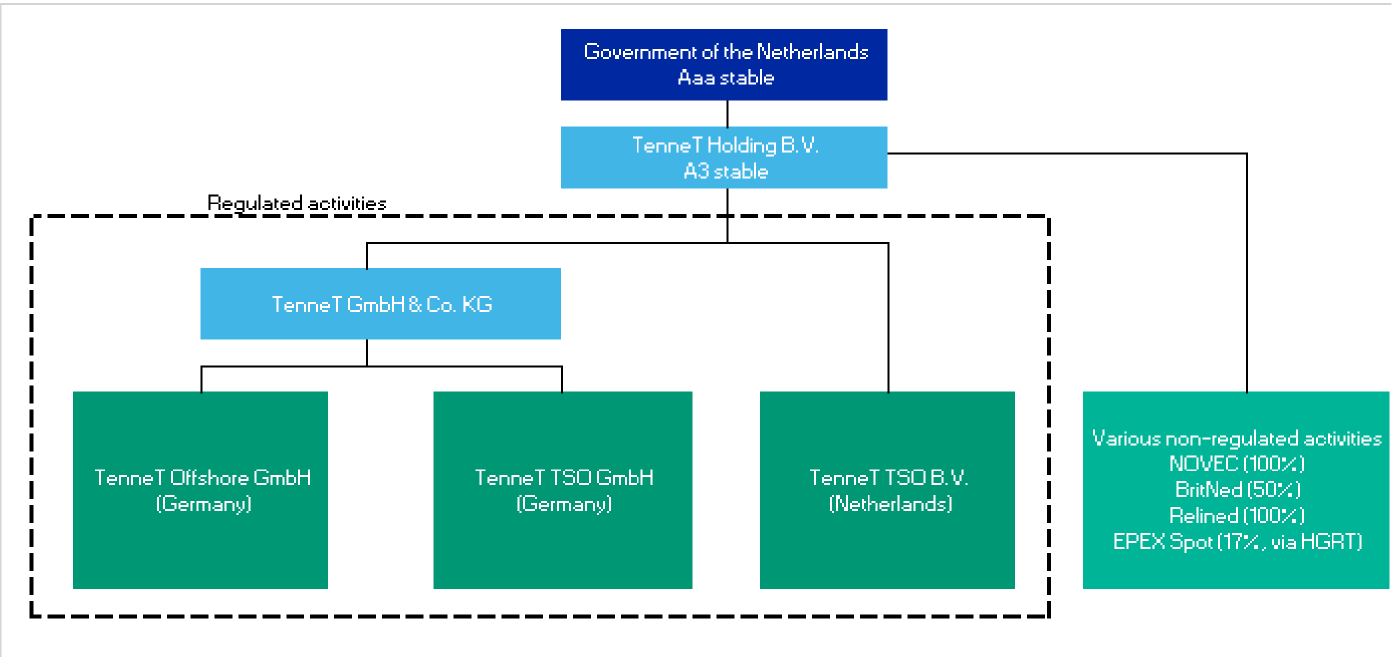
	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
FFO Interest Coverage	4.2x	5.5x	6.6x	6.8x	8.4x
Net Debt / Fixed Assets	42.2%	58.9%	58.6%	60.6%	57.1%
FFO / Net Debt	10.5%	10.1%	12.9%	12.4%	15.0%
RCF / Net Debt	7.7%	7.0%	10.5%	10.0%	13.4%

(1) 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 €1.19 billion of 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. (TenneT) is the fully state-owned holding company of TenneT TSO B.V. and TenneT GmbH & Co. KG, the 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 23,500 kilometres (km), TenneT's network area covers over 42 million end-users in the Netherlands and Germany.

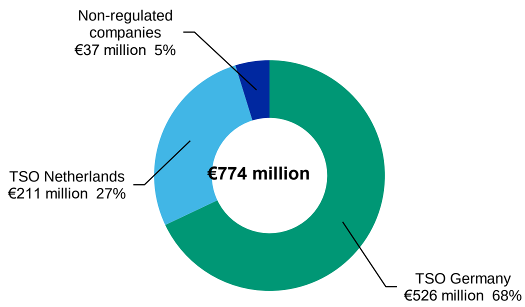
Exhibit 3
Simplified organisational structure as of 31 December 2019



Source: TenneT 2019 annual report

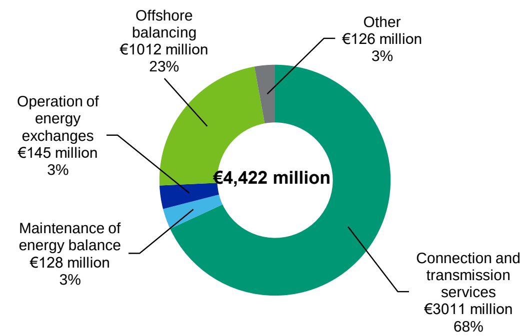
Close to 100% of TenneT's revenue and around 95% of its operating income stem from regulated network activities in the Netherlands and Germany. The remaining activities, including participations in the North West European energy exchange (EPEX Spot) and the merchant cable operator BritNed, are strongly associated with the core business.

Exhibit 4
Underlying EBIT split by operating segment in 2019



Source: TenneT Holding B.V.

Exhibit 5
Revenue breakdown under IFRS accounting in 2019



Source: TenneT Holding B.V.

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, with nearly 70% of TenneT's investments for the 10-year period through 2029 planned for 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 fewer 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
	Finland	Estonia	Poland
	France	**Germany**	Slovakia
	Ireland (RoI & NI)	Portugal	Spain
	Italy		
	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

German operations: 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. Allowed equity returns are significantly lower compared to the prior regulatory period however (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 on X-gen electricity and the case is unlikely to be resolved in the next year given case load and staffing. 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 task. 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 material to earnings.

Dutch operations: amended regulatory determinations slightly credit positive; further cuts in allowed return after 2021 expected

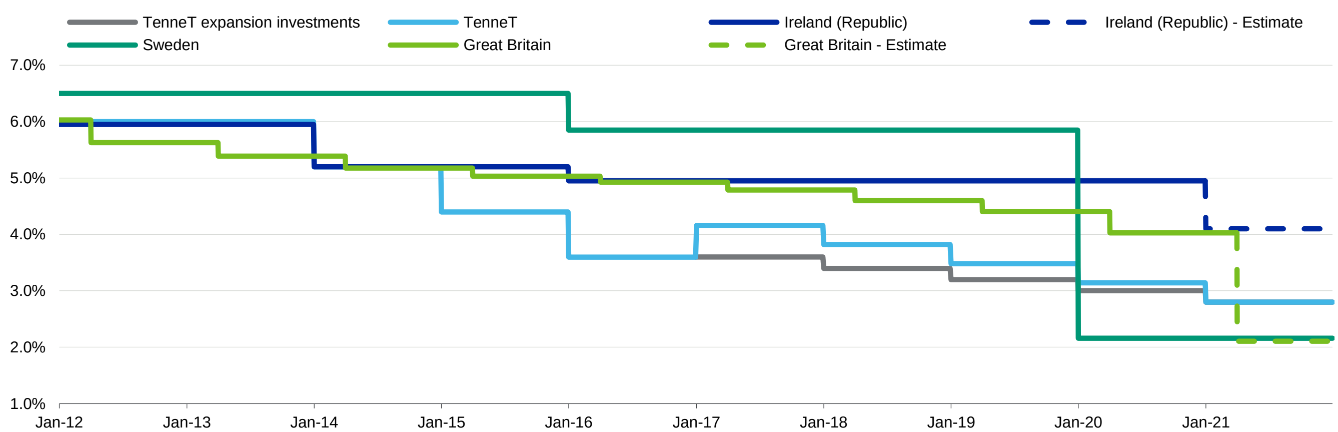
TenneT has good cash flow visibility for its operations in the Netherlands for a further approximate 1.5 years under the regulator's amended Final Determination (Method Decisions) for the 2017-21 regulatory period, published in January 2019 and following final decision by the Trade and Industry Tribunal (CBb) made on 28 November 2019, following appeals by network operators on certain aspects of the original Method Decisions from July 2018. The lowering of allowed returns in 2021 was appealed by all Dutch network operators and in November 2019, the court ruled the 2021 WACC of 3% (real, pre-tax) in the original Method Decisions would stand. The net effect is that the 2016 WACC is higher by 20 basis points (now 4.5% real, pre-tax for non expansion investments) than initially determined. 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 (RCR 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 2% as of year-end 2018). TenneT's cost of capital 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.

Exhibit 7

TenneT's allowed return is below that of peers and is expected to fall over the period to 2021

Evolution of real, pre-tax allowed returns for European electricity TSOs



(1) The TenneT series reflect the amended Method Decisions for the 2017-21 regulatory period. The ACM set a real, pre-tax WACC for all system operators of 4.5% in 2016 and 3.0% in 2021. This method takes into account embedded costs. However, because embedded debt costs are not applicable for expansion investment, the WACC for expansion investment falls from 3.8% to 3.0% (originally 3.6% and 3.0%, respectively; a cost of debt of 2.19% is applied across the period for these investments). (2) Estimates for Sweden and Great Britain, which refers to National Grid Electricity Transmission plc (A3 stable), are based on the regulator's draft decision for the forthcoming regulatory period.

Sources: Regulatory data and Moody's Investors Service estimates

We expect TenneT to achieve modest outperformance on cost allowances for the regulatory period, primarily reflecting the further reduction in the dynamic efficiency target for this period under the amended Method Decisions to 0% from 0.8% per annum. We expect the incremental revenue benefit for the regulatory period (€50 million-€60 million) to be recouped in 2020 tariffs, benefitting FFO/net debt by around 0.3-0.4 percentage points this year.

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].

The ACM relies on the prevailing macroeconomic parameters (primarily inflation and bond yields) to set regulatory return levels. Despite successful recent appeals, and supportive to TenneT, the WACC is very likely to be cut further below 3% (real, pre-tax) at the start of the next period in 2022, depressing cash flow in the mid-2020s, a credit negative.

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) ranging from €40-€50 billion, necessitating a jump in annual spend to €4 billion-€5 billion annually from €2 billion-€3 billion annually. 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 almost tripled in the last six years, from around €16 billion in 2014 to our estimate of €40-€50 billion for the next 10 years (as of 2020)[4] This compared with net PP&E of €16.7 billion as of year-end 2019. Nearly two-thirds of this total programme relates to the higher costs for German onshore investments as a result of undergrounding and increasing capacity on the SuedOst Link. We expect the absolute cost increases to be the highest for the HVDC North-South connections in Germany (SuedLink and SuedOstLink) given the size of these projects.

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 **AC** - Ostbayernring; Wahle - Mecklar; Conneforde - Cloppenburg - Merzen; Stade - Landesbergen; Westküstenleitung; Ostküstenleitung; Raitersaich - Altheim; Wahle - Wolmirstadt; Mecklar - Grafenrheinfeld
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	3.5GW to be connected by 2023 (5x 0.7GW wind farms) Additional 6.1GW in 2024-2030 (3x 0.7GW HVAC projects; 4GW HVDC projects)
	Interconnectors[2]	COBRAcable, operative since September 2019 (Netherlands - Denmark) NordLink, commissioning in 2020 (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

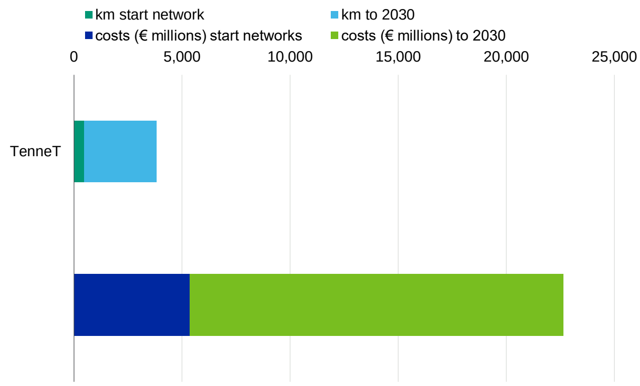
Implementing ambitious energy policy objectives in Germany and the Netherlands will drive high investment levels throughout the early and mid-2020s

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.

Exhibit 9

TenneT Onshore

NEP 2030



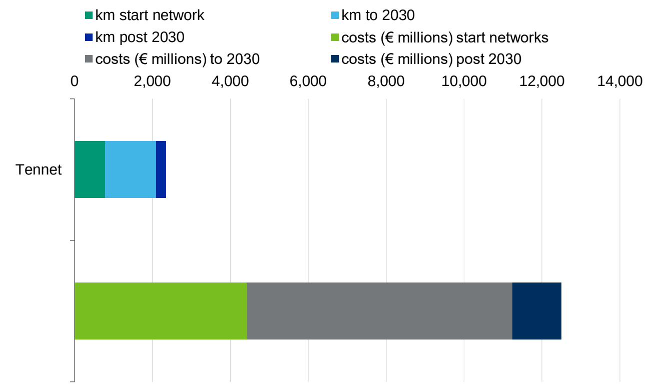
Note: includes start networks; excludes existing maintenance capex

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 in the first half of 2020. TenneT expects implementation around the beginning of 2022, although subject to parliamentary debate and legal approval. The *Energiewet,* in addition to existing policy measures, will drive investments of around €1 billion forecast for 2020 to nearly €1.8 billion by 2024, or a 21.6% 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.

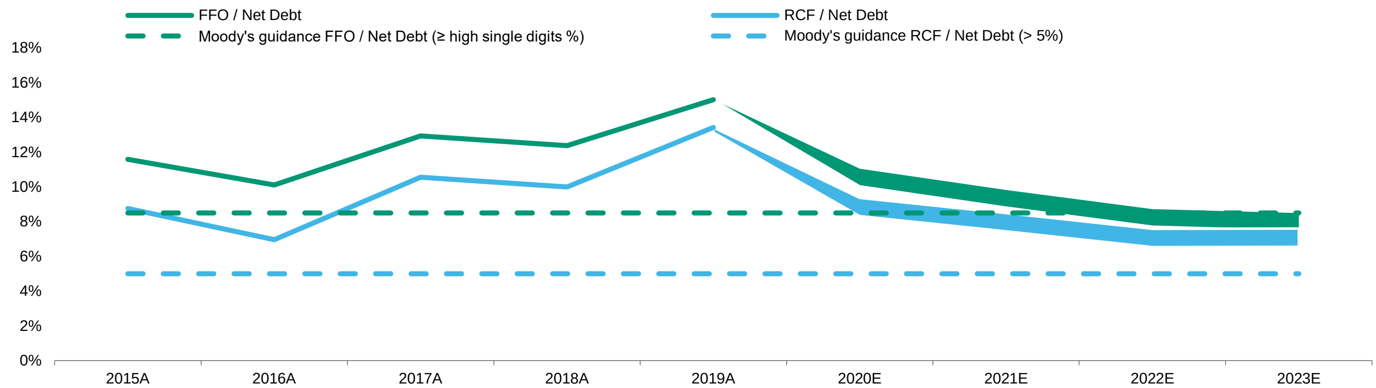
Track record of equity support; continued prudent financial policy required to manage demands of further capital spending increase

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 and 2018 with an associated net increase in hybrid equity credit of €300 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.

Given the latest planned step-up in investment levels, primarily in the early- to mid-2020s, 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. Some successful appeals in the Netherlands were credit positive, but given the weight of earnings in Germany, positive developments in the Netherlands have less bearing on the overall credit profile.

Exhibit 11
Limited financial headroom at the current rating level over the period to 2023



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 (1) no further measures taken to support financial profile aside from continuation of the current dividend policy, that is, no further equity contributions beyond receiving the final two tranches of the (up to) €1.19 billion announced in December 2016 or issuance of hybrid capital securities; (2) no upside from outstanding appeals of aspects of its existing regulatory determinations, aside from the benefit of the lower frontier shift in the Netherlands with the incremental revenue all coming in 2020 tariffs.
Source: Moody's estimates

TenneT's divestment of minority stakes in its German offshore wind farms in the prior decade were broadly credit neutral, reflecting the positive benefit of upstream guarantees being tempered by the (slight) weakening of the RCF because of distributions to minority interests. However, any changes in contractual arrangements for any future minority stake sales may alter our assessment; for example, the removal of the presence of upstream guarantee (negative) and external debt raised at the project level (rather than intercompany loans from TenneT Holding). With the growth in asset base and net debt from the continued large capital spending programme, the impact of the minority stakes sold to date have a diminishing effect on metrics over time (last sale to Copenhagen Infrastructure Partners was five years ago).

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 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 coalition agreement and law 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. 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 landsacapes. 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.

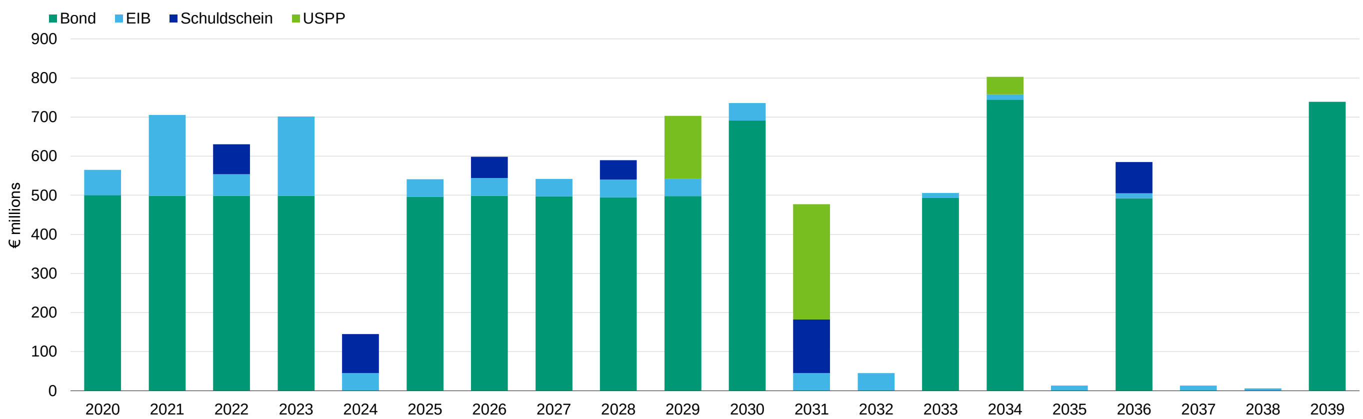
Liquidity analysis

We expect TenneT to maintain good liquidity over the next 12 months, supported by (1) operating cash flow; (2) final equity contributions from the Dutch state (€690 million in 2019); (3) €3.35 billion of committed facilities (undrawn) as of December 2019, comprising a €350 million EIB facility related to TenneT's share of costs on the NordLink interconnector and a fully undrawn €3 billion committed revolving credit facility, maturing in November 2024. These will be sufficient to cover the €565 million of bond and loan maturities in 2020, dividend payments (including hybrid interest and dividends to third parties) of around €220 million and planned investments.

Exhibit 12

TenneT has a well-balanced debt maturity profile

Breakdown of interest bearing debt as of 31 December 2019



(1) Non-call period of €1.1 billion of green hybrids ends on 1 June 2024 (not included). (2) The €1.25 billion of green bonds launched and priced in May 2019 are included.
Sources: Annual report and Company announcements

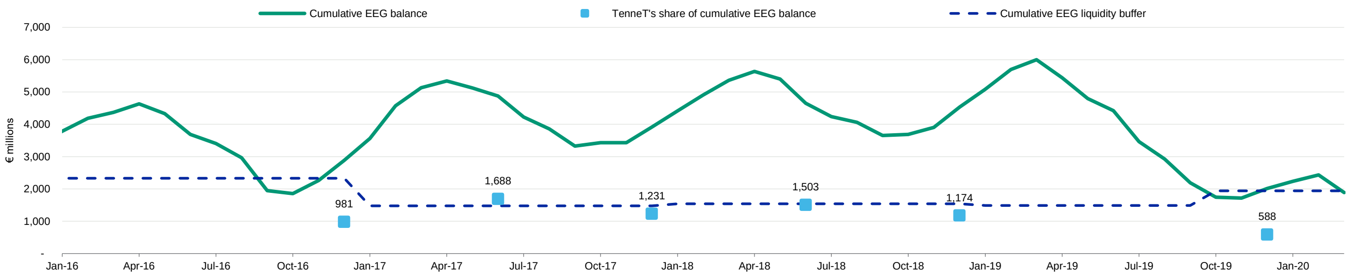
Under the German Renewable Act (Erneurbare Energien Gesetz, or EEG), TenneT is also required to buy renewable energy at set feed-in-tariffs and sell it on the spot market. The difference is covered through a surcharge payment, determined annually[7] (set at 6.756 €ct/kWh for 2020), which is added to the consumer tariffs. In recent years, the German electricity TSOs have, in aggregate, held cash balances related to EEG significantly above the liquidity reserve buffer, even during the summer months when there is typically working capital outflow (See "German electricity transmission networks: Large cash balances related to administering renewable obligation will overstate financial metrics in 2018 and 2019", published October 2018, for more information).

Unlike with other German electricity TSOs, this has not resulted in TenneT's reported metrics being overstated because since October 2016, following a decision by the German energy regulator, funds related to EEG are not at TenneT's free disposal and are separated from other cash balances. The combination of: 1) coronavirus-induced drop in residential and industrial demand and 2) record amounts of solar and wind generation resulted in a number of negative pricing days.

Collectively, these events will deplete TenneT's EEG reserve balance (the same for other German TSOs) and lead to a negative balance of around €1 billion by Q3 2020 and potential short-term financing of EEG, until EEG levies are reset in October for the 2021 period. TenneT's financing requirement for administering EEG requirements is likely to remain limited, but will be driven by the duration of lockdowns and how quickly economies rebound once they are reopened. TenneT has multiple options to finance an EEG working capital need if required.

Exhibit 13

TenneT's share of cumulative balance is sizeable, but declining



Notes: (1) In 2016, the German regulator decided that the funds related to EEG can no longer be at TenneT's free disposal and should be separated. The separation of funds was realised in October 2016. (2) Decline in cash balance to continue given the impact of the coronavirus outbreak on demand and power prices. Negative balances expected in Q3 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 March 2017, and the Government-Related Issuers (GRIs) rating methodology, published in June 2018.

Exhibit 14

Rating factors

TenneT Holding B.V.

Regulated Electric and Gas Networks Industry Grid [1][2]	Current FY 12/31/2019		Moody's 12-18 Month Forward View As of May 2020 [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)	7.3x	Aa	5.0x - 6.0x	Aa
b) Net Debt / Fixed Assets (3 Year Avg)	58.7%	A	60% - 63%	Baa
c) FFO / Net Debt (3 Year Avg)	13.5%	Baa	9% - 12%	Ba
d) RCF / Net Debt (3 Year Avg)	11.4%	Baa	7% - 10%	Baa
Rating:				
Scorecard-indicated Outcome from Grid Factors 1-4		A3		Baa2
Rating Lift				
a) Scorecard-indicated Outcome from Grid		A3		Baa2
b) Actual Rating Assigned				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 12/31/2019. (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 (BCA baa2)			Statnett SF A2 Stable (BCA baa2)			N.V. Nederlandse Gasunie A1 Stable (BCA a3)			Eurogrid GmbH Baa1 Stable		
(in USD million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-17	FYE Dec-18	FYE Dec-19
Revenue	4,492	5,041	4,950	860	1,064	1,004	1,402	1,477	1,431	11,403	12,177	12,017
EBITDA	1,729	1,978	2,247	476	654	636	896	918	1,006	866	778	653
Total Debt	10,538	11,561	12,355	4,451	4,903	5,210	4,547	4,391	4,274	3,450	3,288	3,264
Net Debt	10,472	11,552	12,127	4,186	4,502	4,961	4,498	4,360	4,223	1,761	1,484	2,374
(FFO + Interest Expense) / Interest Expense	6.6x	6.8x	8.4x	5.5x	6.5x	5.5x	8.9x	8.8x	9.0x	4.4x	6.0x	7.5x
Net Debt / Fixed Assets	58.6%	60.6%	57.1%	69.7%	66.6%	66.2%	43.6%	44.0%	43.0%	32.6%	26.9%	40.9%
FFO / Net Debt	12.9%	12.4%	15.0%	8.4%	11.3%	10.0%	19.0%	16.9%	21.1%	15.9%	24.0%	19.0%
RCF / Net Debt	10.5%	10.0%	13.4%	7.4%	10.5%	8.9%	16.0%	10.1%	15.0%	9.1%	15.7%	13.4%
Debt / EBITDA	5.7x	6.0x	5.5x	9.3x	8.0x	8.2x	4.8x	4.9x	4.2x	3.7x	4.4x	5.0x

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-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19
As Reported Total Debt	4,661.0	7,504.0	7,742.0	8,720.0	10,096.0
Pensions	130.0	179.0	186.0	208.0	361.0
Leases	110.0	150.0	348.0	636.0	0.0
Hybrid Securities	259.5	259.5	508.5	558.5	558.5
Non-Standard Public Adjustments	(10.0)	(10.0)	(9.0)	(9.0)	(9.0)
Moody's Adjusted Total Debt	5,150.5	8,082.5	8,775.5	10,113.5	11,006.5
Cash & Cash Equivalents	(3.0)	(157.0)	(55.0)	(8.0)	(203.0)
Moody's Adjusted Net Debt	5,147.5	7,925.5	8,720.5	10,105.5	10,803.5

(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-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19
As Reported Funds from Operations (FFO)	638.0	872.0	1,254.0	1,327.0	1,929.0
Leases	7.1	9.6	75.6	132.7	0.0
Capitalized Interest	(19.0)	(10.0)	(8.0)	(8.0)	(9.0)
Hybrid Securities	(16.5)	(16.5)	(18.5)	(15.0)	(16.5)
Alignment FFO	86.0	55.0	(36.0)	(50.0)	(158.0)
Unusual Items - Cash Flow	(55.0)	2.0	0.0	0.0	0.0
Non-Standard Public Adjustments	(99.0)	(109.0)	(141.0)	(136.0)	(123.0)
Moody's Adjusted Funds from Operations (FFO)	541.6	803.1	1,126.1	1,250.7	1,622.5

(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-15	FYE Dec-16	FYE Dec-17	FYE Dec-18	FYE Dec-19
INCOME STATEMENT					
Revenue	2,844	2,843	3,976	4,269	4,422
% Change in Sales (YoY)	10.7%	0.0%	39.9%	7.4%	3.6%
EBITDA	943	959	1,530	1,675	2,007
EBITDA margin %	33.2%	33.7%	38.5%	39.2%	45.4%
EBIT	187	353	825	842	1,034
EBIT margin %	6.6%	12.4%	20.8%	19.7%	23.4%
Interest Expense	168	180	201	217	218
Net Income	(5)	141	445	420	553
BALANCE SHEET					
Cash & Cash Equivalents	3	157	55	8	203
Current Assets	1,778	3,199	3,843	3,890	3,098
Net Property Plant and Equipment	12,196	13,461	14,870	16,677	18,924
Non-Current Assets	12,738	14,590	15,734	17,411	19,866
Total Assets	14,516	17,789	19,577	21,304	22,964
Current Liabilities	4,682	5,201	5,575	5,556	5,069
Total Debt	5,151	8,083	8,776	10,114	11,007
Non-Current Liabilities	6,876	8,925	9,786	11,228	12,644
Total Liabilities	11,558	14,126	15,361	16,785	17,713
Total Equity	2,958	3,663	4,216	4,519	5,251
Total Liabilities and Equity	14,516	17,789	19,577	21,304	22,964
CASH FLOW					
Funds from Operations (FFO)	542	803	1,126	1,251	1,623
Cash Flow From Operations (CFO)	1,256	425	1,503	1,362	1,146
Capital Expenditures	(2,515)	(1,806)	(1,838)	(2,457)	(2,849)
Retained Cash Flow (RCF)	396	554	919	1,010	1,450
Free Cash Flow (FCF)	(1,405)	(1,630)	(542)	(1,336)	(1,876)
FFO / Net Debt	10.5%	10.1%	12.9%	12.4%	15.0%
RCF / Net Debt	7.7%	7.0%	10.5%	10.0%	13.4%
FCF / Net Debt	-27.3%	-20.6%	-6.2%	-13.2%	-17.4%
INTEREST COVERAGE					
EBITDA / Interest Expense	5.6x	5.3x	7.6x	7.7x	9.2x
(FFO + Interest Expense) / Interest Expense	4.2x	5.5x	6.6x	6.8x	8.4x
LEVERAGE					
Debt / EBITDA	5.5x	8.4x	5.7x	6.0x	5.5x
Debt / Book Capitalization	0.5x	0.6x	0.6x	0.7x	0.6x

(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).

7 In October for the forthcoming calendar year.

REPORT NUMBER 1222682

MOODY'S
INVESTORS SERVICE