

Utilities - Non US
Finland
Full Rating Report

Teollisuuden Voima Oyj

Ratings

Foreign Currency	
Long-Term IDR	A-
Short-Term IDR	F2
Senior Unsecured	A-

Outlooks

Long-Term Foreign-Currency IDR Stable

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Related Research

Applicable Criteria

- *Corporate Rating Methodology (August 2010)*
- *Rating EMEA Utilities - Sector Credit Factors (May 2010)*

Other Research

- *2011 Outlook: Nordic Utilities (January 2011)*

Rating Rationale

Highly Competitive Nuclear Generator: The ratings of Teollisuuden Voima Oyj (TVO) reflect its position as a highly competitive, not-for-profit Finnish nuclear generator producing at-cost electricity for its six shareholders, significantly below the Nordic wholesale electricity (Nord Pool) price. TVO is a key generator of base-load electricity (16% of total Finnish electricity consumption in 2010).

High Operational Performance and Safety: TVO's nuclear power plants (NPPs) are some of the most efficient in the world, with an outstanding safety record. Fitch Ratings views the Finnish nuclear regulator, the independent Radiation and Nuclear Safety Authority (STUK), as one of the world's most demanding and stringent.

Fully Funded Nuclear Liabilities: Under the Finnish Nuclear Act, TVO's (non-discounted) nuclear liabilities, assessed annually, are funded through contributions to a centrally administered fund. Thus, future liabilities of decommissioning and long-term waste disposal are already fully included in TVO's operating costs.

Stable Shareholder Base: The shareholder base has been stable for a long time. Shareholders take their share of electricity at cost (having paid fixed costs, one month in advance).

Asset Concentration Risk: The rating is constrained by asset-concentration risk, although TVO's excellent operational record (load factors consistently above 94% since 1999) and safety record mitigate this.

Financial Ratios Do Not Drive the Ratings: Given the full cost pass-through mechanism, financial ratios, which are weak, are less meaningful.

Recent Events

The new Olkiluoto 3 (OL3) plant will be commissioned by end-2012, a 52-month delay. TVO's exposure to the delay is likely to be modest, with only a small impact on annualised production costs, as the contract with the Areva-Siemens consortium is a fixed-price, turn-key contract.

In May 2010, the government approved TVO's application for a "decision in principle" for a fourth 1,000MW-1,800MW nuclear plant in Olkiluoto. Parliamentary approval was granted in July 2010.

What Could Trigger a Rating Action

Negative Action: Adverse regulatory changes, a decline in operating performance and loss of cost competitiveness, a substantial reduction in wholesale electricity prices to below TVO's very low average production costs, or significantly reduced liquidity reserves could place pressure on the ratings.

Positive Action: Scope for a rating upgrade is currently limited.

Liquidity and Debt Structure

TVO has a strong liquidity position due to a favourable cash management regime. Fixed costs of the NPPs (80% of total cost) are charged one month in advance to shareholders. TVO has a minimum cash reserve policy of EUR90m. At end-2010, cash and cash equivalents were EUR98m, while undrawn committed credit lines were EUR1.7bn. Total debt was EUR2.8bn, of which only EUR170m was short-term.

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Mankala Model

Power-generating co-operatives, the so-called “Mankala model”, have a long history in Finland, dating back to when their founders required electricity for their operations but could not afford to build power plants on their own. Under the Mankala model, the company produces electricity at cost only for its shareholders, meaning that profits are zero or close to zero for any financial year.

TVO is the only cooperative in Finland with predominantly nuclear plants. Examples of other power-generating co-operatives include Pohjolan Voima (PVO), established by the forestry industry and EPV Energia.

Key Rating Issues

Background

TVO, established in 1969, is a not-for-profit generator, producing electricity for its shareholders at cost. It is currently building new nuclear power capacity in Finland.

TVO’s main business is power generation. The company has two wholly owned nuclear plants and a 45% stake in the Meri-Pori coal fired plant.

In 2010, TVO’s total annual output was 15.8TWh (2009: 15.3TWh), 94% of which derived from nuclear generation. Over the past decade, TVO has generated some 16%-19% of total electricity consumption in Finland per annum, making TVO a key generator of baseload electricity.

Figure 1

TVO Power Plants

Power plant	Plant type	MW	Commercial operation	Upgrade year
Olkiluoto 1 (OL1)	Nuclear, BWR	880	1979	1984, 1998, 2006, 2010
	Westinghouse Atom			
Olkiluoto 2 (OL2)	Nuclear, BWR	860	1982	1984, 1998, 2005, 2011
	Westinghouse Atom			
Olkiluoto 3 (OL3)	Nuclear, PWR	1,600	2013	n.a.
	Framatome-Siemens			
Meri Pori	Coal condensing	257 ^a	1994	n.a.

BWR - boiling water reactor, PWR - pressurised water reactor

^a 257MW stake in 565MW coal condensing plant, which represents TVO’s 45% ownership stake (the other 55% is owned by Fortum Heat and Power Oy, which also operates the plant)

Source: TVO, Fitch

In addition to its main generation business, TVO owns 60% of Posiva Oy, its joint venture with Fortum Power and Heat Oy. Posiva is responsible for research and the final disposal of spent nuclear fuel at the Olkiluoto plants and the two Loviisa nuclear plants owned by Fortum Corporation (‘A-’/Stable). TVO Nuclear Services, a wholly-owned TVO subsidiary, provides consulting services drawing on TVO’s expertise.

Shareholders Are at-Cost Electricity Off-Takers

TVO’s six shareholders – five utilities (some municipally owned) and Kemira, a chemicals company, with large electricity needs – are the off-takers of the electricity generated in its plants. The two largest are PVO (57.9% stake), itself a not-for-profit generator owned by a consortium of Finnish industrials (mainly in pulp and paper) and municipally owned utilities, and Fortum Power and Heat (26.1% stake), a wholly owned subsidiary of Fortum Corporation.

Three share series entitle shareholders to the electricity generated by OL1 and OL2 (A-series), OL3 under construction (B-series) and coal-fired Meri-Pori (C-series) - see table below.

Figure 2

Percentage Shareholdings by Share Series as of 31 Dec 2010

(%)	A series for OL1 and OL2	B series for OL3	C series for Meri-Pori ^b	Total
EPV Energia Oy ^a	6.5	6.6	6.5	6.6
Fortum Power and Heat Oy	26.6	25.0	26.6	26.1
Karhu Voima Oy	0.1	0.1	0.1	0.1
Kemira Oyj	1.9	0.0	1.9	1.2
Oy Mankala AB	8.1	8.0	8.1	8.1
Pohjolan Voima Oy (PVO)	56.8	60.2	56.8	57.9
Total	100.0	100.0	100.0	100.0

^a Formerly, Etela-Pohjanmaan Voima Oy

^b TVO's share of output i.e.45%

Source: TVO

High Operational Performance and Safety Record

TVO has an excellent operational track record, with capacity factors consistently above 94% since 1999 and very low unplanned outages, which have averaged 0.5% per year. The company has increased output at its nuclear plants through regular upgrades, from 10.9TWh in 1985 to 14.1TWh in 2010. Planned outages in 2010 were higher than usual due to upgrades on OL1, increasing the plant's installed capacity to 880MW from 860MW. A similar upgrade programme will be implemented for OL2 in 2011. The company has an outstanding safety record.

Figure 3

Plant Operating Performance

	Total annual production (TWh)			Capacity factor (%)		
	2010	2009	2008	2010	2009	2008
OL1	6.9	7.3	7.1	91.8	97.0	93.7
OL2	7.1	7.2	7.3	95.2	95.1	96.9
OL1 & OL2	14.1	14.5	14.3	93.5	96.0	95.3
Meri-Pori	1.6	0.8	0.9	nm	nm	nm
Total	15.7	15.3	15.2	nm	nm	nm

Source: TVO

Competitive, Low-Cost Production Versus Nord Pool Wholesale Price

OL1/OL2 have a very low operating cost of EUR18.7/MWh in 2010 (2009: EUR18.3/MWh), which compares favourably to an average Nord Pool system price of EUR56.6/MWh during the same period. The January 2012 forward Nord Pool price was EUR51/MWh at 2 June, well above current production costs.

Average production costs will increase with the commissioning of OL3 in 2013. However, according to management, average production costs will remain below EUR30/MWh, which is significantly lower than forward prices at 2 June 2011 of EUR49.4/MWh for 2013, EUR49.2/MWh for 2014 and EUR49.7/MWh for 2015. Senior executives have stated that they do not envisage any risk of TVO's production costs being uncompetitive in the foreseeable future.

As shareholders are off-takers, there is an incentive to keep costs to a minimum. Additionally, executives are rewarded for keeping the difference between budgeted and actual costs to a minimum.

TVO's competitiveness is further strengthened as it provides low-cost baseload electricity in Finland, where thermal generation dominates. With supply/demand remaining very tight in Finland (and with Finland having to import up to 15% of its electricity consumption, primarily from Russia), it is difficult to envisage a situation where this competitiveness might be eroded.

Risk of Non-Paying Shareholders Low

Under the company's articles of association, each shareholder is severally liable for annual fixed costs, including debt instalments, and for variable costs in proportion to the off-take electricity. In theory, TVO could face financial distress if shareholders failed to pay costs according to their obligations. However, should a shareholder fail to cover these costs, TVO would immediately cut its supply and sell the electricity to another shareholder, or to third parties.

The process of selling a stake in TVO would be initiated by the shareholder. As the shareholders are active participants in the management of TVO, a shareholder transfer would be encouraged to occur swiftly. A defaulting shareholder would likely benefit from the rapid receipt of proceeds, and would have an incentive for a timely sale. A shareholder transfer would be conditional on all prior costs being settled, including any loans from the nuclear fund. This would be the joint responsibility of both the buyer and the seller.

In the past, available shareholdings have generated a large number of interested buyers. Fitch notes that the shareholder structure has been very stable since TVO's inception, with virtually no shareholder changes over the last 20 years. Under current circumstances, Fitch believes TVO's risk of not finding new shareholders is low. TVO has to date never experienced a defaulting or late paying shareholder.

Beneficial Liquidity Management

The requirement that shareholders pay fixed costs one month in advance secures a steady cash flow and ensures a favourable cash-management system. The cost level is based on the annual budget, decided by the board.

Funded Nuclear Liabilities

According to the Finnish Nuclear Energy Act, each nuclear operator is fully responsible for the costs of waste management and final cost of decommissioning. These future costs are assessed annually and reviewed by two independent bodies. The non-discounted liability must be fully funded by the nuclear operator through contributions to a centrally administered fund, the Finnish State Nuclear Waste Management Fund (SNWMF); see *Nuclear Waste Management and Provisions* below for further details.

Fitch notes that the future nuclear liability is assessed on a non-discounted basis and that contributions to the fund are recorded as an operating cost. Future liabilities of waste disposal and decommissioning are therefore fully reflected in the operating costs of the nuclear plants. Thus, future liabilities are effectively funded as a levy on sales.

TVO's assessed liability increased by EUR56m in 2010 (2009: increase of EUR90m) due to a rise in estimated costs for its final storage facility to be commissioned in 2020. The cost increase will be included in the plants' operating costs, increasing average production costs modestly.

Supportive Regulatory Environment

Finland has a highly supportive regulatory environment for construction of NPPs, given concerns over the security of supply (the country remains a large net importer of electricity mainly from Russia), the competitiveness of energy intensive Finnish industries and stringent EU 2020 CO₂ emission requirements with (see *Nordic Electricity Market* and *Finnish Regulatory Environment* below).

Limited Cost Impact of Delay in OL3

TVO is constructing a third, 1,600MW European Pressure Reactor (EPR), originally scheduled for completion by summer 2009, but delayed by 52 months to 2013. The construction work is being carried out by a consortium of Siemens and Areva. The project carries construction and project risks that are largely mitigated by the

fixed-price turn-key nature of the contract. Under the contract, TVO can claim liquidated damages to cover increased costs caused by late commissioning. Fitch expects the impact on annualised production cost to be relatively small, despite the delay.

For the construction of OL3, shareholders have committed to providing equity and subordinated-loan contributions of 25% of the total investment cost (including the increased costs related to the delays), with the remainder financed by debt, which TVO's current undrawn committed facilities of EUR1.7bn would substantially cover.

Finnish Nuclear Regulatory Environment

The Finnish Ministry of Employment and the Economy is responsible for supervising nuclear power generation and for waste disposal under the Energy Act 1987. Regulation and inspection are carried out by STUK, which is responsible for issuing detailed safety regulations and safety-related review of licence agreements. The government grants licences for nuclear facilities and issues general safety regulations.

Nuclear Waste Management and Provisions

In Finland, the nuclear operator is responsible for all costs relating to nuclear waste management, including future decommissioning and research and development. The whole liability must be covered by the operator through annual contributions (or paybacks, if the liability decreases) to a centrally administered fund, the Finnish State Nuclear Waste Management Fund (SNWMF). Cost estimates are based on current price levels (i.e., not discounted) and reviewed annually by two independent bodies. The SNWMF is administered by the Ministry of Employment and the Economy.

Contributions to the fund are recorded as an operating cost and included in the price of the electricity produced by the nuclear operator.

This framework ensures that nuclear waste liabilities are fully funded over time and that any estimated cost increases are passed through the profit and loss account and reflected in the production cost of electricity.

Under the Energy Act, TVO and its shareholders can borrow back 75% of the funded nuclear liabilities in SNWMF at current interest rates and against guarantees.

Nuclear Generation in Finland

Finland has four nuclear plants, which produce over a quarter of the country's electricity: TVO's OL1 and OL2 (880MW and 860MW respectively) and Fortum Oyj's Loviisa 1 and Loviisa 2 (488MW each). The plants were constructed in the late 1970s to provide reliable low-cost baseload power. Since commissioning in 1977-1980, the plants have all been up-rated and their lifetimes extended: by 20 years to 60 years for OL1 and OL2, and by 10 years to 50 years for Loviisa 1 and 2.

OL3, under construction, is Finland's fifth nuclear reactor. Parliamentary and governmental approval for OL3 (provided in 2002), as well as the current consideration of a sixth nuclear reactor, reflects an acceptance of nuclear power as a viable source of low-cost, emission-free energy in Finland, despite the recent Fukushima accident, and in contrast to Germany.

Sixth Nuclear Reactor

Three generators applied for permission to build a sixth nuclear reactor: TVO, Fortum Corporation and Fennovoima, a consortium of E.ON AG ('A'/Stable) and Finnish and Swedish industry and energy companies. The potential nuclear plant must be deemed to be in line with the overall social good.

The approval process is typically lengthy, with the government reaching a decision-in-principle to issue a licence only after the proposed host municipality has

Three Categories of Nuclear Waste

Operating Waste

Low-level waste includes protective plastic sheets and clothing used in service work, while intermediate-level waste consists of ion-exchange resin to purify process water.

High-Level Waste

A quarter of the fuel-rod assemblies are replaced each year. Spent fuel is cooled in a water pool for a few years, then transferred to interim storage on the plant site.

Decommissioning Waste

This occurs once a nuclear plant closes, and includes disposal of structures that have become radioactive.

granted its consent and parliament has approved it. Detailed plans for the decommissioning and final storage must be submitted prior to the government issuing a construction and operating licence. The government approved the applications of both TVO and Fennovoima in May 2010; with parliament also approving them in July 2010.

Final Disposal

Under the Energy Act, any nuclear waste generated in Finland must be processed, stored and finally disposed of in Finland. The disposal of low and intermediate-level waste is already underway and is carried out on site at each power plant.

Spent nuclear fuel (high-level waste) generated by the existing nuclear plants (OL1, OL2, and Fortum's Loviisa 1 and Loviisa 2), as well as the new OL3 and OL4, will be disposed of in a deep rock repository under construction at Olkiluoto by Posiva, with final disposal scheduled to commence in 2020. Until then, spent fuel is in interim storage within the plant sites. The final disposal facility will also house decommissioning waste.

Impact of Fukushima

All NPP's in the EU will be subject to EU "stress tests" to further improve nuclear safety, following the Fukushima accident in Japan in March 2011. While the details of these "stress tests" have yet to be publicly communicated, on national levels, many nuclear watchdogs are in the process of performing their own safety studies, which should be consistent with (i.e., at least as stringent as) the requirements of the EU stress tests. Immediately following the Fukushima accident, the Finnish Ministry of Employment and the Economy requested an independent study of the safety of Finnish NPPs from STUK.

Fitch expects the financial impact of any additional safety requirements on TVO to be relatively contained. This is due partly to the already stringent and demanding safety framework in which TVO operates (self-imposed as well as imposed by STUK).

Debt Structure, Cash Flow and Liquidity

The group has reported under IFRS since January 2006.

Credit Metrics

As TVO is a non-profit company, financial ratios are less relevant than for most corporates. Generally, financial ratios are weak, reflecting the break-even cost structure of the company.

Debt and Capital Structure

Figure 4

Debt Structure (TVO Group)

(EURm)	2010 (IFRS)	2009 (IFRS)	2008 (IFRS)
Short-term bank loans	12	173	123
Commercial paper	154	309	338
Other short-term debt	5	34	
Long-term bank loans	880	891	1,277
Bonds	1,219	927	0
Other long-term debt	352	129	88
Sub-shareholder loan	179	179	179
Total debt	2,800	2,642	2,005
Loan from SNWMF	802	751	696
Equity	1,006	866	823

Source: TVO

Shareholders have committed to contributing 25% of total investment costs of OL3 in the form of equity and subordinated shareholder loans. The remainder of the investment will be financed by private placements and public bonds.

Changes in debt and equity in 2010 relate mainly to the financing of OL3. The 75m B-series share issue (EUR79.9m) was paid in December 2010 for the funding of OL3. In addition, a subscription of new equity of EUR65.2m occurred in March 2011.

The company increased the size of its Euro medium-term note (EMTN) programme to EUR2.5bn (from EUR2bn) in 2010. To date, it has issued around EUR1.2bn under the programme.

Specific bond issuance in 2010 included:

- Seven Swedish krona private placements totalling SEK2.6bn (maturing between 2015 and 2017);
- A EUR23m private placement (maturing in 2022);
- USD100m and GBP50m US private placements, maturing in 2020 and 2022 respectively.

Short-term funding is provided by a EUR1bn commercial-paper (CP) programme, which was drawn by EUR150m in 2010 (EUR309m in 2009).

Fitch notes that TVO's committed facilities must cover all payments (including maturing debt) for the next 12 months (see *Liquidity* below).

Loan From SNWMF

Under the Energy Act, TVO can borrow back 75% of the funded nuclear liabilities in SNWMF at current interest rates and against guarantees. These funds are lent on to shareholders on the same terms and in proportion to their shareholding. TVO receives promissory notes from the shareholders, which it then uses as guarantees for SNWMF. SNWMF can therefore require payment from TVO or its shareholders. Fitch does not include the loan from SNWMF to the shareholders in its debt calculations.

Liquidity

TVO's liquidity is good, with cash and marketable securities of EUR98m in 2010 (2009: EUR115m). The company has a policy of maintaining at least EUR90m of on-balance-sheet cash to cover any unexpected shortages in liquidity in the CP market.

Additionally, committed facilities must cover all payments (including maturing debt) for the next 12 months. Undrawn committed facilities of EUR1.7bn in 2010 consist primarily of a five-year (with a two one-year extension options) EUR1.5bn revolving credit facility, signed in March 2011.

Capex

The majority of total capex of EUR317m in 2011 (2010: EUR801m) related to the OL3 project. TVO estimates maintenance capex on existing nuclear plants at EUR30m per year. Total capex in 2011-13 – primarily for OL3 – is expected to be EUR450m in 2011, and EUR600-650m per year in 2012 and 2013. Fitch notes that capex requirements in 2011-13 could be covered by TVO's undrawn credit facilities, if necessary, in addition to EUR300m in undrawn committed shareholder loans.

Nuclear Provisions

TVO's assessed liability was EUR1,179m in 2010 due to increased estimated costs for its final storage facility to be commissioned in 2020. The funding target in SNWMF was set at EUR1,123m. TVO is required to cover the difference between the assessed liability and funding target (EUR56m), as well as 10% of the total assessed liability through guarantees.

Teollisuuden Voima Oyj FINANCIAL SUMMARY

	31 Dec 2010 EURm Original	31 Dec 2009 EURm Original	31 Dec 2008 EURm Original
Profitability			
Revenue	363	305	257
Operating EBIT	158	4	(29)
Operating EBITDA	215	58	23
Operating EBITDA Margin (%)	59.3	19.0	8.9
FFO Return on Adjusted Capital (%)	1.6	2.4	0.9
Free Cash Flow Margin (%)	(70.1)	(257.8)	(221.8)
Coverages (x)			
FFO Gross Interest Coverage	2.7	2.5	1.3
Operating EBITDA/Gross Interest Expense	19.0	3.2	1.3
FFO Fixed Charge Coverage (inc. Rents)	2.7	2.5	1.3
FCF Debt-Service Coverage	(1.1)	(1.3)	(1.1)
Cash Flow from Operations/Capital Expenditures	0.2	0.0	0.0
Debt Leverage of Cash Flow (x)			
Total Debt with Equity Credit/Operating EBITDA	12.2	42.5	80.1
Total Debt Less Unrestricted Cash/Operating EBITDA	11.7	40.5	71.2
Debt Leverage Including Rentals (x)			
Rental Expense	0	0	0
Gross Lease Adjusted Debt/Operating EBITDAR	12.2	42.5	80.1
Gross Lease Adjusted Debt/FFO+Int+Rentals	33.3	22.7	43.6
FCF/Lease Adjusted Debt (%)	(9.7)	(32.0)	(31.3)
Debt Leverage Including Leases and Pension Adjustment (x)			
Pension and Lease Adjusted Debt /EBITDAR + Pension Cost	12.2	42.5	80.1
Liquidity			
(Free Cash Flow+Available Cash+Committed Facils)/(ST Debt + Interest) (%)	774.7	183.3	229.3
Balance Sheet Summary			
Cash and Equivalents (Unrestricted)	98	115	203
Restricted Cash and Equivalents	0	0	0
Short-Term Debt	170	517	460
Long-Term Senior Debt	2,451	1,946	1,366
Subordinated Debt	179	179	179
Equity Credit	0	0	0
Total Debt with Equity Credit	2,621	2,463	1,826
Off-Balance-Sheet Debt	0	0	0
Lease-Adjusted Debt	2,621	2,463	1,826
Fitch- identified Pension Deficit	0	0	0
Pension Adjusted Debt	2,621	2,463	1,826
Cash Flow Summary			
Operating EBITDA	215	58	23
Gross Cash Interest Expense	(29)	(44)	(33)
Cash Tax	0	0	0
Associate Dividends	1	1	1
Other Items before FFO (incl. interest receivable)	(137)	50	18
Funds from Operations	50	65	9
Change in Working Capital	13	(51)	(0)
Cash Flow from Operations	63	14	8
Total Non-Operating/Non-Recurring Cash Flow	0	0	0
Capital Expenditures	(317)	(801)	(579)
Dividends Paid	0	0	0

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