

Curriculum Vitae

Pär Holmberg

August 2025

OFFICE ADDRESS:

Research Institute of Industrial Economics (IFN)

PO-Box 55665

SE-102 15 Stockholm

Sweden

Phone: +46 (0)72 - 5116866

E-mail: Par.Holmberg@ifn.se

Birth date: May 31, 1969.

Current position: Senior Research Fellow, Research Institute of Industrial Economics (IFN).

Associate researcher of Energy Policy Research Group (EPRG), University of Cambridge. Affiliated with Program on Energy and Sustainable Development (PESD), Stanford University.

Higher education:

M.Sc., electrical engineering, Royal Institute of Technology (KTH), Stockholm, 1992.

Licentiate in electric power engineering, Royal Institute of Technology (KTH), Stockholm, 1996.

B.Sc., Business administration and economics, Stockholm University, 2000.

Ph.D., electric power engineering, Uppsala University, 2000.

Ph.D., economics, Uppsala University, 2005.

Associate Professor (Docent), Uppsala University, 2011.

Previous employments:

Military service, National Defence Research Establishment (Foa), 1993.

Graduate student, Department of Power Engineering, Royal Institute of Technology, Stockholm, 1994-96.

Research engineer, Department of HV Electromagnetic Systems, ABB Corporate Research, 1996-2005 (on leave 2001-2005).

Graduate student, Department of Economics, Uppsala University, Sweden, 2001-2005.

Desk Officer, Ministry of Finance, Sweden, 2005-2006.

Research fellow, Department of Economics, Uppsala University, Sweden, 2006-2008.

Other activities

Economic expert in Stockholm Administrative Court of Appeal, 2008-2010.

Awards:

Jan Wallander and Tom Hedelius Foundation, Wallander scholarship, 2006–2009.

Jan Wallander and Tom Hedelius Foundation, Hedelius scholarship, 2003.

Award from the Electric Power Technology Research Program (Elforsk) for best Ph.D. thesis in their program, 2001.

Visits

Visiting graduate student, University of California, Berkeley, fall 2003.

Visiting researcher, Ministry of Industry, Sweden, summer 2004.

Visiting research fellow, Cambridge University, spring 2007, May 2009, July 2016, June/July 2018, spring 2019, May 2025.

Visiting research fellow, University of Auckland, summer 2008, December 2015 and July 2017.

Visiting research fellow, Tilburg University, July 2010.

Visiting research fellow, Stanford University, October/November 2011, July 2012, November 2012, November 2013, June-August, 2019 and January 2024.

Visiting research fellow, University of Sydney, November 2014.

Visiting research fellow, UC Louvain, January 2025.

External research funding

Hedelius scholarship, €50,000, 2003.

Swedish Energy Agency, €100,000, 2004-2005 (I was co-applicant with my supervisor Nils Gottfries).

Wallander scholarship, €100,000, 2006-2008.

Economics of electricity markets at IFN, €2,200,000, 2007-2013 (I was co-applicant with Thomas Tangerås, Sven-Olof Fridolfsson and Ph.D. students). Funding was jointly provided by the Swedish Energy Agency, Svenska Kraftnät (system operator), electricity producers and electricity consumers.

Tore Söderberg foundation, “Bidding format and auction outcome”, €310,000, 2014-2016. (I was the main applicant.)

Wallander foundation, ”Competition in Electricity Markets”, €250,000. (I was co-applicant with Thomas Tangerås)

Swedish Energy Agency, “Analysis of wholesale electricity market with transmission constraints and renewable production”, €580,000, 2015-2018. (I was the main applicant.)

Energiforsk, “How should an electricity market manage ramping costs”, €50,000, 2017-2018. (I was the main applicant.)

Swedish Energy Agency, “Optimal information structure and market design in electricity markets”, €500,000, 2018-2022. (I was the main applicant.)

Swedish Energy Agency, “Policy instruments with fixed and variable components and how they influence investments in wholesale electricity markets”, €380,000, 2023-2026. (I was the main applicant.)

PUBLICATIONS

Articles published in refereed journals

“A Survey of Capacity Mechanisms: Lessons for the Swedish Electricity Market” (with Thomas Tangerås), *Energy Journal* 44(6), 2023, 275–304.

“A Survey Comparing Centralized and Decentralized Electricity Markets” (with Victor Ahlqvist and Thomas Tangerås), *Energy Strategy Reviews* 40, 2022, 100812.

"Optimal Capacity Mechanisms for Competitive Electricity Markets", (with Robert A. Ritz), *The Energy Journal* Vol. 41, 2020, 33–66

- "Simulation and evaluation of zonal electricity market designs", (with Mahir Sarfati), *Electric Power Systems Research*, Vol. 185, 2020.
- "Production efficiency of nodal and zonal pricing in imperfectly competitive electricity markets", *Energy Strategy Reviews*, (with Mohammed Reza Hesamzadeh and Mahir Sarfati), Vol. 24, 2019, pp. 193-206.
- "Comparing auction designs where suppliers have uncertain costs and uncertain pivotal status", (with Frank Wolak), *Rand Journal of Economics*, Vol. 49(4), 2018, pp. 995-1027.
- "On supply-function equilibria in radial transmission networks", (with Andrew Philpott), *European Journal of Operational Research*, Vol. 271, 2018, pp. 985-1000.
- "Price instability in multi-unit auctions", (with Edward Anderson), *Journal of Economic Theory* 175, 2018, pp. 318-341.
- "Pro-competitive rationing in multi-unit auctions", *Economic Journal*, 127(605), 2017, pp. F372-F395.
- "Relaxing Competition through Speculation: Committing to a Negative Supply Slope", (with Bert Willems), *Journal of Economic Theory*, Vol. 159, 2015, pp. 236-266.
- "Comparison of congestion management techniques: Nodal, zonal and discriminatory pricing", (with Ewa Lazarczyk), *Energy Journal*, Vol. 36, 2015, pp. 145-166.
- "Supply Function Equilibria: Step Functions and Continuous Representations", (with David Newbery and Daniel Ralph), *Journal of Economic Theory*, Vol. 148, 2013, pp. 1509-1551.
- "Mixed Strategies in Discriminatory Divisible-good Auctions", (with Edward Anderson and Andrew Philpott), *Rand Journal of Economics* 44 (1), 2013, pp. 1–32.
- "Strategic Forward Contracting in the Wholesale Electricity Market", *Energy Journal*, Vol. 32, No.1, 2011, pp. 169-202.
- "The Supply Function Equilibrium and Its Policy Implications for Wholesale Electricity Auctions", (with David Newbery), *Utilities Policy*, Vol. 18, No. 4, December 2010, pp. 209-226.
- "Supply Function Equilibria of Pay-as-Bid Auctions", *Journal of Regulatory Economics*, Vol. 36, 2009b, pp. 154-177.
- "Numerical calculation of asymmetric supply function equilibrium with capacity constraints", *European Journal of Operational Research*, Vol. 199, 2009a, pp. 285-295.
- "Unique Supply Function Equilibrium with Capacity Constraints", *Energy Economics*, Vol. 30, Issue 1, January 2008, pp. 148-172.
- "Supply Function Equilibrium with Asymmetric Capacities and Constant Marginal Costs", *Energy Journal*, Vol. 28, No. 2, 2007, pp. 55-82.
- "Some inequalities related to electricity auctions", (with P. Hästö), *Applied Mathematics Letters*, Vol. 19, No. 8, August 2006, pp. 814-819.

“A coupled FEM and lumped circuit model of the electromagnetic response of a coaxially insulated winding in two slot cores”, (with M. Leijon), *European Transactions on Electrical Power*, Vol. 17, No. 6, 2007, pp. 554 – 568.

“A wide-band lumped circuit model of the terminal and internal electromagnetic response of rotating machine windings with a coaxial insulation system”, (with S. Johansson and M. Leijon), *IEEE Transactions on Energy Conversion*, vol. 19, no. 3, Sept, 2004, pp. 539 – 546.

Closure on “A Wide-Band Lumped Circuit Model of Eddy Current Losses in a Coil with a Coaxial Insulation System and a Stranded Conductor”, (with M. Leijon and T. Wass), *IEEE Transactions on Power Delivery*, vol. 19, no. 2, April 2004, p. 903.

“A wide-band lumped circuit model of the terminal and internal electromagnetic response of coaxially insulated windings mounted on a core”, (with M. Leijon), *European Transactions on Electrical Power*, vol. 13, no. 3, May/June, 2003, pp. 141-149.

“A wide-band lumped circuit model of eddy current losses in a coil with a coaxial insulation system and a stranded conductor”, (with M. Leijon and T. Wass), *IEEE Transactions on Power Delivery*, vol. 18, no. 1, January 2003, pp. 50-60.

“A wide-band lumped circuit model of the terminal and internal electromagnetic response of a coil with a coaxial insulation system”, (with M. Leijon), *IEE Electric power applications*, vol. 149, no. 6, November 2002, pp. 459-464.

“Modelling a magnetomechanical drive by a coupled magnetic, electric and mechanical lumped circuit approach”, (with A. Bergqvist and G. Engdahl), *Journal of Applied Physics*, vol. 81, no. 8, part 2A, April 1997, pp. 4091-4093.

“Modelling eddy currents and hysteresis in a transformer laminate”, (with A. Bergqvist and G. Engdahl), *IEEE Transactions on Magnetics*, vol. 33, no. 2, March 1997, pp. 1306-1309.

Peer-reviewed Working Papers at University of Cambridge

Holmberg, Pär (2024). ”The Inc-Dec Game and How to Mitigate It”. Cambridge Working Papers in Economics: 2479.

Multi-unit auctions with uncertain supply and single-unit demand (with Edward Anderson), Cambridge Working Papers in Economics: 2339.

“Increase-Decrease Game under Imperfect Competition in Two-stage Zonal Power Markets – Part I: Concept Analysis”, (with Mohammed Reza Hesamzadeh and Mahir Sarfati), Cambridge Working Papers in Economics: 1869.

“Increase-Decrease Game under Imperfect Competition in Two-stage Zonal Power Markets – Part II: Solution Algorithm”, (with Mohammed Reza Hesamzadeh and Mahir Sarfati), Cambridge Working Papers in Economics: 1870.

Working Papers at IFN

“Sweden's Energy Investment Challenge” (with Thomas Tangerås). IFN Working Paper No. 1383. Stockholm: Research Institute of Industrial Economics (IFN).

Published articles in Swedish

“Den svenska elmarknaden – idag och i framtiden” (with Thomas Tangerås). Penning- och valutapolitik 2023 (1), 5–35.

Policy reports

Tangerås, Thomas, Pär Holmberg and Chloé Le Coq (2025). ”Konjunkturrådsrapport 2025: Säkra framtidens el för en hållbar energiomställning”. Stockholm: SNS.

Holmberg, Pär (2024). ”The Inc-Dec Game and How to Mitigate It”. Stockholm: Energiforsk.

Bergman, Lars, Peter Blomqvist, Niclas Damsgaard, Pär Holmberg och Thomas Unger (2024). ”En frivillig marknad för effekt?”. Stockholm: Energiforsk.

Holmberg, Pär (2024). ”Den svenska elmarknaden”. Underlagsrapport till promemoria Fi 2023:F Finansiering och riskdelning vid investeringar i ny kärnkraft. Stockholm: Finansdepartementet.

Holmberg, Pär och Thomas Tangerås (2023). ”Internationell integration av den svenska elmarknaden”. Stockholm: SNS.

Holmberg, Pär and Thomas Tangerås (2023). “En teknikneutral elmarknad – med en effektiv elmarknadsdesign och nättariffstruktur”. SNS report.

Holmberg, Pär and Thomas Tangerås (2022). “Elbrist i storstäderna – ett marknadsperspektiv”. SNS report.

Bergman, Lars et al. (2022). “Långsiktiga investeringar och handel på framtidens elmarknad”. Energiforsk report.

Holmberg, Pär and Thomas Tangerås (2021). “En elmarknad med enhetliga priser för förbrukning”. Stockholm: Research Institute of Industrial Economics.

Holmberg, Pär and Thomas Tangerås (2020). “Incitamenten att investera i produktion på elmarknaden”. IFN Policy Paper No. 92. Stockholm: Research Institute of Industrial Economics (IFN).

Popular science

Holmberg, Pär , Erik Lundin and Thomas Tangerås (2022). “En effektiv elförsörjning på kort och lång sikt”. Ekonomisk Debatt 50(3), 73–78.

Holmberg, Pär and Thomas Tangerås (2021). “Även effektiv elförbrukning viktig för en välfungerande elförsörjning”. Ekonomisk Debatt 49(4), 81–82.

Holmberg, Pär och Thomas Tangerås (2021). ”Incitamenten att investera i produktion på elmarknaden”. Ekonomisk Debatt 49(1), 66–77.

Book chapters (in Swedish)

“En gemensam elmarknad stärker EU:s konkurrenskraft” (with Thomas Tangerås). Antonia Bakardjieva Engelbrekt, Lars Oxelheim och Thomas Persson (red.): Ett konkurrenskraftigt EU till rätt pris, 2013.

“Konkurrens och prisbildning”. Mats Bergstrand (red.): Upplyst eller utfrys - en antologi om elmarknaden, 2012.

Media and debate articles (mostly in Swedish)

”Replik: En ensidig kritik av sol- och vindkraft” (with Thomas Tangerås). Svenska Dagbladet, 18 juli, 2025.

”Slutreplik: Kritiken tycks bygga på missförstånd” (with Chloé le Coq, Erik Lundin and Thomas Tangerås). Second Opinion, 20 maj, 2025.

”Subventioner bör helst undvikas” (with Chloé le Coq, Erik Lundin and Thomas Tangerås). Second Opinion, 15 maj, 2025.

”Replik: Vår rapport bidrar till kostnadseffektiv elmarknad” (with Chloé le Coq, Erik Lundin and Thomas Tangerås). 11 april, 2025.

”Vi klarar omställningen – utan onödiga subventioner” (with Chloé le Coq and Thomas Tangerås). Dagens Nyheter, 23 januari, 2025.

”Slutreplik: Kärnkraftens bidrag är inte oersättligt” (with Thomas Tangerås). Svenska Dagbladet, 23 december, 2023.

”Vänta med statligt stöd till ny kärnkraft” (with Thomas Tangerås). Svenska Dagbladet, 15 december, 2023.

”Slutreplik: Integration av elmarknaden handlar om mer än elpriser” (with Thomas Tangerås). Dagens Nyheter, 5 december, 2023.

”Nationalistisk energipolitik går emot svenska intressen” (with Thomas Tangerås). Dagens Nyheter, 27 november. “Elmarknadsperspektiv på klimatförslaget”. Dagens Industri, October 23, 2023.

”Slutreplik: Säkra elförsörjningen med bättre verktyg” (with Thomas Tangerås). Svenska Dagbladet, April 22, 2023.

”Säg nej till Svenska kraftnäts planmonopol” (with Thomas Tangerås). Svenska Dagbladet, April 17, 2023.

”Intäktstak för el passar inte i Sverige” (with Thomas Tangerås). Svenska Dagbladet, February 24, 2023.

”Replik: Missförstånd i elmarknadsdebatten” (with Thomas Tangerås). Dagens Industri, February 8, 2023.

”Replik: EU:s gemensamma elmarknad gynnar även Sverige” (with Thomas Tangerås). Dagens Nyheter, January 30, 2023.

”Tre förslag för att minska den lokala bristen på el” (with Thomas Tangerås). Dagens Nyheter, September 1, 2022.

“Skyddat elpris kan förvärra problemen” (with Thomas Tangerås). Svenska Dagbladet, August 12, 2022.

“Slutreplik: Minimera statliga ingripanden på elmarknaden”. Svenska Dagbladet, July 6, 2022.

“M-planen för kärnkraft kan bli kostsam”. Svenska Dagbladet, June 29, 2022.

“Att slå ihop elområden löser inte problemen” (with Thomas Tangerås). Svenska Dagbladet, November 13, 2021.

“Hellre effektreserv än kapacitetsmarknad” (with Thomas Tangerås). Second Opinion, April 13, 2021.

“Skapa fler elområden och låt elpriserna öka runt storstäderna” (with Thomas Tangerås). Dagens Nyheter, February 25, 2021.

“Ge marknadsbaserade elmarknader en ny chans”. Second Opinion, December 4, 2019.

“Give Fully Market-Based Electricity Markets a Second Chance”. Encompass Europe, December 2, 2019.

“Behåll och effektivisera effektreserven”. Second Opinion, July 8, 2019.

“Centralstyrd elhandel knappast rätt väg att gå” (with Thomas Tangerås). Svenska Dagbladet, December 27, 2018.

A minor change in market trading rules could save taxpayers billions of dollars, LSE Business Review, November 29, 2017.

Regeringens svajiga energipolitik höjer elpriset, Dagens samhälle, 18 mars, 2016.

Ny ransoneringsregel kan förbättra värdepappershandeln, Realtid.se, 15 mars, 2016.

IFN: Sverige vandrar samma väg som UK, Montel Kraft-Affärer, Nr 2, vecka 4, 2016.

Debatt: Lär av Storbritanniens avskräckande exempel, Dagens Industri, 25 januari, 2016.

"S-förslaget riskerar att höja elpriset i Malmö", Kvällsposten, 24 januari, 2014.

"Meningslöst förbjuda vinstuttag i vårdföretag", SvD Brännpunkt, 5 juli, 2013.

Elprisskillnaderna i Sverige är motiverade (with Sven-Olof Fridolfsson and Thomas Tangerås), SvD Brännpunkt, March 25, 2013.

Backa inte reformen med elområden (with Sven-Olof Fridolfsson and Thomas Tangerås), SvD Brännpunkt, March 14, 2013.

Paneldebatt på SVT2 den 6/2 om EU:s väg ut ur krisen.

Konsumenter vinner på fler elområden, Dagens Industri, 20 april 2012

Elområden viktiga för en effektivare elmarknad (with Thomas Tangerås), DN Debatt, 5 mars 2012

Elbörsens modell för prissättning fungerar bra, GT Expressen, 6 mars 2011

Elhandlares förslag kan ge högre elpriser, SvD Brännpunkt, 2 mars 2011

Politiskt förslag kan ge högre elpriser, Newsmill, 15 november 2010

Elproducenternas vinster gynnas av regelverket, DN Debatt, 24 juni 2010

Elmarknaden fungerar bra men kan övervakas bättre, Dagens Industri, 17 april 2010

Konkurrensen och prisbildningen på grossistmarknaden för el, IFN Nyhetsbrev #2 2010

Inget att vinna på alternativ prissättning, Dagens Industri, 11 november 2009

Produktion och återförsäljning i samma bolag kan förbättra konkurrensen på elmarknaden, IFN Nyhetsbrev #1 2009

Published patent applications in US

US15884459	“Bundles for an efficient auction design” (with Keith Ruddell and Bert Willems)
US14619065	“Rationing rules and bidding formats for an efficient auction design” (with Lawrence Ausubel, David Newbery and Daniel Ralph)

Granted patent applications in Sweden (SE), United States (US) and Australia (AU).

SE508523	“Elektrisk kabel, avsedd för elektrisk lindning, samt sådan lindning, torrtransformator och reaktor” (with Peter Carstensen, Udo Fromm)
SE510947	“Manteltransformator/-reaktor samt förfarande för att framställa en sådan.” (with Thorsten Schütte, Udo Fromm, Christian Sasse)
SE512402	“Reaktor” (with Håkan Kols, Thorsten Schütte, Kjell Andersson, Mats Ekberg, Bertil Berggren, Kailash Srivastava)
SE514823	“Reaktor samt användning därav” (with Thorsten Schütte and Bertil Berggren)
US Pat. 6801421	“Switchable flux control for high power static electromagnetic devices” (with Christian Sasse, Mats Leijon, Gunnar Russberg and Udo Fromm)
US Pat. 6867674	“Transformer” (with Thorsten Schütte, Jan Brangfalt, Christian Sasse, Peter Carstensen)
US Pat. 6885273	“Induction devices with distributed air gaps” (with Pan Min, Li Ming, Rongsheng Liu, Mikael Dahlgren, Gunnar Russberg, Christian Sasse, Svante Söderholm)
US Pat. 6970063	“Power transformer/inductor” (with Li Ming, Sven Hörnfeldt, Udo Fromm, Gunnar Kylander, Mats Leijon)
US Pat. 6995646	“Transformer with voltage regulating means” (with Albert Jaksts, Thorsten Schütte, Udo Fromm, Christian Sasse, Mats Leijon)

US Pat. 7046492 “Power transformer/inductor“ (with Gunnar Kylander, Sven Hörnfeldt, Udo Fromm, Li Ming, Mats Leijon)

AU737317 “Magnetic energy storage” (with Udo Fromm, Christian Sasse)