MOODY'S
INVESTORS SERVICE

CREDIT OPINION
24 August 2017

Update

Rate this Research

RATINGS

Bulgarian Energy Holding EAD

Domicile	Bulgaria
Long Term Rating	Ba1
Type	LT Corporate Family Ratings
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

Velina Karadzhova 44-20-7772-5478
Analyst
velina.karadzhova@moodys.com

Andrew Blease 44-20-7772-5541
Associate Managing Director
andrew.blease@moodys.com

Bulgarian Energy Holding EAD

Credit Opinion Update

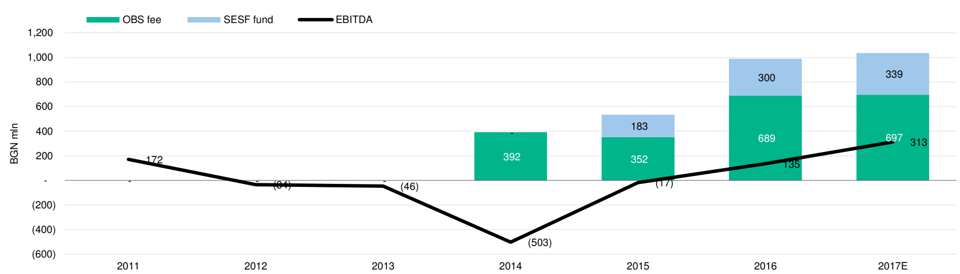
Summary

Bulgarian Energy Holding (BEH)'s Ba1 corporate family rating (CFR) reflects (1) the group's dominant position within the electricity generation industry in Bulgaria; (2) its improving financial profile as a result of deficit reduction measures put in place throughout 2015; and (3) its ownership of Bulgaria's main gas transit and transmission and electricity transmission assets.

However, the rating is constrained by (1) the relatively unsettled regulatory regime which doesn't support cash flow stability and predictability; (2) the risks and uncertainties with respect to full liberalisation of the wholesale power market in Bulgaria and its impact on BEH; (3) the volatile earnings profile of the group which limits cash flow visibility; and (4) weak liquidity management.

Exhibit 1

Deficit reduction measures support improvement in Natsionalna Elektricheska Kompania's (NEK) financial profile



Note: (1) OBS fee excludes amounts collected through the regulated tariffs and (2) 2016 NEK EBITDA is adjusted for BGN156 million one-off costs in relation to the Belene arbitration court case
Source: NEK and BEH Annual Reports

The Ba1 rating incorporates three notches of uplift to BEH's standalone credit quality, expressed as a baseline credit assessment (BCA) of b1, to reflect the high likelihood that the Government of Bulgaria, BEH's 100% owner, would step in with timely support to avoid a payment default of BEH if this became necessary.

Credit Strengths

» Competitive generation base in export driven market should support generation earnings over the medium term

» Improving financial profile supported by deficit reduction measures introduced in 2015

» 100% government ownership and ownership of strategic energy infrastructure provide three notches of rating uplift

Credit Challenges

» Unsettled regulatory environment with some political intervention cause earnings volatility

» Full electricity market liberalisation presents opportunities, but also risks

» Liquidity management practices are credit negative given the volatile earnings profile

Rating Outlook

The stable outlook reflects the fact that, while BEH's standalone credit profile could come under pressure, the strategic role of the company in the Bulgarian energy sector and the oversight and support given by the Government would be supportive of BEH's overall financial status. Moody's notes the letter of support that the Bulgarian Government has provided to the holders of the Bonds as outlined in the Bond prospectus.

The stable outlook reflects Moody's view that a one notch downgrade of the BCA may not result in a downgrade of the final rating.

Factors that Could Lead to an Upgrade

Currently, there is limited upward rating potential in light of the uncertainties with respect to full liberalisation of the wholesale electricity market and its impact on BEH.

Factors that Could Lead to a Downgrade

Downward rating pressure may develop if (1) we were to reassess the estimate of high support from the Government of Bulgaria; or (2) the Government's rating were to be lowered.

We would expect BEH to maintain FFO/debt of at least in the high teens in percentage terms to maintain the existing b1 BCA. Downward pressure could be exerted on the BCA if (1) the positive regulatory changes implemented in 2015 were to be reversed as a result of market liberalisation or other reasons, and this were to cause further deficits incurred by BEH; and (2) changes in BEH's operating environment, including due to market liberalisation, led to a significant deterioration in its financial profile.

Key indicators

Exhibit 2

Deficit reduction measures are successful in supporting BEH's financial profile

FY2016 cash flows are adjusted for one off impacts of BGN156 million legal costs for Belene and BGN104 million write off of deposits with a bank in liquidation (KTB)

	12/31/2016	12/31/2015	12/31/2014	12/31/2013	12/31/2012
(CFO Pre-W/C + Interest) / Interest	5.5x	6.8x	2.8x	7.8x	7.4x
(CFO Pre-W/C) / Net Debt	29.9%	41.0%	7.3%	23.3%	30.1%
RCF / Net Debt	29.3%	41.0%	6.5%	15.0%	22.7%
(CFO Pre-W/C) / Debt	21.6%	28.8%	6.3%	19.2%	22.7%
RCF / Debt	21.1%	28.8%	5.6%	12.3%	17.2%
Debt/book capitalization	27.0%	20.6%	23.7%	24.2%	20.8%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics™

Profile

Bulgarian Energy Holding EAD is the incumbent 100% state owned electricity and gas utility in Bulgaria. It owns around 50% of the electricity generation facilities in the country, including the 2,000MW nuclear power plant, 2,713 MW of hydro plants, as well as a 1,620MW lignite plant, the input fuel for which is sourced at BEH-owned mining facilities Through its subsidiary NEK, it is the single trader on the regulated wholesale power market. It also owns and operates the high voltage electricity transmission grid (15,130 km) and the gas transmission and transit networks in Bulgaria (1,700km and 945km respectively), and is also the main regulated wholesale gas supplier. In 2016, BEH group generated BGN608 million of EBITDA.

Detailed credit considerations

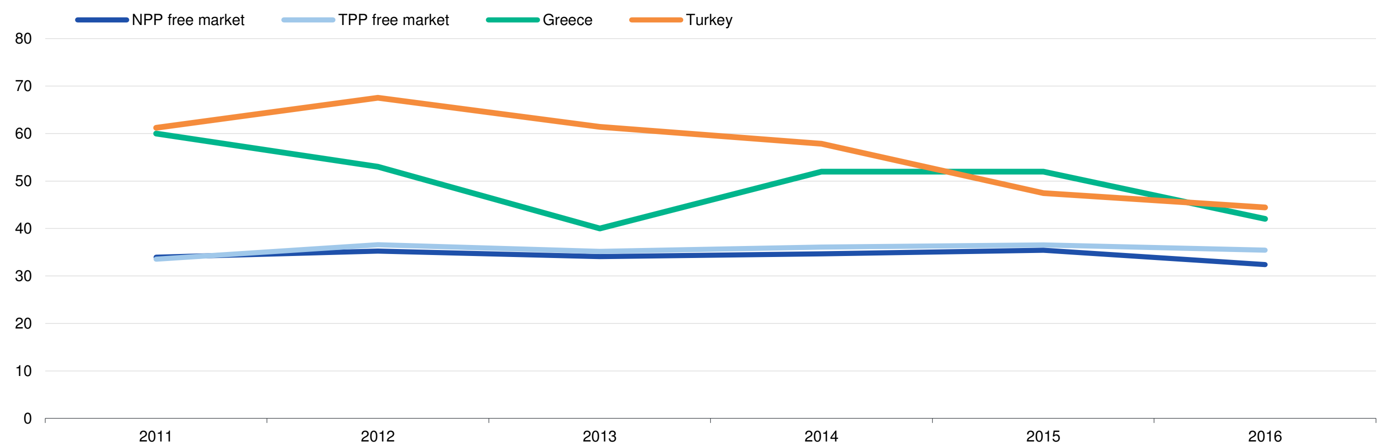
Competitive generation base in export driven market should support generation earnings over the medium term

BEH owns c. 6,300 megawatts (MW) of power generation assets representing 51% of the installed capacity in Bulgaria and in 2016 generated a net 25.2 terawatt hours (TWh) of electricity (around 60% of the total generation in Bulgaria).

Bulgaria is a net electricity exporter with net exports in the range of 6-10 TWh per year (lower than average in 2016 at around 6 TWh) depending on demand and hydrological conditions. Interconnector capacity with main export destinations (Greece, Turkey and Macedonia) is 1,530 MW and is usually fully utilised. Demand from export markets is expected to remain high in the near term, as Greece and Turkey have a large proportion of gas-fired generation which has been less competitive in the last few years. As a result of higher gas prices and lower CO2 costs, the Bulgarian generation mix is expected to remain competitively priced.

Exhibit 3

Wholesale power prices in export markets remain higher than those in Bulgaria
All prices in EUR/MWh



Source: BEH Annual Reports, EWRC Regulatory Decisions, LAGIE, EPIAS

BEH's generation mix is well positioned to benefit from those regional disparities, as around 70% of its generation is low cost nuclear and hydro generation.

Improving financial profile supported by deficit reduction measures introduced in 2015

The wholesale electricity market in Bulgaria currently operates under a dual system (regulated and competitive segments). NEK (a wholly owned subsidiary of BEH) has a public mandate to act as a single buyer and seller for all regulated transactions on the market. Electricity outside the regulated quotas trades at bilaterally negotiated prices in an open market or on the Bulgarian power exchange (IBEX) since the beginning of 2016.

Under this single buyer model, NEK purchases electricity from producers with regulated generation quotas at regulated prices. Quota producers include some conventional generators, renewables, and highly efficient co-generation plants. NEK also holds obligations to purchase power under two power purchase agreements (PPA) with privately owned thermal plants (owned by AES-3C and ContourGlobal). NEK's regulated sales are to end suppliers for their consumers on regulated supply tariffs (mainly low voltage consumers, e.g. households and small businesses) and volumes to cover transmission and distribution technological losses.

In the period 2011-2014, NEK's regulated sales prices did not reflect the full costs of its regulated purchases and its financial profile deteriorated as in effect it absorbed the energy system deficit (estimated by BEH at BGN1.6 billion as of Dec'15).

In 2015, the government implemented a series of measures to address future deficit occurrence and the early results of those have had a positive impact on BEH's financial performance (see exhibit 1). The key measures include 1) a limitation on the renewables and co-generation output eligible for feed-in-tariff subsidies; 2) an increase in the scope and amount of the charge levied on consumer bills to cover system costs such as renewables generation support (the "obligation to society fee"); and 3) the establishment of a fund (the Security of the Electricity System Fund) which is funded by a five percent tax on generation and electricity and gas transmission revenues and proceeds from auctioning of the CO2 allowances allocated to Bulgaria. A 14%-15% reduction in the fixed availability fee for the PPAs, effective from April 2016, was also negotiated, however the saving is passed onto final consumers through the tariffs and has no financial benefit for BEH.

BEH's consolidated FFO/net debt recovered to above 20% in both 2015 and 2016 from previously low levels of 7.3% in 2014. NEK returned to positive operating results at EBITDA level in 2016 with EBITDA adjusted for one-offs of BGN156 million.

The above mechanism will remain in place for the new regulatory period which started on 1 July 2017 and we expect that future tariff deficits would be very limited, if any occur at all.

We note that the market liberalisation process may lead to structural changes in this mechanism or NEK's role within the sector as a whole (see below), however, we expect that BEH would continue to benefit from those proceeds in the near-term.

Full market liberalisation presents opportunities, but risks and uncertainties remain

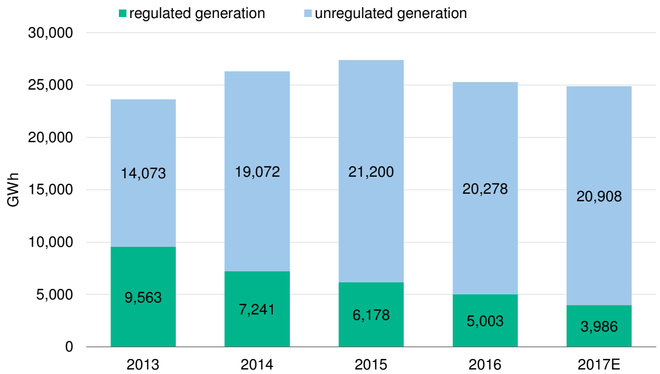
Full market liberalisation within the electricity sector (apart from network assets) is a strategic objective for the government in order to achieve full compliance with the 3rd energy package of EU Directives. It is intended that the current single buyer model under regulated prices and generation quotas will be replaced with a fully competitive wholesale market.

The World Bank presented its suggested approach in January 2017. The model proposed by the World Bank largely follows the actions taken in Spain with a transfer of the system deficit to a special purpose Government-owned and guaranteed fund. The Bulgarian government is yet to announce their proposed course of action. The proposals will then be open to public discussion and legislative changes will be also required.

The removal of mandatory purchase obligations for NEK will be a significant benefit for the group, as it will eliminate the risk of it incurring the system deficits in the future. We note that affordability remains a concern in Bulgaria and hence there is still social pressure to maintain low electricity bills. On the contrary, BEH or some of its subsidiaries could remain involved in the new market model as a payment administrator which may in effect retain their exposure to working capital needs or even future tariff deficits.

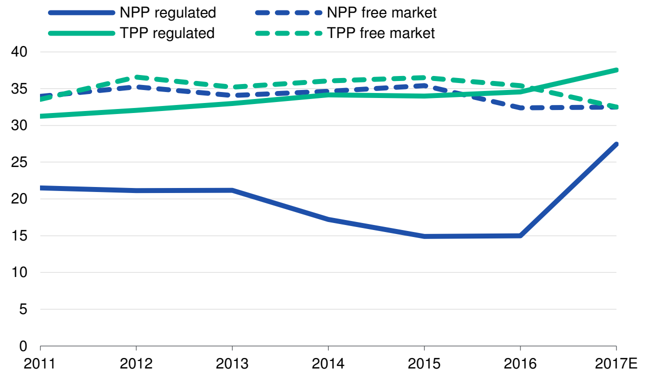
Benefits for the regulated generation within BEH are limited, as BEH's regulated quota has decreased significantly and regulated generation prices are now closer to those seen in the open market.

Exhibit 4
BEH's regulated generation quota has more than halved since 2013…..



Note: hydro generation is assumed to all be sold at freely negotiated prices
Source: BEH Annual Reports

Exhibit 5
…….and the associated regulated prices are now closer to the open market wholesale price



Source: BEH Annual Reports

BEH is however exposed to a number of risks and uncertainties as a result of the liberalization process.

Open market transactions are at the moment negotiated bilaterally and thus are somewhat shielded from the price volatility that liberalisation with trading of all generation volumes on an exchange could bring. BEH's generation assets are largely fixed cost and any price volatility will directly impact BEH's results if not hedged. As an example, a 10BGN/MWh reduction in the wholesale power price would result in c. BGN140 million reduction in EBITDA for the nuclear generation.

Also, BEH can currently charge a price premium for ancillary services such as limited balancing exposure of the buyers or varying consumption profiles. The ability to offer those services through the power exchange may be more limited and BEH could therefore see a reduction in its realised prices.

Further, it is yet unclear how and over what time horizon BEH would be able to recover the accumulated tariff deficit. At present, the deficit amount is also not confirmed by the regulator.

Unsettled regulatory environment with some political intervention cause earnings volatility

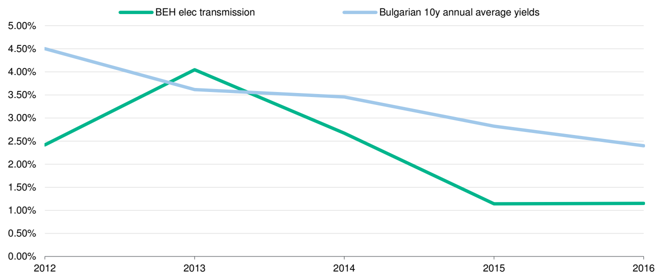
Electricity and gas regulation in Bulgaria is undertaken by the Energy and Water Regulatory Commission (EWRC). Since 2015, EWRC members are appointed by the Parliament rather than the Council of Ministers and this in our view should increase its independence. However, a track record of independent decision-making is still to be established.

Regulation is largely based on known principles such as rate of return on a regulated asset base for electricity and gas transmission and “cost plus” for the gas supply business. However, application of these principles still lacks the level of transparency seen in the more established regulatory regimes elsewhere in Europe.

As a result of social and political pressures, there have been past instances when tariffs did not fully reflect incurred costs (such as gas supply until 2013 and NEK’s regulated sales prices). Regulated prices for BEH's quota generation are below open market levels and this limits generation earnings, even though prices still reflect generation costs. The allowed returns for electricity transmissions are the lowest seen in Europe and below the historical cost of debt for the country, although we note that the earnings are supplemented by net revenues from balancing activities.

Exhibit 6

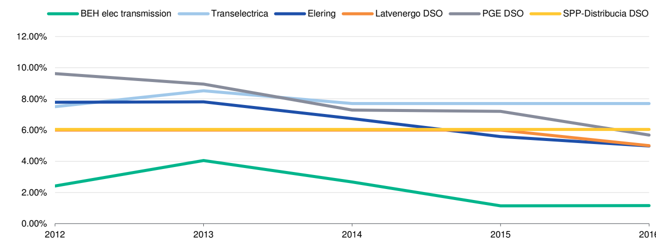
Allowed returns for electricity transmission do not cover even cost of debt.....



Source: BEH, Factset

Exhibit 7

.....and are the lowest seen in Central and eastern Europe



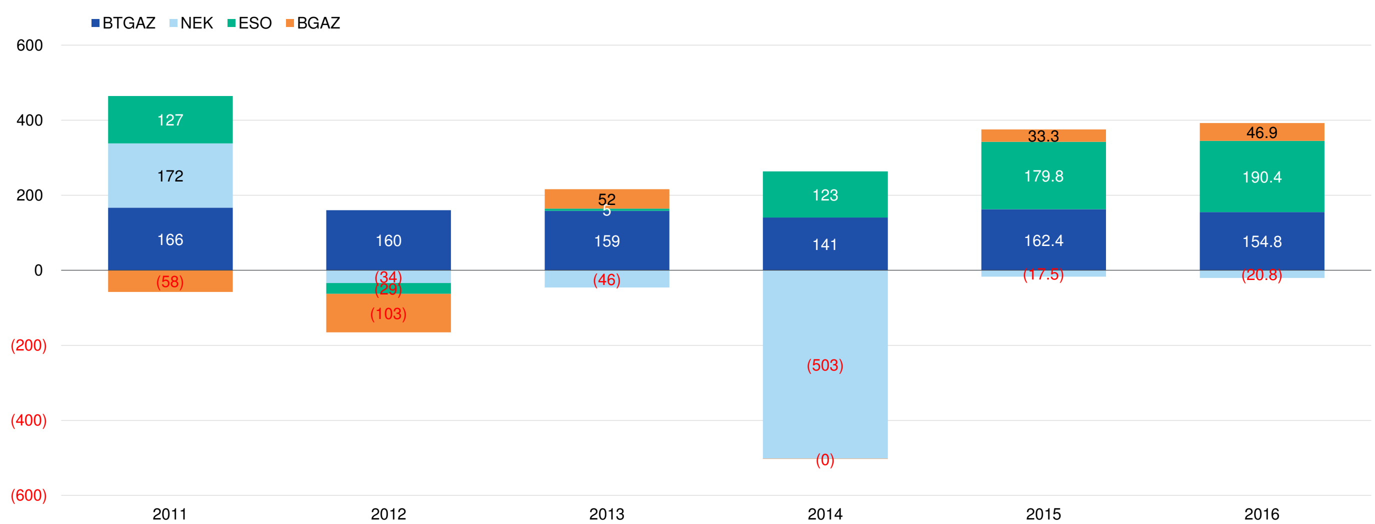
Source: BEH, Regulatory determinations

Further, the regulatory regime does not provide stability and predictability of cash flows as is typical for a regulated business. Regulatory periods are of one year and although this allows for quick interventions and updates of regulatory inputs, it limits the medium-term stability of cash flows. Some regulatory decisions in the past have either been inconsistent or quickly abolished (such as the introduction of the obligation to society fee on exports or transmission charges on renewable power plants) and have resulted in additional cash flow volatility.

Exhibit 8

Significant EBITDA volatility driven by unsettled regulatory environment limits cash flow visibility

EBITDA as reported, excluding adjustments for one-off or unusual items



Source: BEH Annual Reports

As a positive, we take into account the stable contracted contribution from the gas transit business, where tariffs are largely linked to inflation. However, this is a bilateral arrangement with limited information on the terms and conditions, and hence on the risks and rewards embedded within the contract.

100% government ownership and ownership of strategic energy infrastructure provides three notches of rating uplift

BEH's Ba1 CFR benefits from three notches of rating uplift for extraordinary support from its 100% shareholder, the Government of Bulgaria (Baa2, stable). This is driven by our high support assessment and expectation that BEH's shareholder would provide the company with timely financial support if such were needed in order to avoid a default.

Our assessment incorporates past instances of support provided by the Government in the form of 1) government debt guarantees; 2) an equity injection in 2009 and 3) most recently providing an interest-free loan to NEK in order to settle the arbitration award of EUR550 million plus accrued interest to Atomstroyexport. We also note the letter of support that the Bulgarian Government has provided to the holders of the Bonds as outlined in the Bond prospectus.

We further note that BEH owns a substantial part of the strategic energy infrastructure of the country, including gas and electricity transmission and the nuclear power plant. It is therefore strategically important from an economic and national security perspective.

Other considerations

In addition to the factors discussed above, the rating assessment also factors in the residual issues of (1) interpretation of financial statements given that there are a number of re-occurring audit qualifications and (2) the lack of approved financial targets and financial policies.

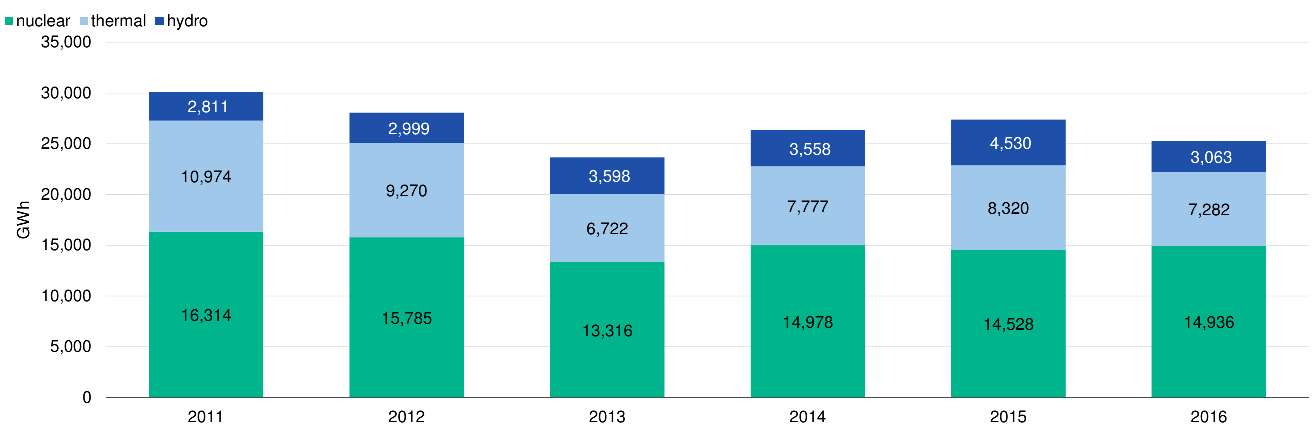
Our adjusted financial metrics include, among other adjustments, an allowance of approx. BGN1 billion for potential nuclear decommissioning liabilities of the group with respect to the Kozloduy power plant which is included in our adjusted debt calculation. The allowance is based on our estimates broadly taking into account 1) BEH's installed capacity; 2) the range of nuclear liabilities reported by peer nuclear plant operators in Europe; and 3) access to state funds dedicated to nuclear decommissioning works.

Limited financial exposure to de-carbonisation risks due to clean generation mix

The EU has committed to reduce greenhouse gas emissions by 40% from 1990 levels and to increase the contribution of renewables to energy demand to 27% by 2030. These targets, agreed in 2014, formed the basis of the EU's Nationally Determined Contributions incorporated into the Paris Agreement, and are designed to significantly decarbonise the region's economies. We believe that unregulated utilities, which account for 40% of EU carbon emissions, will need to deliver a significant share of the reductions, and that this will create a variety of risks and opportunities for individual companies.

BEH's generation mix is dominated by clean technologies with around 70% generated by nuclear and hydro. As a result, any increase in costs for the thermal generation due to increase in CO2 emissions prices will be likely offset by gains from the higher wholesale prices realised by the nuclear and hydro plants.

Increased costs for lignite generation due to higher CO2 prices will be offset by gains from higher wholesale power prices by the nuclear and hydro plants



Source: BEH Annual Reports

However, BEH's thermal power plant in the Maritza basin is currently non-compliant with the new large combustion plant limits. If Bulgaria obtains derogation approval, the plant could remain in operation post 2021, otherwise it will have to close or incur additional investments in order to meet the new limits. The cash flow impact of potential closure will not be material for BEH on it's own as earnings contributions from the plant are already small (EBITDA of BGN13.7 million in 2016). However, a closure of a substantial part of the thermal capacity in Bulgaria will have wider sector implications, including for BEH.

More generally, BEH has no experience with newer renewables technologies and this could impact its competitiveness over the longer term.

Liquidity Analysis

At the end of December 2016 BEH's liquidity is mainly supported by (1) just over BGN1 billion in cash and equivalents; and (2) the operational cash inflows. Therefore, BEH's liquidity is fully reliant on internal cash flow generation, as the group has no committed short term liquidity facilities in place.

The available liquidity is sufficient to cover BEH's operational and investment needs over the next 12 to 15 months, however BEH will need to access the capital markets for refinancing of its EUR500 million Eurobond due in November 2018. We expect the company to address the refinancing well ahead of the maturity date in order to avoid liquidity pressures.

Structural Considerations

A corporate family rating is an opinion of the BEH group's ability to honour its financial obligations and is assigned to BEH as if it had a single class of debt and a single consolidated legal structure.

BEH's strategy is to consolidate debt at the holding company level and with the issuance of the EUR550 million bonds in August 2016 this accounted for 85% of group debt as of December 2016. Holding company debt service is predominantly reliant on dividends being upstreamed, ensured through BEH's operating subsidiaries being required to distribute half of their net profits after certain allocations to retained earnings and reserves. Nevertheless, unsecured holding company creditors would be subordinated to claims of existing senior secured lenders (BGN96.7 million as of December 2016), as well as structurally subordinated to unsecured lenders and trade creditors of the subsidiaries.

Rating Methodology and Scorecard Factors

The principal methodologies used in rating BEH are Moody's "Regulated Electric and Gas Utilities", published in June 2017 and "Government Related Issuers", published in August 2017. Please see the Credit Policy page on www.moodys.com for a copy of these methodologies. BEH's assigned BCA is currently b1, three notches lower than the Ba1 grid-indicated outcome. The difference is due to (1) risks and uncertainties with respect to the full liberalization of the wholesale electricity market in Bulgaria; (2) Government involvement in BEH's strategic direction which on occasions follows the wider political agenda rather than BEH's corporate interests; and (3) wider governance issues, such as lack of approved financial policies and re-ocurring audit qualifications.

Exhibit 10

Rating Factors

Bulgarian Energy Holding EAD

Regulated Electric and Gas Utilities Industry Grid [1][2]	Current FY 12/31/2016		Moody's 12-18 Month Forward View As of August 2017 [3]	
Factor 1 : Regulatory Framework (25%)	**Measure**	**Score**	**Measure**	**Score**
a) Legislative and Judicial Underpinnings of the Regulatory Framework	B	B	B	B
b) Consistency and Predictability of Regulation	B	B	B	B
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	B	B	B	B
b) Sufficiency of Rates and Returns	B	B	B	B
Factor 3 : Diversification (10%)				
a) Market Position	B	B	B	B
b) Generation and Fuel Diversity	Baa	Baa	Baa	Baa
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	5.3x	A	5x - 6x	A
b) CFO pre-WC / Debt (3 Year Avg)	19.0%	Baa	18% - 23%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	18.7%	A	18% - 23%	A
d) Debt / Capitalization (3 Year Avg)	23.8%	Aaa	26% - 28%	Aa
Rating:				
Grid-Indicated Rating Before Notching Adjustment		Ba1		Ba1
HoldCo Structural Subordination Notching	0	0	0	0
a) Indicated Rating from Grid		Ba1		Ba1
b) Actual BCA Assigned				b1
Government-Related Issuer				**Factor**
a) Baseline Credit Assessment				b1
b) Government Local Currency Rating				Baa2, Stable
c) Default Dependence				High
d) Support				High
e) Final Rating Outcome				Ba1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 12/31/2016.
[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.
Source: Moody's Financial Metrics™

Ratings

Exhibit 11

Category	Moody's Rating
BULGARIAN ENERGY HOLDING EAD	
Outlook	Stable
Corporate Family Rating	Ba1
Senior Unsecured	Ba2/LGD5

Source: Moody's Investors Service

REPORT NUMBER 1082483

MOODY'S
INVESTORS SERVICE