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Utilities

It's not easy to become green

The investment and funding challenge for Dutch network operators



The Netherlands has been slow to adopt an energy transition programme compared to other European countries. The Climate Plan, released by the government in late-June 2019, marked a clear turning point as it aims to reduce Dutch carbon emissions by at least 49% by 2030 compared to 1990. This ambition would turn the country from laggard to frontrunner. Energy transition plays a pivotal role as emissions from the energy sector need to be reduced by as much as 73% by 2030. The Dutch government wants to phase out coal in its energy mix by 2030 and natural gas by 2050. The plan has strong implications for the Dutch gas and electricity network operators as it requires exponential capital expenditure. Some network operators want their shareholders to inject new capital. While this would provide temporary relief, it needs to come with higher tariffs from the Dutch regulator ACM in order to finance investments with operating cash flow.

The share of renewables in the power generation mix accounted for 18% in 2019. We forecast this share to reach 25% in 2020 with the number expected to be 74% in 2030. The transformation to a low carbon economy requires increasing investment into the energy system from around €10bn a year in 2010 to an estimated €16bn a year in the period 2020-2030. Total investment in solar panels and wind farms will continue to fall as the assets become less expensive. However, investment in grids will continue to rise in order to accommodate the increasing share of renewables coming into the Dutch network systems. For the Transmission System Operators (TSOs) and the Distribution System Operators (DSOs), the adaptation to a low carbon economy translates into exponential capital expenditure plans. Already, a number of Dutch network operators are unable to cover operating costs and required investment by the cash flow they generate. The Dutch regulator ACM has set the rate of remuneration at among the lowest in Europe. TSOs and DSOs expect a methodology change for the new regulatory period starting in 2022.

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An ambitious energy transition

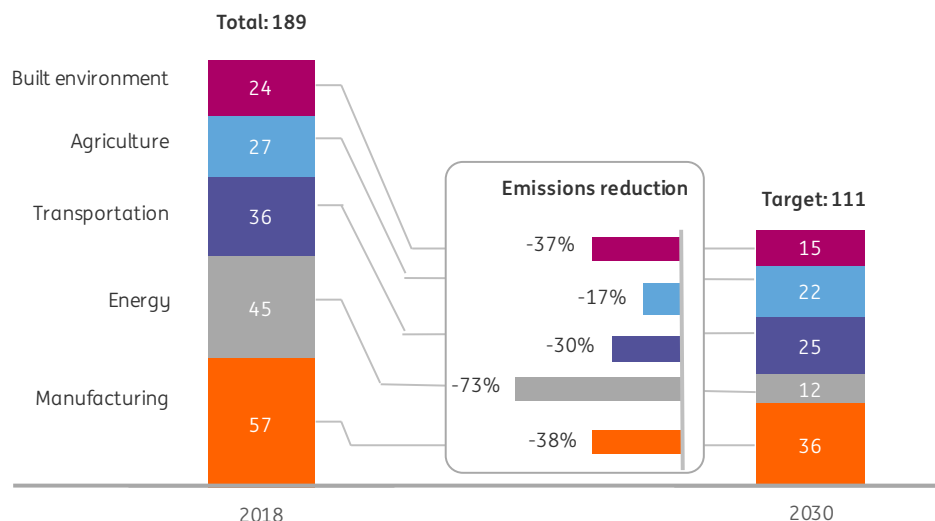
Dutch climate agreement calls for 49% CO₂ reduction

The Netherlands has been slow to adopt an energy transition programme compared to other European countries. It has seen renewables increase slowly over recent years. The Dutch Environmental Agency (PBL) predicted early this year that the Netherlands would source 11.4% of final energy consumption from renewables by 2020, which is behind the EU target of 14% and among the lowest shares in Europe. Ironically, the 14%-target is likely to be met due to a coronavirus-induced drop in final energy demand.

-73% The energy sector will need to reduce CO₂ emissions by 73%

The Climate Plan, released by the government in late-June 2019, marked a clear turning point as it aims to reduce Dutch carbon emissions by at least 49% in 2030 compared to 1990. This would turn the country from laggard to frontrunner. Energy transition plays a pivotal role as emissions from the energy sector need to be reduced by as much as 73% by 2030. That stands in sharp contrast with past trends as emissions grew by 14% between 1990 and 2018 (latest available data).

Fig 1 Dutch energy transition plan: CO₂ emissions target (CO₂ Megatons)



Source: CBS, PBL, ING

Goodbye coal!

Urgenda case speeds up coal phase out

The Dutch government wants to phase out coal in its energy mix by 2030. The pace of closure of the five coal power plants is not so much impacted by the Climate Agreement but by the Urgenda law case that started in 2015. Urgenda is a Dutch NGO that successfully won a case against the Dutch state to increase the CO₂ reduction target from 20% to 25% in 2020. The court decision in 2019 compelled the state to hasten the planned closure of the c.600MW Hemweg coal fired power plant in Amsterdam by five years, but the power plant was closed at the end of 2019. Ironically, the 25% CO₂ reduction target is likely to be met due to the coronavirus crisis that has resulted in less pollution from manufacturing and transportation. Also, temperatures from January to March this year were unusually high, causing emissions in the built environment to fall. Nevertheless, the Dutch government is working on a package of additional measures

that will *structurally* lower CO₂ emissions, which was the aim of the court verdict. The details have not been disclosed yet but talks indicate that most of the reduction will come from production ceilings of up to 25% of full capacity for the remaining four coal power plants. This could be problematic for the 600MW Amer plant, operated by RWE, which is the backbone of the local municipality's heating network and was anticipated to run at high capacity until the indicated closure date in 2024. The other three plants, totalling 3.5GW, are brand new and inevitably their owners will be loath to see such assets scaled back ahead of the 2030 phase-out deadline.

Natural gas: less domestic production

Earthquakes cause Groningen gas field to close by 2022

As with coal, the role of natural gas is not determined by the Climate Agreement. The closure of the largest field in the Netherlands by 2022 has everything to do with multiple earthquakes in recent years that have caused billions of euros of damage to houses in the area. Local protests led the Dutch government to reduce production of the Groningen gas field to an expected 9 billion cubic metres (bcm) in 2020 and 10.7bcm in 2021, with production shut down altogether by October 2022. This stands in sharp contrast to historical production levels that totalled between 25bcm and 60bcm a year for decades. Many small fields, mostly located in the North Sea, will continue to produce around 20bcm over the coming years, but that is not enough to meet domestic demand of c.45bcm. As a result, the Netherlands recently became a net importer of gas having been a net exporter since the 1970s.

Four measures need to be taken to stop production at Groningen in 2022 without losing security of supply.

- 1) The Groningen field produces low caloric gas. Nine heavy users of low caloric gas in manufacturing need to disconnect from the low caloric grid to the high caloric grid that transports imported gas from the Nordics and Russia. However, Nederlandse Gasunie cannot make the grid connections because of delays in permit procedures by four heavy users, one of them being a gas fired power plant owned by Eneco. High nitrogen disposition in areas of protected nature prevent the local authorities from granting permission, which is known as 'the Nitrogen crisis'.
- 2) Gas systems in Belgium, France and Germany that run on low caloric gas from Groningen need to be modified so they can run on high caloric gas. This involves replacement of critical parts in every installation, also in thousands of homes.
- 3) Nederlandse Gasunie is building a plant in Zuidbroek to blend nitrogen with imported high caloric gas to turn it into low caloric gas that is equivalent to the Groningen gas. The site is expected to blend 7bcm a year after completion in 2022, increasing total blending capacity in the Netherlands to 36bcm a year.
- 4) Shell and ExxonMobil will use their gas storage facility in Norg to store high caloric gas that is transformed into low caloric gas by adding Nitrogen.

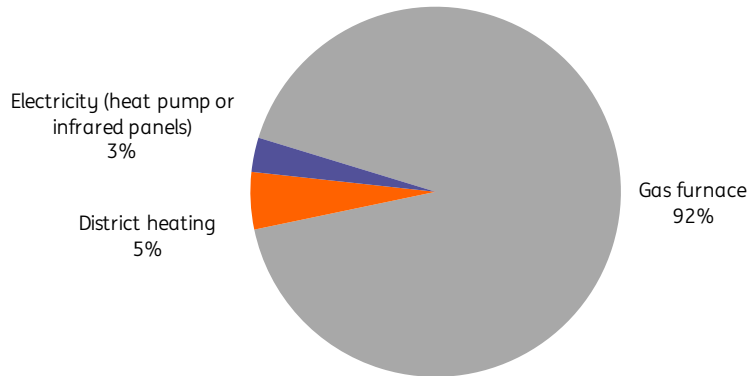
While measures 1 and 2 are unlikely to be completed before October 2022, 3 and 4 are expected to be up and running. This would not result in security of supply issues for average winter temperatures but if the winter of 2022/2023 were to be extremely cold, it could well lead to supply shortages.

“The Climate Agreement calls for a complete phase out of natural gas by 2050”

In the longer run the Dutch government will reduce demand for low caloric gas in the Netherlands. The Climate Agreement calls for a complete phasing out of gas in the built environment by 2050. Currently, the majority of houses rely on gas for heating. The Climate Agreement requires municipalities to define the best alternative to replace gas

in all the c.13,000 Dutch neighbourhoods before 2023. According to the local situation and the types of dwelling, these could be district heating networks, electric heating systems, geothermal energy and/or heat pumps. In the decades thereafter, the DSOs face the task of changing the local gas and power grids according to these plans.

Fig 2 Current heating sources for Dutch houses

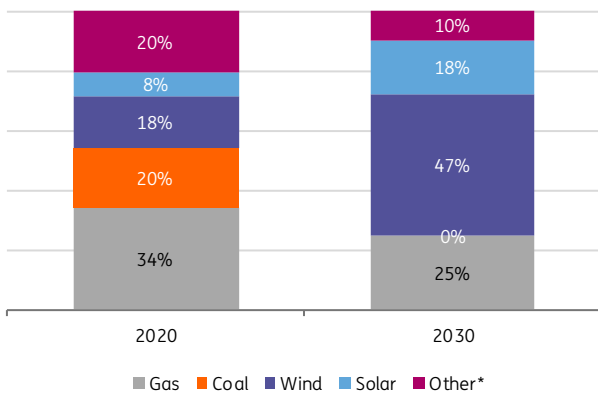


Source: CBS, PBL, ING

Power sector takes the lead in transition to a low carbon economy

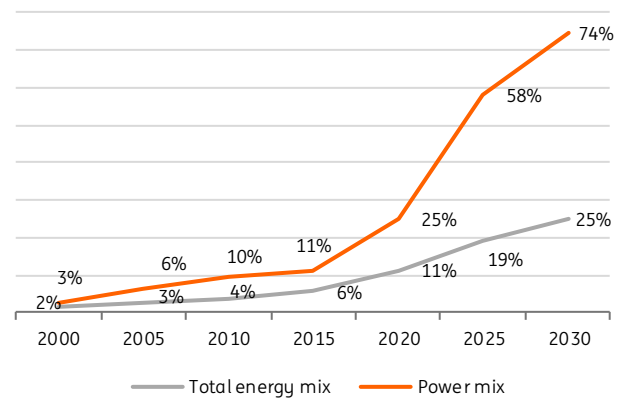
The share of renewables in the power generation mix accounted for 18% in 2019. We forecast this share to reach 25% in 2020 with the figure expected to be 74% by 2030. As a matter of fact, the power sector is taking the lead in the energy transition phase while heating and fuels for transportation are following a slower pace. As a result, the share of renewables in the total energy mix (including all sectors) remains much lower. In 2019, 11% of total energy used in the Netherlands was provided by renewables. By 2030, renewables are forecast to generate 25% of total energy consumption in the country.

Fig 3 Dutch power mix: 2020 and 2030



Source: CBS, PBL, ING

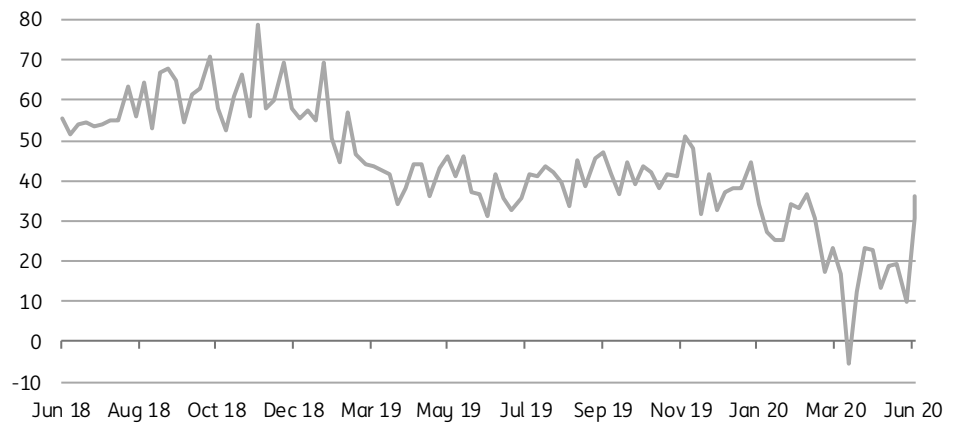
Fig 4 Renewables in Dutch energy and power mix



Source: CBS, PBL, ING

The development of renewables is largely driven by the targets in the Climate Agreement for offshore wind (from 1GW currently to 11GW by 2030). The last two tenders for offshore wind farms were subsidy free bids. This may be a challenge for future tenders as power prices have fallen, especially since the beginning of the Covid-19 pandemic. Power prices may also show more volatility as the share of renewables increases. Power Purchase Agreements in practice often still leave considerable market risk. In such a market environment, subsidies might become necessary again to ensure the large rollout of offshore wind farms.

Fig 5 Dutch power: day ahead spot price since June 2018 (€/MWh)

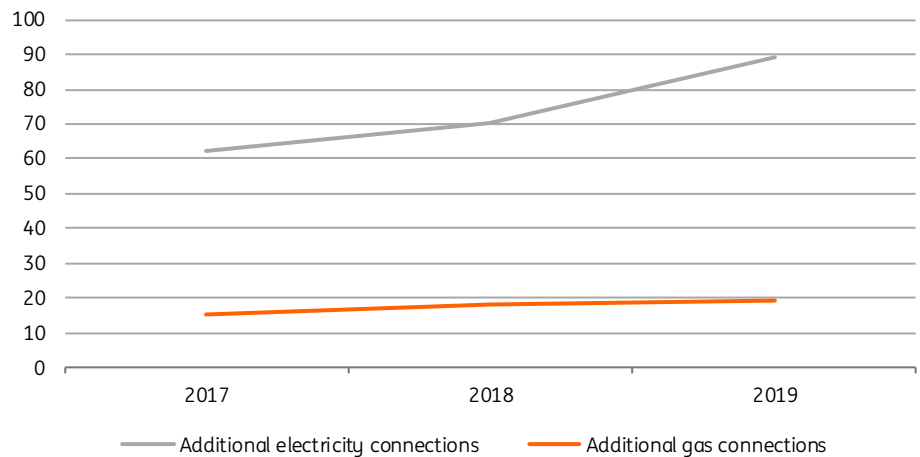


Source: ICE, ING

An energy mix that is two-thirds dependent on solar and wind power requires back-up facilities for times when the sun doesn't shine and the wind is not blowing. We therefore expect grid operators to continue to invest in interconnectivity with neighboring countries to balance supply and demand on a North Western European scale. Storage facilities, such as hydrogen production and utility scale battery storage, will gain importance, but it is unclear whether regulators will provide the grid operators more room to invest in these technologies or whether this will be left entirely to the market.

For grid operators, the focus on electricity connections has amplified. With lower gas consumption imposed by the energy transition and the requirement to drastically limit the connection of new buildings and houses to the gas pipelines, Dutch network operators are already experiencing high demand for new power connections.

Fig 6 Alliander, Enexis and Stedin: Additional connections for power and gas between 2017 and 2019 (000)



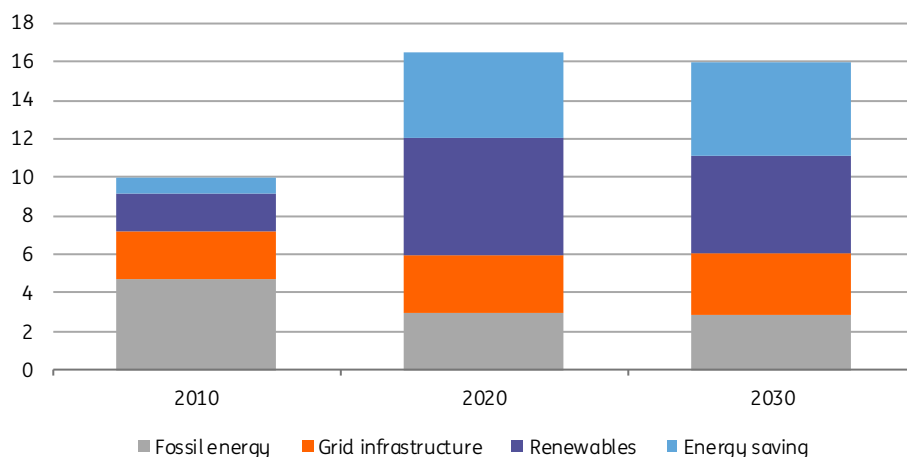
Source: Company data, ING

Grid operators at the heart of the energy transition

Energy transition leads to increased investment

The transformation to a low carbon economy requires increasing investment, from around €10bn a year in 2010 to an estimated €16bn a year over 2020-2030. Total investment in renewables will fall as solar and wind continue to get cheaper. However, grid investment will continue to rise in order to accommodate the increasing share of renewables coming into Dutch networks.

Fig 7 Investment in the Dutch energy system (€bn/year)



Source: CPB, ING

For the Dutch transmission and distribution system operators, the energy transition mainly implies:

- Upgrading and building of an infrastructure that will accommodate an increased electricity flow from renewables.
- Development of flexible services, such as energy demand side management or storage facilities. Operators are also required to provide solutions to deal with increased grid congestion.
- Building the energy infrastructure to implement the Regional Energy Strategies (RES) of the 30 regions in the Netherlands. An RES sets out the energy transition at a local level and defines targets for renewable energy (notably solar, wind and geothermal), electric mobility and the transformation in heating systems for the built environment and industrial sites.
- The installation of smart meters in all Dutch houses and for Small and Medium sized Enterprises (SMEs) by the end of 2020. Currently around 5 million of the 7.7 million households have a smart meter installed.
- Facilitation of the charging infrastructure for zero emission busses and electric vehicles in the Netherlands. Although the charging services are typically provided by energy companies, the grid operators need to connect these charging points to the grids.
- Development and publishing of an integrated and joint vision in 2021 on the gas and power grid in the Netherlands for 2030-2050 in order to optimise and coordinate investment plans that ordinarily take years of preparation.

The capital expenditure challenge

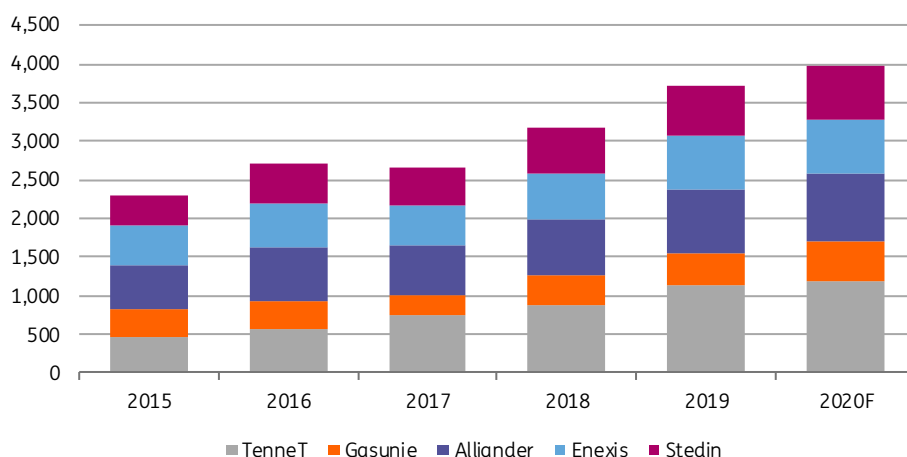
Investment rising significantly

The Dutch Climate Agreement sees the annual average total investment of €3bn in 2020 increasing to €3.3bn by 2030 for the Dutch network companies. These numbers do not include smart meter roll-out expenditure.

€4bn TenneT, Gasunie, Alliander, Enexis and Stedin will spend an aggregate €4bn in capital expenditure in 2020

Taking into consideration total capital expenditure for the top five grid utilities (TenneT, Nederlandse Gasunie, Alliander, Enexis and Stedin), investment totalled €3.7bn in 2019 for Dutch activities. The companies' estimates for 2020 point to an aggregate total capital expenditure of €4bn. More than a quarter of this investment will concern TenneT, but capex has become significant for gas and electricity distribution operators as well.

Fig 8 Capital expenditure for the top five grid utilities (€bn)



Source: Company data, ING

“DSOs will spend between €700m and €900m in 2020”

In 2015/2016, Dutch DSOs Alliander, Enexis and Stedin were each spending between €400m and €600m annually in capital expenditure. The energy transition plan requires DSOs to

increase spending to between €700m and €900m each in 2020. In a communication to bond investors, Alliander estimated its gross investment at €882m in 2020 compared with €835m in 2019 and €730m in 2018. Although Stedin provided no precise guidance for 2020, the grid operator announced it will spend c.€7bn in capex in the coming ten years.

Smart meters: the next concern?

Smart meters are a cornerstone of the energy transition plan. They allow energy distribution companies and consumers to measure and monitor the energy consumed on a high frequency basis. DSOs are responsible for the installation of smart meters. With more than 5 million smart meters installed, Dutch DSOs will soon reach their final target of c.7 million installations by the end of 2020.

Stedin and Alliander have installed smart meters that communicate data using the 450MHz frequency. Their licence runs until November 2024 after a first extension in 2018. The Dutch network companies want to obtain an additional licence extension that would ensure an acceptable depreciation of the assets. In the meantime, municipalities,

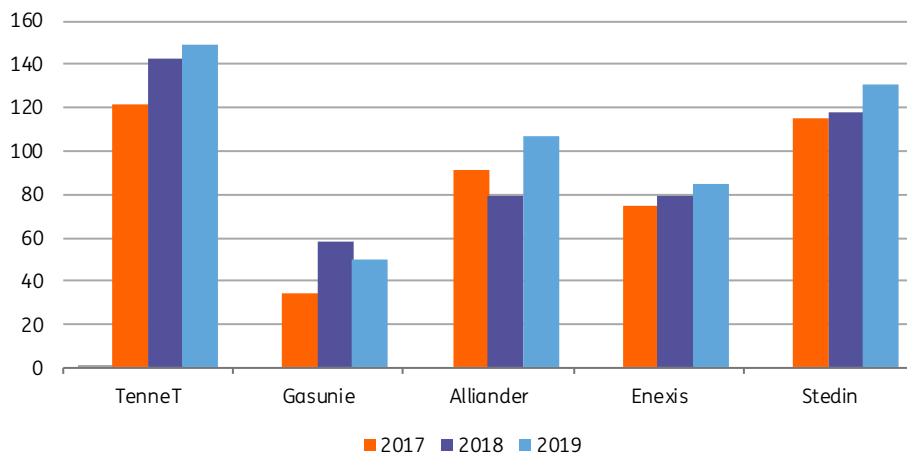
water and transport companies have shown interest in the 450MHz frequency. In February 2020, a Dutch court gave reason to the Ministry of Economic Affairs on the right to refuse a licence prolongation to Stedin and Alliander. The Dutch grid companies might be able to find another frequency that would technically allow data transfer for their smart meters. If this is not feasible, Alliander and Stedin may need to replace and install new smart meters. The full cost of the operation could amount to €1bn.

Investment needs can be greater than cash flow generation

In 2019, capital expenditure disbursed by TenneT Group, Alliander and Enexis was significantly above the cash flows generated by the companies. For TenneT (Dutch and Germany activities), total investment represented c.150% of the group's generated EBITDA. Stedin's capex to EBITDA ratio reached c.130% in 2019 and an average of 115% in 2017 and 2018. With €834m spent in gross investment and an EBITDA of €828m, Alliander's capex/EBITDA was above the 100% level in 2019. Besides capital expenditure, Dutch TSOs and DSOs pay dividends to their respective shareholders.

150% TenneT's capex to EBITDA ratio reached 150% in 2019

Fig 9 Capital expenditure/EBITDA ratio for the top five grid utilities (%)



Source: Company data, ING

A gradual increase in debt

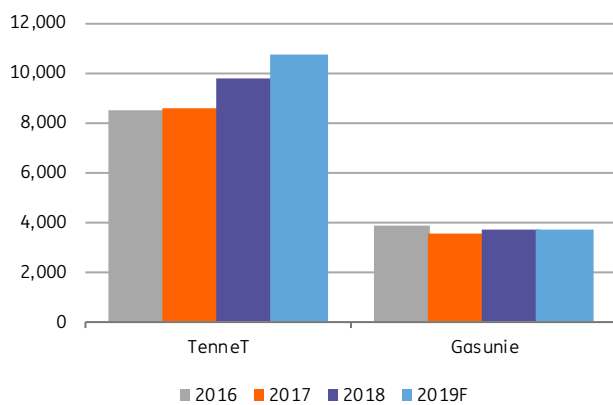
Except for Nederlandse Gasunie, for which investment has been well covered by cash flow generation, Dutch network operators have seen their debt burden gradually increase to finance capital expenditure in full.

TenneT's total investment of between €1.8bn and €3bn a year in the period 2016-2019 resulted in an additional debt of c.€2.5bn for the period. With a latest revised capital expenditure plan of between €45bn and €50bn in each of the next ten years, TenneT's dependence on debt instruments could intensify.

Disposals have limited new debt issuance

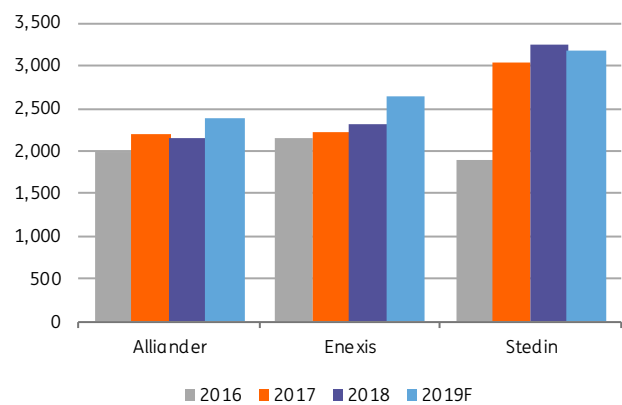
For Enexis, Alliander and Stedin, the debt burden is less critical. However, the higher investment needs that started three years ago and will continue for the next ten years will require additional debt as cash flow generation will not fully cover investments. To date, DSOs have limited their issuance of new bank loans and bonds thanks to cash derived from the disposal of non-core activities. In the second quarter of 2019, Stedin sold Jouz to 3i Infrastructure for €310m. In June 2018, Alliander sold its Allego subsidiary which develops charging solutions and infrastructure for a book profit of €105m.

Fig 10 TSOs: net adjusted debt 2016-2019 (€m)



Source: Company data, ING

Fig 11 DSOs: net adjusted debt 2016-2019 (€m)



Source: Company data, ING

Shareholders at the rescue

Minimum credit ratio requirements

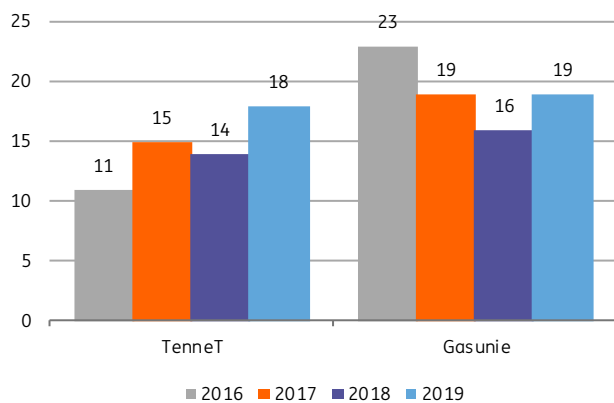
Both rating agencies and Dutch network operators themselves set minimum credit ratio requirements in order to:

- 1) maintain adequate credit strength in line with their licence requisites. Network operators must comply with the minimum credit rating requirement pursuant to the Network Operators Financial Management Decree (Besluit Financieel Beheer Netbeheerders) **which requires a minimum rating of BBB/Baa2 on a standalone basis.**
- 2) maintain minimum credit ratings and credit ratios judged sufficient to access financial markets.

To date, Dutch TSO and DSO credit strength has been in line with requirements but increasing investment could threaten the healthy financial situation for these companies as negative free cash flow positions will occur year after year.

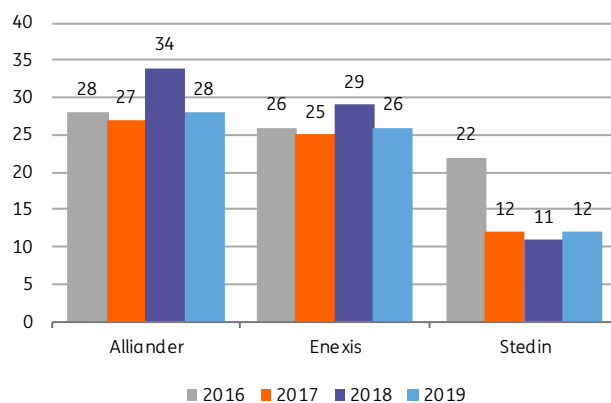
- **Alliander** aims to maintain a credit rating in the “A” category, which implies a minimum FFO/net adjusted debt of 20%.
- **Enexis** set a minimum FFO/net adjusted debt at 16% and FFO/interest coverage at 3.5x with a minimum credit rating in the “A” category.
- **Stedin** aims to retain its A- rating. Standard & Poor's requires an FFO/net adjusted debt ratio of 11% or above which does not leave ample room considering the company's ratio of around 12% for the past three years.
- **TenneT** is rated A- and A3 by Standard & Poor's and Moody's, respectively, thanks to a two-notch uplift over its respective standalone ratings (BBB and Baa2) taking into account the Dutch government support. In order to retain its current ratings, TenneT must show a minimum FFO/net debt of 8-9%.
- **Nederlandse Gasunie** is rated AA- by Standard & Poor's with a standalone rating at A. The rating agency would downgrade Gasunie's standalone profile from A to BBB+ if its FFO/net adjusted net debt were to fall below 11%. Moody's rates Gasunie A1 including a two-notch uplift. Moody's could downgrade the company's rating if its FFO/net debt ratio were to fall below a minimum 8-9%.

Fig 12 Dutch TSOs: FFO/net adjusted debt ratio (%)



Source: Company data, ING

Fig 13 Dutch DSOs: FFO/net adjusted debt ratio (%)



Source: Company data, ING

Capital injections considered

Under the pressure of heavy investment, TenneT, Alliander, Enexis and Stedin are asking their respective shareholders to intervene.

“Dutch grid operators are asking shareholders to provide funding”

Managements are asking shareholders to provide them with funding in the form of pure equity injection or loans.

TenneT: the German state option

TenneT is 100% owned by the Dutch state and has received a c.€1.2bn equity injection from its shareholder since 2016. With a standalone rating at BBB and total investment that will further accelerate to reach c.€5bn a year, TenneT concluded that it needed an additional €5bn capital increase. In May 2020, the Dutch government announced it was in official discussions with the German federal state for a minority stake disposal. The respective ministers of finance, economics and energy signed a Joint Declaration of Intent, which states the parameters and timing of the involvement. The proposed timeline for executing a shareholding arrangement has been set for the first quarter of 2021. Several options were on the table and remain possible if a plan B is needed. The Dutch government could choose a partial sale to private investors or a full sale of TenneT Germany. Also, an additional capital contribution by the Dutch state could be envisaged again or an IPO of a minority interest in TenneT.

Enexis: €500m convertible hybrid shareholder loan

Enexis is also considering strengthening its balance sheet. The company is asking its shareholders to participate in a €500m convertible hybrid shareholder loan in two tranches. The first tranche would be issued as early as July 2020 and the second tranche in November 2020. The convertible hybrid loan would offer a fixed coupon and be considered a hybrid with an intermediate equity content. The first call would happen after the ten years. A 100bp step-up in 2050 would be included and a final maturity date in 2080. Enexis would have the option to convert the instrument to equity if it was to lose its “A” category rating.

Stedin: equity injection of between €750m and €1bn

With a capital expenditure plan of €7bn over the coming ten years, Stedin estimates it needs between €750m and €1bn in additional equity from its shareholders. The utility is owned by 44 municipalities of which the largest three are the municipality of Rotterdam (32%), The Hague (17%) and Dordrecht (9%).

The next regulatory period will be key

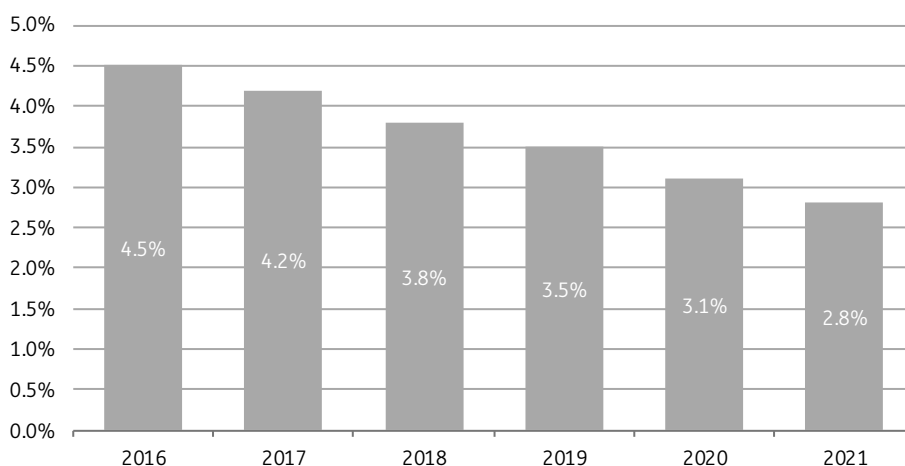
Dutch transmission and distribution system operators fall under the supervision of the Dutch regulatory body ACM. The current regulatory period was set for five years and runs from the beginning of 2017 to the end of 2021. The regulator set a remuneration rate derived from a weighted average cost of capital (WACC) intended to gradually decrease from 4.5% at the end of 2016 to c.3% at the end of 2021. The WACC was calculated taking into account lower sovereign rates as well as required cost efficiencies.

“Dutch grids’ regulated remuneration is among the lowest in Europe”

Dutch network operators have evolved within one of the lowest remunerative regulatory systems in Europe. This has resulted into a current remuneration rate

that does not allow a number of Dutch grid operators to cover their operational costs and capital expenditure in full. The next regulatory period starting in January 2022 will be key.

Fig 14 Real pre-tax WACC under the current regulatory period, 2016-2021



Source: ACM, ING

Network operators have started talks with the Dutch regulator ACM through preliminary studies and an informal consultation process with stakeholders. A formal pre-consultation is about to start, and a draft method decision is expected around the end of 2020. The final method decision will be known by mid-2021.

“Capital injections only provide short-term relief”

The new regulatory method will set new WACCs. Looking at current German and Dutch treasury bond rates, the risk free rate should be lower than the one set to calculate the WACC formula for the period

2017-2021. This could lead to a further decrease in WACC and thus in remuneration. With current cash flows already not covering operating costs and capital expenditure in full, Dutch network operators want to see a change in the methodology. Capital injections will help the Dutch grid operators but will only provide short-term relief.

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