

19 June 2020 – Neuss, Germany

Rating Action / Update:

Creditreform Rating has confirmed the unsolicited corporate issuer rating of Teollisuuden Voima Oyj at BBB-. The outlook is revised from stable to negative.

Creditreform Rating (CRA) has confirmed the rating of the unsolicited corporate issuer rating of Teollisuuden Voima Oyj, as well as the unsolicited corporate issue rating of the long-term local currency senior unsecured notes issued by Teollisuuden Voima Oyj at BBB-. The outlook has been revised from stable to negative.

Current relevant factors for the rating

The following considerations were of specific relevance for the rating assessment:

- Possibility of further delays to the commercial production of electricity for the Olkiluoto 3 power plant following a postponement of fuel loading.
- The penalty mechanism in the settlement agreement is limited to EUR 400 million, increasing the risk of further cost overruns.
- Ongoing weak price environment could reduce willingness of investors to remain invested in TVO

ESG-criteria:

CRA generally considers ESG factors (environment, social and governance) within its rating decisions. In the case of Teollisuuden Voima Oyj we have not identified any ESG factor with significant influence.

Teollisuuden Voima Oyj mainly generates CO₂-neutral electricity, which is in line with the general political direction of reducing CO₂-output. The production of nuclear energy and the disposal of used fuel is heavily regulated, and the supervision thereof is based on the Finnish nuclear energy legislation and the underlying principle of ensuring that the use of nuclear energy is safe and in line with the overall good of society. TVO will also relinquish its 45 percent stake in the Meri-Pori coal fired power plant, thereby reducing its CO₂ footprint.

A general valid description of Creditreform Rating AG, as well as a valid description of corporate ratings for understanding and assessing ESG factors in the context of the credit rating process, can be found here:

<https://creditreform-rating.de/en/about-us/regulatory-requirements.html?file=files/content/downloads/Externes%20Rating/Regulatorische%20Anforderungen/EN/Ratingmethodiken%20EN/The%20Impact%20of%20ESG%20Factors%20on%20Credit%20Ratings.pdf>

Rating result

The current rating attests a highly satisfactory level of creditworthiness to Teollisuuden Voima Oyj, which represents a low to medium default risk.

The rating result is largely determined by one of TVO's key rating factors, namely the creditworthiness of its shareholders. As Teollisuuden only provides electricity at cost price and only to its shareholders, its creditworthiness largely depends on them. We currently consider TVO's shareholder base sufficient to support the unsolicited corporate issuer rating of BBB-. In the event of a default of one of its shareholders, TVO could, according to its Articles of Association, immediately cut off distribution of electricity and sell it to the party submitting the best offer.

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Despite the turnkey principle of the plant contract and the joint and several liability for the supplier consortium, there are risks regarding the completion of the OL3 power plant. The settlement agreement between the supplier consortium and TVO provided relief, but further significant delays to the project might affect OL3's profit yielding capacity and increase the counterparty risk regarding the supplier consortium. According to the latest update of the supplier schedule, commercial electricity production should commence in March 2021.

TVO is awarded some degree of systemic relevance as it provides approximately 17% of all energy consumed in Finland. This percentage is expected to rise to approximately 30% after the commissioning of the OL3 power plant.

Outlook

We have revised the outlook from stable to negative following further fuel loading delays for the OL3 power plant. As of yet it is still unclear whether this will delay the start of commercial production, which we believe is a likely scenario. According to the settlement agreement of March 2018 TVO is entitled to receive a penalty payment if the consortium is not able to deliver the plant by 31 December 2019. The penalty is limited to EUR 400 million and depends upon the time of completion. We fear that, should there not be a new arrangement between the supplier consortium and TVO, this might result in further cost overruns, which in turn might affect the profit yielding capacity of the OL3 plant.

The current low Nord Pool electricity spot prices also contribute to the negative outlook for TVO. The Finnish area price on the Nord Pool exchange is currently only slightly higher than TVO's production cost of EUR 20/MWh. The cost of production is expected to rise to approximately EUR 30/MWh after the commissioning of the OL3 power plant. This market development (which mainly resulted from COVID-19 lockdown measures) could pose a threat - as well as the possible recession which may follow - which could continue to keep the market spot prices below the cost price and reduce the willingness of investors to remain invested in TVO.

Best-case scenario: BBB-

In our best-case-scenario we assume a rating of BBB-. We believe that an upgrade is unlikely due to the current situation with the Olkiluoto 3 power plant. In this scenario we assume that the commissioning for the OL3 power plant proceeds on schedule and that there are no further cost overruns that impact TVO's cost structure.

Worst-case scenario: BB

In our worst-case-scenario we assume a rating of BB. This might be the case if the scheduled commissioning of the OL3 plant is delayed significantly, resulting in large cost overruns which could impact TVO, as no further arrangements have been made by the supplier consortium to cover further cost overruns so far. Additionally, further significant delays put downward pressure on the rating as it increases counterparty risk.

Business development and outlook

During the business year of 2019, Teollisuuden voima Oyj generated - including the Meri-Pori coal fired power plant - 14.94 TWh (2018: 14.7 TWh) of electricity, which represents approximately 17 percent of all electricity consumed and 22.6 percent of all the electricity produced in Finland. The OL1 and OL2 nuclear power plants had a combined load factor of 94.8 percent during the 2019 business year. TVO generated a revenue of EUR 254.2 million (2018: EUR 350.3 million), EBITDA of EUR 43.05 million (2018: EUR 69.83 million), EBIT of EUR -2.44 million (2018: EUR 14.65 million) and an EAT of EUR 87.20 (2018: EUR -18.23 million). The fall in revenue, EBITDA and EBIT was mainly due to lower nuclear waste management fees and reduced output

Please note:

The scenarios are based on information available at the time of the rating. Within the forecast horizon, circumstances may occur that could lead to a change of the rating out of the indicated range.

from the Meri-Pori coal-fired plant. The EAT rose significantly in comparison to the prior business year, and was mainly affected by a reassessment of the fair value of the provision related to nuclear waste management obligations. During Q-1 2020, TVO continued its strong operative production with a combined load factor of 99.4 percent for OL1 and OL2, supplying a total amount of 3.87 TWh (2018: 3.96 TWh) to its shareholders. Generated revenue came to EUR 72.9 million (Q1 2019: EUR 87.1 million) and EAT of EUR 6 million (Q1 2019: EUR 2 million).

Table 1: Financials of Teollisuuden Voima Oyj | Source: Teollisuuden Voima Oyj Annual report 2019, standardized by CRA

Teollisuuden Voima Oyj Selected key figures of the financial statement analysis Basis: Annual accounts and report of 31.12. (IAS, Group)	CRA standardized figures ¹	
	2018	2019
Sales (million EUR)	350.27	254.21
EBITDA (million EUR)	69.83	43.05
EBIT (million EUR)	14.65	-2.44
EAT (million EUR)	-18.23	87.20
EAT after transfer (million EUR)	-18.23	87.20
Total assets (million EUR)	7,660	7,947
Equity ratio (%)	22.75	22.96
Capital lock-up period (days)	7.49	9.56
Short-term capital lock-up (%)	131.39	173.53
Net total debt / EBITDA adj. (factor)	81.57	136.75
Ratio of interest expenses to total debt (%)	0.80	-
Return on Investment (%)	0.21	-0.01

TVO operates according to the Mankala principle, which means that its primary goal is not to make profit, but to provide its shareholders with energy for which they are charged the cost price. Due to this not-for-profit principle, many of the standardized financial key figures cannot be interpreted as one would with companies with a more conventional business model.

The commissioning of the OL3 power plant, which was originally scheduled to begin commercial production in 2009, has been delayed several times. According to an update in December 2019 of the supplier Areva-Siemens Consortium, fuel loading was scheduled for June 2020, the first connection to the grid in November 2020, and regular electricity production is scheduled for March 2021. However, due to slow progress, further implications regarding the spread of COVID-19, and the implemented lockdown measures of governments, TVO announced on 8 April 2020 that the fuel would not be loaded into the reactor in June 2020. It is not yet clear whether this will cause further delays to the start of commercial electricity production. The schedule will be updated by the Areva-Siemens consortium as soon as the scope of the COVID-19 pandemic and the implemented lockdown measures are known. Areva is currently working on a plan, with the support of all parties, to secure funding until the end of the project. Further

¹ For analytical purposes, CRA adjusted the original values in the financial statements in the context of its financial ratio analysis. For example, when calculating the analytical equity ratio, deferred tax assets, goodwill (entirely or partly), and internally-generated intangible assets are subtracted from the original equity, whilst deferred tax liabilities are added. Net total debt takes all balance sheet liabilities into account. Therefore, the key financial figures shown often deviate from the original values of the company.

significant delays would increase the counterparty risk and downward pressure on the rating. If the commissioning of OL3 is pushed beyond June 2021, TVO has the option of cancelling the plant contract.

In March 2018, TVO signed a comprehensive settlement agreement with the supplier consortium Areva-Siemens to settle all the ongoing legal matters with regard to the delay of the OL3 power plant. Under the penalty mechanism in the settlement agreement, TVO is entitled to receive a penalty payment from the supplier if the supplier consortium fails to complete the project by the end of 2019. Since the deadline has already passed, TVO is eligible to receive the penalty; however, the exact penalty will be determined by the delay and is limited to an amount of up to EUR 400 million. According to estimates of TVO's management, the company would be entitled to receive a compensation of EUR 318 million if the plant's commercial electricity production were to commence in March 2021. The compensation would reduce the capitalized construction costs of OL3 on the balance sheet, which limits the rise in production costs (depreciation). According to publicly available information, we do not believe that TVO is protected against cost overruns regarding the OL3 plant that would exceed the amount of EUR 400 million, as long as there is no new agreement between the supplier consortium and TVO. This is a risk which could affect the profit-yielding capacity of OL3 in the event of further significant delays.

As the business model of TVO is to only provide its shareholders with electricity at cost price, the creditworthiness of its six shareholders is a key rating factor. The Company is owned by six shareholders, of which the two largest account for approximately 84% of the shareholder base. Based on our research and analysis we believe that the creditworthiness of the major shareholders of TVO is sufficient to support a corporate issuer rating of BBB-. The biggest shareholder, Pohjolan Voima Oyj" (57.1% as of 01.01.2019), is a Finnish energy company which also operates according to the Mankala model. Pohjolan Voima Oyj is mainly owned by Finnish industrial companies of which the majority shareholder is UPM Energy Oy, which is part of the UPM Group. The second-largest share is owned by Fortum Power and Heat (25.8% as of 01.01.2019), a subsidiary of Fortum Oyj (BBB / Stable as of 02.06.2020).

Although TVO does not sell its electricity on the market, market prices are still relevant, as ongoing low spot prices could reduce the willingness of its investors to remain invested in the Company. Energy prices strongly declined during the first quarter: the average Finnish area electricity price on the Nord Pool market was EUR 23.9/MWh, compared to EUR 47.52/MWh, which is approximately 50% lower than in the same period in the prior year. Also, in April, May and June the Finnish area price for electricity has remained significantly lower than usual. The cost price for TVO lies at roughly EUR 20/MWh and is expected to rise to approximately EUR 30/MWh when OL3 starts commercial production. We do not see a risk for the short-term, but if low area prices persist, it could start to pose a problem for investors, as the cost price for TVO might become higher than the Finnish area price on the Nord Pool market.

Issue Rating Details

Issue Rating

The rating objects of this issue rating are exclusively the in Euro denominated long-term senior unsecured issues, issued by Teollisuuden Voima Oyj, and which are included in the list of ECB-eligible marketable assets. The ECB list of eligible marketable assets can be found on the website of the ECB.

The notes have been issued within the framework of the EMTN programme, of which the latest base prospectus dates from 27 June 2019. The current EMTN programme amounts to EUR 4 bn. The notes under the EMTN programme benefit from a negative pledge provision and a cross default mechanism. A change of control clause does not exist in the terms and conditions.

We have provided the debt securities issued by Teollisuuden Voima Oyj with a rating of BBB-. The rating is mainly based on the corporate rating of Teollisuuden Voima Oyj.

Other types of debt instruments or issues denominated in other currencies have not been rated by CRA. For a list of all currently valid ratings and additional information, please consult the website of Creditreform Rating AG.

Overview

Table 2: Summary of CRA Ratings | Source: CRA

Ratingobjekte	Details Information	
	Datum	Rating
Teollisuuden Voima Oyj	19.06.2020	BBB- / negative
Long-Term Local Currency Senior Unsecured issues	19.06.2020	BBB- / negative

Table 3: overview of TVO Debt Issuance Programme | Source: TVO's EMTN Base Prospectus 27 June 2019

Issue Details			
Volume	EUR 4.000.000.000	Maturity	Depending on the respective bond
Issuer	Teollisuuden Voima Oyj	Coupon	Depending on the respective bond
Arrangers	Nordea Bank AB (Publ)	Currency	Depending on the respective bond
Credit Enhancement	-	ISIN	Depending on the respective bond

All future LT LC senior unsecured Notes that will be issued by Teollisuuden voima Oyj under the current EMTN programme, denominated in Euro and which are included in the list of ECB-eligible marketable assets will, until further notice, receive the same rating as the current LT LC senior unsecured notes under the EMTN programme. Notes issued under the programme in another currency other than Euro or other types of debt instruments have not been rated by CRA. For a list of all currently valid ratings and additional information, please consult the website of Creditreform Rating AG.

Appendix

Rating history

The rating history is available under:

<https://www.creditreform-rating.de/en/ratings/published-ratings.html>

Table 4: Corporate issuer rating of Teollisuuden Voima Oyj | Source: CRA

Event	Rating date	Publication date	Monitoring period	Result
Initial Rating	24.10.2018	29.10.2018	Withdrawal of the rating	BBB- / stable

Table 5: Corporate Issue Teollisuuden Voima Oyj | Source: CRA

Event	Rating date	Publication date	Monitoring period	Result
Initial Rating	24.10.2018	29.10.2018	Withdrawal of the rating	BBB- / stable

Regulatory requirements

The present rating is an unsolicited rating in the regulatory sense. The analysis was carried out on a voluntary basis by Creditreform Rating AG, which was not commissioned by the Issuer or any other third party to prepare the present rating.

The rating is based on the analysis of published information and on internal evaluation methods for the assessment of companies and issues. The rating object was informed of the intention of creating or updating an unsolicited rating before the rating was determined.

The rating object participated in the creation of the rating as follows:

With Rated Entity or Related Third Party Participation	Yes
With access to Internal Documents	No
With Access to Management	No

A management meeting did not take place within the framework of the rating process.

The documents and information gathered were sufficient to meet the requirements of Creditreform Rating AG's rating methodologies.

The rating was conducted based on the following rating methodologies and the basic document.

Rating methodology	Version number	Date	Website
Corporate Ratings	2.3	29.05.2019	https://creditreform-rating.de/en/about-us/regulatory-requirements.html?file=files/content/downloads/Externes%20Rating/Regulatorische%20Anforderungen/EN/Ratingmethodiken%20EN/Rating%20Methodology%20Corporate%20Ratings.pdf
Government-related Companies	1.0	19.04.2017	https://creditreform-rating.de/en/about-us/regulatory-requirements.html?file=files/content/downloads/Externes%20Rating/Regulatorische%20Anforderungen/EN/Ratingmethodiken%20EN/Rating%20Methodology%20Government-Related%20Companies.pdf
Non-financial Corporate Issue Ratings	1.0	October 2016	https://creditreform-rating.de/en/about-us/regulatory-requirements.html?file=files/content/downloads/Externes%20Rating/Regulatorische%20Anforderungen/EN/Ratingmethodiken%20EN/Rating%20Methodology%20Non-Financial%20Corporate%20Issue%20Ratings.pdf
Rating Criteria and Definitions	1.3	January 2018	https://creditreform-rating.de/en/about-us/regulatory-requirements.html?file=files/content/downloads/Externes%20Rating/Regulatorische%20Anforderungen/EN/Ratingmethodiken%20EN/CRAG%20Rating%20Criteria%20and%20Definitions.pdf

The documents contain a description of the rating categories and a definition of default.

The rating was carried out by the following analysts:

Name	Function	Mail-Address
Rudger van Mook	Lead analyst	R.vanMook@creditreform-rating.de
Natalia Berthold	Analyst	N.Berthold@creditreform-rating.de

The rating was approved by the following person (person approving credit ratings, PAC):

Name	Function	Mail-Address
Artur Kapica	PAC	A.Kapica@creditreform-rating.de

On 19 June 2020, the analysts presented the rating to the rating committee and the rating was determined. The rating result was communicated to the company on 19 June 2020. There has not been a subsequent change to the rating.

The rating will be monitored until Creditreform Rating AG withdraws the rating. The rating can be adjusted as part of the monitoring, if crucial assessment parameters change.

In 2011, Creditreform Rating AG was registered within the European Union according to EU Regulation 1060/2009 (CRA-Regulation). Based on this registration, Creditreform Rating AG is allowed to issue credit ratings within the EU and is bound to comply with the provisions of the CRA-Regulation.

ESG-factors

You can find out whether ESG factors were relevant to the rating in the upper section of this rating report "Relevant rating factors".

A general valid description for Creditreform Rating AG, as well as a valid description of corporate ratings for understanding and assessing ESG factors in the context of the credit rating process, can be found here:

<https://creditreform-rating.de/en/about-us/regulatory-requirements.html?file=files/content/downloads/Externes%20Rating/Regulatorische%20Anforderungen/EN/Ratingmethodiken%20EN/The%20Impact%20of%20ESG%20Factors%20on%20Credit%20Ratings.pdf>

Conflict of interests

No conflicts of interest were identified during the rating process that might influence the analyses and judgements of the rating analysts involved or any other natural person whose services are placed at the disposal or under the control of Creditreform Rating AG and who are directly involved in credit rating activities or in approving credit ratings and rating outlooks.

In the event of providing ancillary services to the rated entity, Creditreform Rating AG will disclose all ancillary services in the credit rating report.

Rules on the presentation of credit ratings and rating outlooks

The approval of credit ratings and rating outlooks follows our internal policies and procedures. In line with our "Rating Committee Policy", all credit ratings and rating outlooks are approved by a rating committee based on the principle of unanimity.

To prepare this credit rating, Creditreform Rating AG has used following substantially material sources:

Corporate issuer rating:

1. Annual report
2. Website
3. Internet research

Corporate issue rating:

1. Corporate issuer rating incl. information used for the corporate issuer rating
2. Documents on issues / instruments

There are no other attributes and limitations of the credit rating or rating outlook other than those displayed on the Creditreform Rating AG website. Furthermore, Creditreform Rating AG considers as satisfactory the quality and extent of information available on the rated entity. With respect to the rated entity, Creditreform Rating AG regarded available historical data as sufficient.

Between the time of disclosure of the credit rating to the rated entity and the public disclosure, no amendments were made to the credit rating.

The Basic Data Information Card indicates the principal methodology or version of methodology that was used in determining the rating, with a reference to its comprehensive description.

In cases where the credit rating is based on more than one methodology or where reference only to the principal methodology might cause investors to overlook other important aspects of the credit rating, including any significant adjustments and deviations, Creditreform Rating AG explains this fact in the credit rating report and indicates how the different methodologies or other aspects are taken into account in the credit rating. This information is integrated in the credit rating report.

The meaning of each rating category, the definition of default or recovery and any appropriate risk warning, including a sensitivity analysis of the relevant key rating assumptions such as mathematical or correlation assumptions, accompanied by worst-case scenario credit ratings and best-case scenario credit ratings are explained.

The date at which the credit rating was initially released for distribution and the date when it was last updated, including any rating outlooks, is indicated clearly and prominently in the Basic Data Information Card as a "rating action"; initial release is indicated as "initial rating", other updates are indicated as an "update", "upgrade" or "downgrade", "not rated", "confirmed", "selective default" or "default".

In the case of a rating outlook, the time horizon is provided during which a change in the credit rating is expected. This information is available within the Basic Data Information Card.

In accordance with Article 11 (2) EU-Regulation (EC) No 1060/2009, a registered or certified credit rating agency shall make available, in a central repository established by ESMA, information on its historical performance data including the rating transition frequency and information about credit ratings issued in the past and on their changes. Requested data are available at the ESMA website: <https://cerep.esma.europa.eu/cerep-web/statistics/defaults.xhtml>.

An explanatory statement of the meaning of Creditreform Rating AG's default rates are available in the credit rating methodologies disclosed on the website.

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