

## **Finland Project Management Roundup**



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### **INTRODUCTION**

This roundup introduces four large projects currently going on in Finland: Two in the nuclear power business area, and two in the public transportation business area.

### **OLKILUOTO 3**

The Olkiluoto 3 nuclear power plant, a 1 600 MW unit, contracted to be built by Areva for Teollisuuden Voima (TVO) at Olkiluoto at the west coast of Finland, remains in its final stage of construction. The contract for building the power plant was signed in 2003 for 3 000 M€, and construction began in 2005, targeting completion in June 2009. Due to numerous challenges during the planning and construction phases, the target date has been pushed forward several times, first to 2015, and now to 2018 – nine years in total. According to Areva, the delays have pushed the total cost up to 8 500 M€.

Areva and TVO have conducted negotiations regarding the delay and related penalties, with TVO demanding 2 300 M€ from Areva, and Areva 3 500 M€ from TVO: Areva claims TVO has not carried out its contractual duties, and is therefore accountable for the costs of the string of delays. TVO claims Areva has failed to construct the power plant according to the contractual schedule, and is therefore accountable for the cost increase and for the loss of profit from selling electrical power to private and public customers. Unable to reach an acceptable solution, TVO and Areva have suspended negotiations, and escalated the dispute to international arbitration.

The matter is made more challenging by the French government plan to sell its share – majority – of Areva stock to *Électricité de France* (EDF) S.A. – the French electric utility company, largely owned by the French state, headquartered in Paris, France, with 65 200 M€ in revenues in 2010. EDF operates a diverse portfolio of over 120 GW of electrical power generation capacity in Europe, South America, North America, Asia, the Middle East and Africa. The French government would like to merge the loss-making Areva with EDF, however, EDF is unwilling to proceed with the proposed arrangement understanding the international arbitration may agree with TVO's claims.



*In the photograph: Olkiluoto 3 nuclear power plant is nearing completion despite the delay penalty dispute between Areva and TVO (photo courtesy [www.stuk.fi](http://www.stuk.fi))*

## **HANHIKIVI 1**

The Hanhikivi 1 nuclear power plant, a 1 200 MW unit, contracted to be built by Rosatom for Fennovoima at Pyhäjoki at the west coast of Finland, is proceeding full speed with the preliminary ground works. A preliminary approval to construct the plant was granted by the Finnish Government in April 2010, and by the Finnish Parliament in July 2010. The decision to invest in the power plant was made by Voimayhtiö SF, the largest owner of Fennovoima, in February 2014. The preliminary ground works for the plant are already under way, however, the final permit to construct the plant – applied for by Fennovoima in June 2015 – is expected to be granted by the Finnish Government no earlier than 2018. The plant is expected to go on line in 2024.

The plant will be constructed by Rosatom, and will use a pressurized water reactor. Other bidders for the construction contract included Areva and Toshiba. Rosatom – formally known as *Rosatom State Atomic Energy Corporation* – is a Russian state corporation, established in 2007, and the regulatory body of the Russian nuclear operations. 66% of Fennovoima is owned by the Finnish *Voimaosakeyhtiö SF*, and 34% by *RAOS Voima*, the Finnish subsidiary of Rosatom.

Hanhikivi 1 nuclear power plant project is facing challenges due to Rosatom being the main contractor, as well as a major investor in the plant: The plant is expected to generate approximately 10% of Finnish electricity demand. Rosatom has 34% ownership of the plant, which translates to Rosatom supplying 3% of Finland's electricity production according to Veli-Pekka Tynkkynen, professor of Russian energy politics at University of Helsinki. Professor Tynkkynen argues Russia may use its ownership of the plant to attempt manipulating Nordic power prices, or use it to leverage political disputes the same way Russia is already using its gas supply in disputes with neighboring countries such as Ukraine. Researcher Martin Kragh of Uppsala University in Sweden notes that Russia has already applied pressure to keep the Hanhikivi 1 project going by pressuring Fortum – a major player in the Finnish power business – to invest in the Hanhikivi 1 project through Voimaosakeyhtiö SF and to obtain a 6.6% share in the power plant. Fortum decision to invest in the project was critical, as a decision had been made earlier by the Finnish Government that a minimum of 60% ownership of the Hanhikivi 1 plant will need to be in Finland. The economic sanctions the EU has set upon Russia have not been imposed upon the Russian main contractor of the Hanhikivi 1 plant.



*In the illustration: An artist's view of the Hanhikivi 1 nuclear power plant at completion (illustration courtesy Fennovoima)*

## **LÄNSIMETRO**

Länsimetro – literally *west metro* – is the westward extension to the existing Helsinki metro system to the neighboring city of Espoo. The westward extension is to be



established in two phases: The first phase of the extension will lengthen the existing line from Ruoholahti via the island of Lauttasaari, the Aalto University Otaniemi campus, and Tapiola to a new terminus at Matinkylä. The second phase of the extension will lengthen the line further from Matinkylä to Kivenlahti. Länsimetro project is undertaken by Länsimetro Ltd, a jointly founded company, of which the city of Espoo owns 72%, and the City of Helsinki the remaining 28%. Mr. Matti Kokkinen has been the Länsimetro CEO since its founding.

The first phase of the extension, a 13.5-kilometer (8.4 mi) route, was approved for construction in April 2007, and the construction began in November 2009. In February 2014, rock blasting was complete, and the fitting out of the tunnels and construction of the stations was ongoing. The extension first phase was planned to open on August 15<sup>th</sup> 2016, however, last minute delays have pushed the start of operations into 2017.

The first preliminary plans, made in 2000 and 2001, cited the cost of building the infrastructure for the metro extension to Matinkylä to 400 M€. When the Espoo city council approved the construction of the metro extension in 2004, the estimated cost was 452 M€. In September 2007, the estimated cost of the Länsimetro was at least 530 M€, and in December 2007, at least 600 M€ due to increased need for ground construction and security systems. By January 2008, the estimated cost had risen to over 800 M€, and by February 2014 to about 1 000 M€. As of today, the total cost is estimated at 1 088 M€ – over 150% more than the original cost estimate.

The second phase of the extension, a 7.4 kilometer (4.7 mi) route was approved for construction in February 2014, and the construction began flexibly as the work on the first phase was being completed. The second phase of the westward metro extension runs entirely within Espoo city limits. The second phase of the extension is planned to be completed in 2020. The estimated cost of the second phase is 801 M€ as of 2013.



*In the illustration: The planned route of the westward metro extension: Ruoholahti through to Matinkylä in the first phase, and Matinkylä through to Kivenlahti in the second phase (illustration courtesy Länsimetro Ltd)*

## RAIDE-JOKERI

Raide-Jokeri – literally *rail joker* – is a light rail transit system – similar to the *Metro Blue Line* light rail in Minneapolis, Minnesota, US, and the *Metrolink* in Manchester, England – which has been planned for the metropolitan Helsinki area to complement the existing public transit service. Raide-Jokeri will connect two Helsinki metro stations – *Itäkeskus* in eastern Helsinki, and *Keilaniemi* in the eastern Espoo – to one another with 25 km (15.6 mi) of street-level double track and a total of 33 stops. Raide-Jokeri will replace the bus line 550, which is currently the most heavily congested bus line in the metropolitan Helsinki area, in 2021. The new light rail transit system is intended to enhance the reliability and travel comfort of the transverse public transportation i.e. the traffic in-between areas surrounding the immediate downtown Helsinki. It will also introduce opportunities to build a significant number of new homes along the route of the high-speed rail system.



*In the illustration: Raide-Jokeri will connect two Helsinki metro stations – Itäkeskus in the east and Keilaniemi in the west (illustration courtesy Helsingin Sanomat)*

The first idea of a transverse light rail transit system was introduced in 1990, and it was agreed to be one of the next-generation public transit systems to be constructed in 1994. Instead of a light rail system, the transverse connection was established with bus service in 2006. The number of passengers has grown enormously, and bus connection 550 along the proposed path of the Raide-Jokeri route is currently the most popular bus service offered by Helsinki Regional Transport Authority. Due to the increasing traffic, and need for quick and reliable connection, the plan to establish the originally proposed light rail transit system has been approved by the city of Helsinki as well as the city of Espoo. The budget for construction of the Raide-Jokeri infrastructure was originally 275 M€, however, the figure has been pushed up to 459 M€ before construction has started.

## About the Author



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**Jouko Vaskimo** is an International Correspondent and Senior Contributing Editor for **PM World** in Finland. Jouko graduated M.Sc. (Tech.) from Helsinki University of Technology in 1992, and D.Sc. (Tech.) from Aalto University in 2016. He has held several project management related positions with increasing levels for responsibility.

Jouko holds a number of professional certificates in the field of project management, such as the IPMA Level C (Project Manager), IPMA Level B (Senior Project Manager), PMP, PRINCE2 Foundation, and PRINCE2 Practitioner. Jouko is also a Certified Scrum Master and SAFe Agilist. Jouko is a member of the Project Management Association Finland, a founding member of PMI Finland Chapter, and the immediate past chairman of the Finnish IPMA Certification Body operating IPMA certification in Finland. Since October 2007, he has been heading the Finnish delegation to ISO/TC 258.

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