

CURRICULUM VITAE – IIVO VEHVILÄINEN

MARCH 18, 2019

- EDUCATION** **12/2004** D.Sc. (Tech.), Helsinki University of Technology, Finland
09/1998 M.Sc. (Tech.), Helsinki University of Technology, Finland
- CURRENT POSITION** **01/2018–** , Senior Research Fellow, Department of Economics, Aalto University School of Business, Helsinki, Finland.
- PREVIOUS WORK EXPERIENCE** **09/2016–02/2017, Aalto University:** Visiting Researcher, part-time, Department of Economics in the School of Business.
10/2014–02/2015, Aalto University: Senior Research Fellow (on sabbatical from Gaia), Department of Economics in the School of Business.
01/2018– , **Gaia Consulting Oy:** consultancy, Senior Advisor, energy.
01/2007–12/2017, Gaia Consulting Oy: consultancy, various positions.
11/1999–12/2006, Fortum Oyj: utility, various positions.
03/1998–11/1998, Helsinki Energy: utility, analyst.
09/1996–05/1998, Helsinki University of Technology: Research assistant.
- RESEARCH FUNDING AND GRANTS** **2015–2018, Academy of Finland** New Energy Academy Programme.
2014, Academy of Finland Aalto Energy Efficiency Research Programme (AEF): Smart Control Architectures For Smart Grids – SAGA.
2004, Väisälä fund Personal working and travel grant, 3000 euro.
- LEADERSHIP AND SUPERVISION EXPERIENCE** Dr. Vehviläinen has been responsible project leader in several research and research evaluation projects for the public sector, for example:
- Finnish Energy Market Authority
 - Finnish Ministry of Economic Affairs and Employment
 - Finnish Ministry of the Environment
 - Finnish Prime Minister’s Office
 - NordForsk
 - Sitra – The Finnish Innovation Fund
 - Nordic Council of Ministers
 - NordREG – Nordic Energy Market Regulators
 - Tekes – Finnish Funding Agency for Technology and Innovation
- D. Sc. thesis advisor for M. Sc. Aki Pesola at the School of Engineering in Aalto University, Finland.
- Thesis examiner for Stephen Davis at the University of Cape Town, South Africa.

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| TEACHING EXPERIENCE | <p>2019 Responsible teacher, Economics of Strategy for Online and Digital Markets, Aalto University School of Business, Finland.</p> <p>2014–2018 Visiting lectures, Microeconomics, Policy, Aalto University School of Business, Finland.</p> <p>2015 Visiting lecture, Smart Energy Systems, Aalto University School of Electrical Engineering, Finland.</p> <p>2011 Visiting lecture, Sustainable Building Design Lectures, Aalto University School of Arts, Design and Architecture, Finland.</p> <p>1996–1998 Teaching assistant, Several courses, Helsinki University of Technology, Finland.</p> |
| OTHER MERITS | <p>Adjunct to his academic interests Vehviläinen has worked in the energy industry for the past 20 years, carrying out research projects and expert studies on energy and climate related topics to public authorities and private companies in the Nordic area. His projects, often carried out in collaboration with the academia, have resulted in tens of studies that have often been published in the publication series of the institutes. He has been an invited expert in hearings by the Commerce Committee, Employment and Equality Committee, and Environment Committee of the Finnish Parliament, and an invited speaker in the Government Foresight Forums by the Prime Minister’s Office.</p> |
| MEMBERSHIPS AND REFEREEING | <p>Member of the European Economic Association (EEA) and European Association of Environmental Economists (EAERE).</p> <p>Referee work for Applied Mathematical Finance, Climate Services, Energy Economics, Energy Journal, European Journal of Operations Research, IEEE Transactions on Power Systems, and Resource and Energy Economics.</p> |
| PEER-REVIEWED PUBLICATIONS | <p>"Stochastic factor model for electricity spot price – the case of the Nordic market", with Tuomas Pyykkönen, (2005), Energy Economics, Vol. 27, Issue 2, Pages 351–367.</p> <p>"Modelling of electricity forward curve dynamics in the Nordic market", with N. Audet, Pirja Heiskanen, and Jussi Keppo, (2004). In Modeling Prices in Competitive Electricity Markets (ed. D. Bunn), Wiley, Pages 251–265.</p> <p>“Managing electricity market price risk”, with Jussi Keppo, (2003). European Journal of Operational Research, Vol. 145, Number 1, Pages 136–147.</p> <p>"Basics of electricity derivative pricing in competitive markets", (2002). Applied Mathematical Finance, Vol. 9, Number 1, Pages 45–60.</p> |
| WORKING PAPERS | <p>"Gone with the Wind? An Empirical Analysis of the Renewable Energy Rent Transfer", with Matti Liski, (December 19, 2016). CESifo Working Paper Series No. 6250. Most recent version: Dropbox link.</p> |

“Ownership and Collusive Exit: Theory and a Case of Nuclear Phase-out”, with Matti Liski, (June 7, 2018). MIT CEEPR Working Paper, WP-2018-010. Most recent version: [Dropbox link](#).

WORK IN PROGRESS "Dynamic pricing of electricity: money on the table?" (with Matti Liski).

"What is water? On the behavior of electricity prices with hydropower storage".

"When the wind blows – how to measure the effect of intermittent renewables to power system reliability".

SELECTED OTHER "The impact of renewable energy on the Nordic electricity market", with Matti Liski, (2016). Report for Energiforsk, 2016:319. ISBN 978-91-7673-319-6.

"Selvitys Suomen huoltovarmuusreservistä" (*in Finnish*), with Mikko Kara, (2015). *Fortum Energy Review series*, November 2015.

"Energiaviraston valvontamenetelmissä sovellettavan innovaatiokannustimen arviointi" (*in Finnish*), with Erkki Rynänen, Mari Hjelt, Laura Descombes, Juha Vanhanen, and Jarmo Partanen, (2014). Report for the Finnish Energy Authority.

"Sähkön pientuotannon kilpailukyvyyn ja kokonaistaloudellisten hyötyjen analyysi" (*in Finnish*), with Aki Pesola, Juha Vanhanen, Markku Hagström, Ville Karttunen, Lauri Larvus, and Laura Hakala, (2014). Report for the Finnish Ministry of Employment and the Economy.

"Helsingin 30 % päästövähennysselvitys – Kasvihuonekaasupäästöjen kehitys ja vähentämisen kustannustehokkaat toimenpiteet" (*in Finnish*), with Erkki Rynänen, Laura Oja, Olli-Pekka Pietiläinen, Riina Antikainen, and Pasi Tainio, (2014). *Helsingin kaupungin ympäristökeskuksen julkaisuja*.

"Energy Efficiency in Small and Medium Sized Enterprises", with Marika Bröckl, Julia Illman, and Laura Oja, (2014). *TemaNord*, 2014:510, Nordic Council of Ministers, ISBN 978-92-893-2718-3, ISSN 0908-6692.

"Energiainvestointien alue- ja kansantaloudellinen kannattavuustarkastelu" (*in Finnish*), with Ville Karttunen, Juha Vanhanen, Aki Pesola, and Laura Oja, (2014). *Sitran selvityksiä*, 73, Second edition. ISBN 978-951-563-885-4, ISSN 1796-7112.

"Ilmastopaneelin toiminnan arviointi" (*in Finnish*), with Tuomas Raivio, Alina Pathan, and Laura Oja, (2013). *Ympäristöministeriön raportteja*, 30/2013. ISSN 1796-170X, ISBN 978-952-11-4241-3.

"Payment requirements with combined billing", with Marika Bröckl, Laura Hakala, and Erkki Rynänen, (2013). Report for the Nordic Energy Regulators, NordREG.

"Selvitys energiaköyhyydestä – Kotitalouksien energiakustannukset" (*in Finnish*), with Laura Oja, Anu Vaahtera, Sanna Ahvenharju, and Laura Hakala, (2013). *Ympäristöministeriön raportteja*, 21/2013, ISBN 978-952-11-4205-5.

"Tracking environmental impacts in global product chains – Rare earth metals and other critical metals used in the cleantech industry" with Alina Pathan, Alain Schilli, Jens Johansson, Anna Larsson, and Jürg Hutter, (2013), *TemaNord*, 2013:520, Nordic Council of Ministers, ISBN 978-92-893-2519-6.

"Selvitys hiilijalanjälki- ja päästölaskennan menetelmistä ja kehittämistarpeista" (*in Finnish*), with Erkka Ryyänen, Laura Oja, Anna Kumpulainen, and Juha Vanhanen, (2012). Report for the Finnish Ministry of Environment.

"Residual mix in the Nordic countries", with Marika Bröckl and Erkka Ryyänen, (2012). Report for the Nordic Council of Ministers, Working Group for Renewable Energy.

"Selvitys maakaasun toimitusten älykkäiden mittausapojen käyttöönnotosta Suomessa" (*in Finnish*), with Marika Bröckl, Erkka Ryyänen, Mona Åkerholm-Kaapro, Jussi Soininen, Matti Reivonen, and Timo Nummelin, (2012). Report for the Finnish Ministry of Employment and the Economy.

"Esiselvitys päästövähennystavoitteiden tiukentamisen kokonaisvaikutuksista" (*in Finnish*), with Mikko Halonen, Erkka Ryyänen, and Juha Vanhanen, (2012). Report for the Finnish Ministry of Environment.

"PEK-selvitys - Helsingin parhaat energiatehokkuuskäytännöt" (*in Finnish*), with Julia Illman, Anna Kumpulainen, Riikka Lehti, Päivi Luoma, Laura Oja, Aki Pesola, Juha Vanhanen, Elina Virtanen, Pasi Metsäpuro, Heikki Liimatainen, Hanna Kalenoja, H. and Jenni Ahlroth, (2011). Report for the City of Helsinki.

"Examining and proposing measures to activate demand flexibility on the Nordic wholesale electricity market", with Marika Bröckl, Elina Virtanen, and Jussi Keppo, (2011). Report for the Nordic Energy Regulators, NordREG.

"Energiaskenaarioiden järjestelmävaikutukset rakennuskantaan" (*in Finnish*), with Aki Pesola and Elina Virtanen, (2011). *Asumisen rahoitus- ja kehittämiskeskuksen raportteja*, 1/2011, Edita Prima Oy, Helsinki, ISBN 978-952-3824-9, ISSN 1796-7104.

"Guarantees of origin and eco-labeling of electricity in the Nordic countries", with Marika Bröckl, Aki Pesola, and Paula Tommila, (2011). Report for the Nordic Council of Ministers, Working Group for Renewable Energy and Nordic Energy Research.

"Sääntelyn ympäristöinnovaatiovaikutukset" (*in Finnish*), with Sanna Ahvenharju, Mari Saario, Anu Vaahtera, Mari Hjelt, and Matti Liski, (2011). *Ympäristöministeriön raportteja*, 5/2011, ISBN 978-952-11-3839-3, ISSN 1796-170X.

"Nordic electricity peak prices during the winter 2009–2010", with Marika Bröckl, Elina Virtanen, and Markku Kallio, (2010). Report for the Nordic Energy Regulators, NordREG.

"Rakennetun ympäristön energiankäyttö ja kasvihuonekaasupäästöt" (*in Finnish*), with Aki Pesola, Juhani Heljo, Jaakko Vihola, Saara Jääskeläinen, Hanna Kalenoja,

Pekka Lahti, Kaisa Mäkelä, and Mika Ristimäki, (2010). *Sitran selvityksiä*, 39, ISBN 978-951-563-739, ISSN 1796-7104.

"Scientific Review on Regulation Models for Electricity Distribution Networks", with Juha Vanhanen, Elina Virtanen, Per Agrell, and Peter Bogetoft, (2010). Report for the Finnish Energy Authority.

"Energiaskenaarioiden järjestelmävaikutukset ja niiden taloudelliset, ympäristölliset ja yhteiskunnalliset seuraukset" (*in Finnish*), with Juha Vanhanen, Mikko Halonen, and Anna Kumpulainen, (2010). *Sitran selvityksiä*, 30, ISBN 978-951-563-720-8, ISSN 1796-7104.

"Tulevaisuusselonteon skenaarioiden energiankulutuslaskelmat" (*in Finnish*), with Juha Vanhanen, (2009). In Valtioneuvoston tulevaisuusselonteko ilmasto- ja energiapolitiikasta: kohti vähäpäästöistä Suomea, *Valtioneuvoston kanslian julkaisu*, 28/2009, ISSN 0782-6028, ISBN 978-952-5807-66-0.

"Study on free allocation of emission allowances for district heating production under ETS for the period 2013–2020 based on benchmarking principles", with Jari Hiltunen, Elina Virtanen, and Juha Vanhanen, (2009). Report for the the Finnish Ministry of Employment and the Economy.

"Energiatehokkuus kansainvälisesti" (*in Finnish*), with Mikko Halonen, Jari Hiltunen, Jakob Kjellman, Anna Kumpulainen, Tiina Pursula, and Juha Vanhanen, (2009). *Sitran raportteja*, 83, ISSN 1457-5728, ISBN 978-951-563-662-1.

"Energiatehokkuuden mahdollisuudet – Arvio Suomen energiatehokkuus- ja säästöpotentiaaleista valikoiduilla sektoreilla" (*in Finnish*), with Juha Vanhanen, (2008). *Sitran selvityksiä*, 3, ISBN 978-951-563-641-6, ISSN 1796-7112.

"Nordiskt forskningsarbete om klimatförändringen och dess konsekvenser i Arktis – Kartläggning av kunskaps- och koordineringsbehovet" (*in Swedish*), with Mikko Halonen, Jens Hesselbjerg Christensen, Bruce Forbes, Louise Simonsson, and Odd Rogne, (2007). *TemaNord* 2007:580, Nordic Council of Ministers, Copenhagen, ISBN 978-92-893-1562-3.

SELECTED
PRESENTATIONS

"Expert Hearings on Decisions in Principle for Nuclear Power", (2010), Environment, Commerce, and Employment and Equity Committees, Parliament of Finland.

"Expert Hearings on the Government foresight report on climate and energy policy", (2010), Commerce Committee, Parliament of Finland.

"Lead Markets as a Growth Driver for a Low Carbon Economy", (2010), Government foresight forums 2009–2010, Prime Minister's Office, Dipoli, Espoo.

Conference and seminar presentations in Gothenburg, Sweden; Helsinki, Finland; London, UK; Mannheim, Germany; Oslo, Norway; Stockholm, Sweden; Tucson, AZ, USA; Vaasa, Finland.