

## JCR Affirmed AA Rating on TVO, Revised Outlook to Negative

Japan Credit Rating Agency, Ltd. (JCR) announces the following credit rating.

### *Rationale*

(1) Teollisuuden Voima Oyj (TVO, Industrial Power Company Corporation) is an electricity generation company in Finland that owns two nuclear power stations (Olkiluoto 1 and 2) and sells the generated power to its shareholders at cost. TVO's rating is supported by (a) its business model called "Mankala", unique to joint-venture power generators in Finland, (b) the important role it plays as a principal energy source, supplying 18% of the country's total electricity consumption in 2013, (c) long-standing solid and stable operational track records of nuclear power stations since 1979, and (d) low power generation cost. As per the Articles of Association, TVO's shareholders are entitled to receive the generated power at cost while being obligated to pay (i) the fixed cost for constructing and operating the power plants including the payment of financial obligations regardless of the receipt of power, and (ii) the variable cost for generating the electricity in proportion to the volume they receive. Should a shareholder miss the payment deadline, TVO would be allowed to immediately suspend the delivery of power to such shareholder and sell it to other shareholders or the market at a market price. The prices of the electricity delivered by the company's two nuclear power plants averaged around EUR21/MWh in 2013, much lower than the spot prices at Nord Pool, the integrated electricity market in Nordic countries, that averaged EUR41/MWh in 2013. As such, TVO enjoys not only the shareholders' strong commitment as demonstrated in their representation in the company's board and the timely provision of shareholders' subordinated loans, but also the shareholders' economic disincentives for not receiving the power and not paying the fixed cost. Also, potential impact of a specific shareholder's non-payment, if any, on the company's debt payment capacity would be significantly limited given that it could readily dispose of the suspended power in the market.

The outlook of the rating is negative. TVO has been constructing a new nuclear power plant, Olkiluoto 3, since 2005. The expected commercial operation date for Olkiluoto 3 has been significantly delayed from 2009 as initially scheduled. Accordingly, the construction cost has swollen, and the arbitration is proceeding with the turn-key-contractors regarding who should bear the additional cost. Once Olkiluoto 3 starts operation, the company's average power generation cost is expected to hike, whereby price competitiveness of TVO's power will erode amid rather subdued Nord Pool forward electricity prices. The company is also preparing to build another nuclear power station, Olkiluoto 4, but its potential impact is not factored in the rating as it is still in the early stage of bidding evaluation, requiring more time to reach any concrete decisions. JCR will closely monitor the prospect of TVO's nuclear power generation cost based on the progress of construction of and the arbitration over Olkiluoto 3, as well as the electricity prices of the market where TVO operates, and reflect them in the rating as needed.

(2) TVO is a private nuclear power generation company jointly established in 1969 by six domestic shareholders including top two electricity companies in Finland. The company's total asset was EUR6.7 billion at the end of 2013 and the annual turnover was EUR366 million in 2013. The shareholders are (i) Pohjolan Voima Oy, the largest private electricity company in Finland, holding 58.5% of TVO; (ii) Fortum Power and Heat Oy, a subsidiary of the state-run Fortum Oyj, 25.8%; (3) Oy Mankala Ab, a hydropower company owned by the city of Helsinki, 8.1%; (4) EPV Energia Oy, electricity supplier for municipally-owned companies and cities, 6.6%; (5) Kemira Oyj, a water chemistry company, 1.0%; and (6) Karhu Voima Oy, a power distribution company indirectly owned by German E.On, 0.1%. Most of TVO's board members represent the major shareholders.

The company's annual power generation volume registered 15.4TWh in 2013, accounting for 18% of total domestic consumption in Finland. It has been operating two BWR nuclear power plants (880MW each) in Olkiluoto, Finland since 1979 and 1982, and possesses 45% shares of Meri-Pori coal condensing power plant (565MW) and 60% shares of Posiva Oy, a company that undertakes final disposal of spent nuclear fuel. In addition, TVO is constructing the third nuclear power station (EPR, 1,600MW). The company is also making preparations for the fourth nuclear power plant to be built in the future, for which TVO obtained the in-principle approval from the Finnish parliament in 2010 and is currently reviewing the bidding proposals. The deadline for applying for the construction license to the government will be due in July 2015.

- (3) TVO runs its business based on the so-called “Mankala” principle, a business model unique to joint-venture power generators in Finland. Specifically, in accordance with the Articles of Association, the shareholders retain the right to receive, based on each shareholding ratio, the generated power at cost price. Meanwhile, they are obligated to pay monthly to TVO (a) the fixed cost by the 24<sup>th</sup> of each previous month regardless of the receipt of power (e.g., cost of operation, maintenance and administration, taxes except for those related to power production volume, insurance, financial obligation, depreciation, cost for nuclear waste management) and (b) the variable cost by the due date (normally in each following month) in proportion to the volume they receive (e.g., fuel, taxes related to power production volume). In case a shareholder missed any such payment deadline, TVO would be entitled to immediately suspend the power delivery to such shareholder and sell it to other shareholders or the market at a market price. The company has run the nuclear power stations in a stable and safe manner for more than 35 years. The annual load factor of the existing nuclear power plants has constantly stayed extremely high at above 90%, registering 97.1% for Olkiluoto 1 and 93.1% for Olkiluoto 2, respectively, in 2013. The charge of the power generated by the existing two nuclear power plants was around EUR21/MWh in 2012 and 2013, much lower than the spot prices at Nord Pool, the integrated electricity market in Nordic countries, that averaged EUR37/MWh in 2012 and EUR41/MWh in 2013. That said, the prolonged construction period has been adding up the construction cost of Olkiluoto 3, which will inevitably lift TVO’s average generation cost once it becomes operational.
- (4) Operating under the Mankala model where the construction cost is capitalized during the construction period and recovered during the operational period by delivering the power to the shareholders at cost, TVO always registers zero net profit for its power generation business as approved by the Finnish tax authorities. The company is continuously investing in the two existing nuclear power stations so as to maintain 40 years of remaining technical life-time. Also, it has been undertaking the construction of the third nuclear power plant since 2005. For a company that has two 880MW nuclear power stations, financial burden of investing a new 1,600MW nuclear power plant would certainly be hefty. Under the financial policy to maintain the equity ratio at above 25%, TVO is procuring funds through a mixture of bank loans, corporate bonds and subordinated shareholder loans. At the end of 2013, its equity ratio stood at 29.4%. To address the mounting liquidity risks associated with refinancing needs amid the soaring financial obligations, TVO keeps adhering to the rules that (a) no more than 25% of outstanding financial obligations will mature during the next rolling 12-month period and (b) more than 120% of financing needs for the next rolling 12-month will be constantly secured by long-term committed credit lines such as syndicated credit facility. At the end of 2013, the total of undrawn syndicated credit facility and cash equivalents stood at EUR1.64 billion, way higher than the annual aggregate of maturing debt and investment needs.

Satoshi Nakagawa, Senior Analyst  
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### Rating

Issuer: Teollisuuden Voima Oyj (TVO)

<Outlook Change>

	Rating	Outlook
FC (Foreign Currency Long-Term Issuer Rating)	AA	Negative (from Stable)

Rating Assignment Date: March 25, 2014

The criteria used for identifying matters which serve as assumptions for the assessment of the credit status, and the criteria used for setting of grades indicating the results of the assessments of the credit status are published as "Types of Credit Ratings and Definitions of Rating Symbols" (January 6, 2014) in Rating Policies on JCR's website (<http://www.jcr.co.jp/english/>).

Outline of methodology for determination of the credit rating is shown as "JCR's Rating Methodology" (August 28, 2012) and "Electric Power" (July 13, 2011) in Rating Policies on JCR's website (<http://www.jcr.co.jp/english/>).



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