

# Astrid Kander - Curriculum Vitae

Born 1962

## **Details on career and research opportunities - last 5 years**

I received my PhD in 2002 from Lund University in Economic History. Throughout the last five years I have been based at Lund University. On average I assess that I have spent about 50% of my time on research with the rest split between teaching and administration.

At the start of the period I was a post-doctoral research fellow funded by the Handelsbankens research foundation based in the Department of Economic History at Lund University.

From 2005 to 2008 I was an Assistant Professor at CIRCLE – a research centre focused on the economics of research and development, innovation, and entrepreneurship. This broadened my research interests beyond the areas of energy and economic history to consider the role of innovation and R&D in economic growth and development. Research in CIRCLE is collaborative and interdisciplinary.

From the beginning of 2009 I have been Senior Lecturer/Associate Professor in the Department of Economic History with special regard to long-term economic growth, innovation and environment as well as continuing in my role in CIRCLE on a 50/50 basis. In June 2010 I was promoted to full professor in Economic History and want to expand my energy history research further, broadening the field from Europe to the Globe.

I have also benefited from the collaboration and mentoring opportunities resulting from the Long-term Energy and Growth Network (LEG) which I have lead from 2003. LEG has held frequent workshops which have been attended by researchers from around Europe and overseas.

## Recent significant publications (2005 onwards)

### Books

N.A.

### Book chapters

1. Industrial dynamics and innovative pressure on energy - Sweden with European and Global outlooks, in Petersson, B. and Törnquist-Plewa, B. (eds) *Energy Security in Europe*, Proceedings from the conference “Energy Security I Europe” Lund 24-25 September 2007, p 87-102, 2008, co-author Lennart Schön.\*
2. The Swedish paradox revisited, p 48-76, in Karlsson, C., Johansson, B. and Stough, R. (eds), (2009) *Entrepreneurship and Innovation in Functional Regions*. Edgar Elgar, co-author: Olof Ejermo

### Refereed journal articles

1. Swedish Business Research Productivity, in print for *Industrial and Corporate Change* in February 2011, co-author: Olof Ejermo.
2. The R&D-Growth Paradox Arises in Fast-Growing Sectors, in print for *Research Policy* in February 2011, co-authors Olof Ejermo and Martin Svensson Henning.
3. Energy availability from livestock and agricultural productivity in Europe, 1815-1913: a new comparison, *Economic History Review* (2011), 64: 1-29, Co-author: Paul Warde.
4. The modest environmental relief resulting from the transition to the service economy, *Ecological Economics* (2010) 70: 271-282, co-author: Sofia Henriques
5. Electrification and Energy Productivity, *Ecological Economics*, (2009) 68, pp 2808–2817, co-authors: Kerstin Enflo and Lennart Schön.
6. Is it simply getting worse? Agriculture and Swedish greenhouse gas emissions over 200 years, *Economic History Review*, 61(4), (2008): 773–797.
7. Identifying development blocks: a new methodology *Journal of Evolutionary Economics*, 18, (2008): 57-76. Co-authors: Kerstin Enflo and Lennart Schön.

8. The energy-capital relation, Sweden 1870-2000, *Structural Change and Economic Dynamics*, 18, (2007): 291-305. Co-author: Lennart Schön.
9. North versus South: Energy transition and energy intensity in Europe over 200 years, *European Review of Economic History*, 11(02), (2007): 219-253. Co-authors: Ben Gales, Paolo Malanima and Mar Rubio.
10. Foreign trade and declining pollution in Sweden: A decomposition analysis of long-term structural and technological effects, *Energy Policy*, 34(13), (2006): 1590-1599. Co-author: Magnus Lindmark.
11. Baumol's disease and dematerialization of the economy, *Ecological Economics*, 55, (2005): 119-130.

#### Refereed conference papers

11. *Energy and the Service Transition*, paper presented at the World Congress of Economic History in Utrecht, August 2009, previous version presented at LEG workshop in Lund 20-21 of March 2009 and in May 2009 in Mölle, co-author Sofia Henriques.
12. *Energy Transitions in Europe 1600-2000*, Paper for the International workshop: Technological discontinuities and transitions: Evolution theory and inter-disciplinary crossovers in Eindhoven, May 14th-16<sup>th</sup> 2008, co-authors: Paul Warde and Paolo Malanima.

#### Electronic Working Papers

1. **CAMA Working Paper Series, WP 1/2011**  
Stern, D. and Kander, A. (2011) The Role of Energy in the Industrial Revolution and Modern Economic Growth, <http://cama.anu.edu.au>
2. **Circle Electronic Working Paper Series WP 2008/16**  
Enflo, K.; [Kander, A.](#); [Schön, L.](#) *Electrification and energy productivity*, ISSN: 1654-3149
3. **Circle Electronic Working Paper Series WP 2008/12**  
[Kander, A.](#); Malanima, P.; Warde, P. *Energy transitions in Europe: 1600-2000*, ISSN: 1654-3149
4. **Circle Electronic Working Paper Series WP 2007/07**  
*Swedish business research productivity – improvements against international trends*  
[Kander, A.](#); [Ejerimo, O.](#)
5. **Circle Electronic Working Paper Series WP 2007/06**  
*In Defense of Electricity as a General Purpose Technology*  
[Kander, A.](#); [Schön, L.](#); Enflo, K.
6. **Circle Electronic Working Paper Series WP 2007/05**  
*Industrial dynamics and innovative pressure on energy - Sweden with European and Global outlooks*  
[Kander, A.](#); [Schön, L.](#)

7. **Circle Electronic Working Paper Series WP 2006/10**  
*Development blocks and the second industrial revolution Sweden 1900-1970*  
[Kander, A.](#); [Schön, L.](#); Enflo, K.
8. **Circle Electronic Working Paper Series WP 2006/09**  
*Trends in R&D, innovation and productivity in Sweden 1985-2002*  
[Kander, A.](#); [Ejeremo, O.](#)
9. **Circle Electronic Working Paper Series WP 2006/01**  
*The Swedish Paradox*  
[Kander, A.](#); [Ejeremo, O.](#)

## Ten career-best publications

### *Books*

- (1) *Economic growth, energy consumption and CO<sub>2</sub> emissions in Sweden 1800-2000*, Lund Studies in Economic history 19, Almqvist & Wicksell International, Lund, 2002.\*

My thesis earned wide interest resulting in the “Long term Energy- Growth” network and an invitation to publish a book on the energy history of Europe with Princeton University Press.

### *Peer reviewed articles*

- (2) Is it simply getting worse? Agriculture and Swedish greenhouse gas emissions over 200 years, *Economic History Review*, 61(4), (2008): 773–797.\*

This article estimates the emissions of the full range of Swedish greenhouse gases over 200 years finding that total greenhouse gas emissions were as high in 1870 as in 2000.

- (3) Energy availability from livestock and agricultural productivity in Europe, 1815-1913: a new comparison, *Economic History Review*, (in press). Co-author: Paul Warde.\*

This article scrutinizes Tony Wrigley’s proposition that Britain’s superiority in agricultural labour productivity in the early 19<sup>th</sup> century was due to having access to large quantities of draft animal power.

- (4) Electrification and Energy Productivity, *Ecological Economics*, (2009) 68, pp 2808–2817, co-authors: Kerstin Enflo and Lennart Schön.\*

Using the innovative method of accounting for the energy savings from using purchased electricity, we find that electrification has dynamic productivity effects in industries that use electricity for multiple uses.

- (5) Baumol’s disease and dematerialization of the economy, *Ecological Economics*, 55, (2005): 119-130.\*

I show that the transition to a service economy is nominal rather than real and cannot explain declines in energy intensity, resulting in speaking invitations to IIASA and Chalmers University.

- (6) North versus South: Energy transition and energy intensity in Europe over 200 years, *European Review of Economic History*, (2007), 11(02): 219-253. Co-authors: Ben Gales, Paolo Malamina and Mar Rubio.\*

We present the main ideas for our upcoming book, finding that including traditional energy carriers, the long-run energy-GDP relationship is an inverted-U shape in coal-rich countries but monotonically declining elsewhere.

- (7) Foreign trade and declining pollution in Sweden: A decomposition analysis of long-term structural and technological effects, *Energy Policy*, 34(13), (2006): 1590-1599. Co-author: Magnus Lindmark.\*

Challenging the globalization narrative, we show that the declines in energy intensity in developed countries do not necessarily result from moving heavy industrial production to less developed countries.

- (8) Identifying development blocks: a new methodology, *Journal of Evolutionary Economics*, 18, (2008): 57-76. Co-authors: Kerstin Enflo and Lennart Schön.

In this article we make use of an advanced econometric tool (co-integration analysis) in order to identify so-called development blocks around electrification. We find two partly overlapping development blocks around the electricity-generating sector. The article has stimulated further research for instance by Greasley and Oxley (2010): Knowledge, natural resource abundance and economic development, *Explorations in Economic History* 47: 443-459.

- (9) De empiriska paradoxernas upplösning – om FoU och tillväxten, *Ekonomisk Debatt* Vol 5, 2007, p 6-15, co-authors: Lennart Schön and Olof Ejermo.

We stress that we should not expect a proportional relation between R&D and economic growth, so there is no Swedish paradox regarding R&D expenditures and economic growth performance. This idea is followed up in the article in press for *Research Policy*.

- (10) The energy-capital relation, Sweden 1870-2000, *Structural Change and Economic Dynamics*, 2007, 18: 291-305, co-author: Lennart Schön.\*

We find that capital substitutes for primary energy in the long-run, due to the improving energy efficiency of machines but that energy services and capital are complements until the 1970s.

**Further evidence of research impact and contributions over the last 10 years.**

## **Research Outputs Other than Publications:**

**Research Network Coordination** I have coordinated The Long-term Energy and Growth network since 2003. Funding for biannual workshops has come from a variety of sources. This network has a hub at Lund University and aims at establishing a consistent long-run dataset (1800-2000) for energy, including traditional energy sources, based on comparable standards across an increasing number of European countries. The long-term objective is to create a data-base on energy that will be openly available for researchers, in order to shed light on the crucial issue of how important energy is for economic growth. In 2007 year Alessandro Nuvolari and I initiated the FIG network (Firms, Innovation and Growth), with some 15 researchers, which had a first workshop in Lund in January 2008, another event in Eindhoven in June 2009 and a last one in Lund in October 2010.

**Grants** In recent years, I have contributed to or been mainly responsible for raising funds for and managing six funded research projects:

*LEGS: Long term Energy Growth and Sustainability*

**Duration:** 2009 –(at least three years)

**Funding:** Lund University Centrally, 1 million SEK per year.

**Platform director:** Astrid Kander

**Idea:** To create a platform for economic energy research at the School of Economics and Management in Lund.

*SWINNO: Swedish innovations*

**Duration:** 2008-2011

**Funding:** VINNOVA, 4.5 million SEK.

**Project leaders:** Jonas Ljungberg and Astrid Kander

**Idea:** To construct a literature-based innovation database, similar to the one existing for Finland for the period 1945-2000. We will hire two PhD students for this project (I will supervise one PhD students).

*R&D, innovations and growth*

**Duration:** 2008-2011

**Funding:** VINNOVA, 1.5 million SEK.

**Project leaders:** Astrid Kander and Olof Ejermo

**Idea:** To research the interrelations of R&D, innovations and growth in Sweden, based on firm level data, with sectoral and national wide perspectives.

*Sustainable growth, energy and innovations*

**Duration:** 2008-2012

**Funding:** VINNOVA, 3 million SEK.

**Project leaders:** Lennart Schön and Astrid Kander

**Idea:** The aim of the project is to increase the understanding of the long term interrelations of energy, greenhouse gases and economic growth, especially the effects from innovations and politics.

*Energy systems - as economy and technology*

**Duration:** 2008-2009

**Funding:** Crafoordska stiftelsen, 1.8 million SEK.

**Project leader:** Lennart Schön

**Participants:** Lars J. Nilsson, Astrid Kander, Jonas Gabrielsson and Karin Ericsson

**Idea:** To combine entrepreneurial, technological and economic-historical perspectives in the study of systems of energy.

### **Editing/Reviewing**

I have acted as a referee for *Ecological Economics* (2005) and *Resource and Energy Economics* (2006), *World Development* (2007), *Explorations in Economic History* (2008), *Environmental Science & Policy* (2009), *Ecological Economics* (2009) and *Scandinavian Economic History Review* (2009), *European Review of Economic History* 2010, *Economic History Review* 2010, *Ecological Economics* 2010. I have also acted evaluator for research councils such as the Austrian Science Foundation (2008) and the Swiss Science Foundation (2006).

**Conference Organization:** Lennart Schön and I organized the seventh conference for the European Historical Economics Society in Lund in June 2007, with 140 participants.

**Invited Presentations:** University of Jyväskylä, Finland 2009; Sound Economic History Seminar, Copenhagen 2008; European summer school for students in Economic History, Tartu, Estonia, 2007; Division for Natural Resource Management, Chalmers, Göteborg, Sweden; IIASA, Laxenburg, Austria, 2005; Five more in 2002-2004.

**Research Student Supervision:** I am currently the principal supervisor for PhD students Sofia Henriques, Karolin Sjöö and Jing Xiao. Sofia will defend her thesis about Portuguese energy history in an international comparison on May 13th 2011. I am secondary supervisor for Josef Taalbi and was secondary supervisor for Kerstin Enflo who defended her thesis in April 2008. I have also supervised masters student and participated in the examination of PhD theses. I find students from around the world are beginning to use my work in their research and contact me for potential research supervision.

### **Evidence for the Quality of All Research Outputs:**

**Journals and Publishing Houses:** I am currently working on a coauthored book to be published by Princeton University Press later this year. Princeton is one of the leading academic publishers in the world. My research has been published in a number of economics journals with good rankings in the Web of Knowledge – *Ecological Economics*, *Energy Policy*, and *J. of Evolutionary Economics*. Because of the small size of the economic history field in English-speaking countries, economic history journals do not rank so well but those that I have published in are highly respected in the economic history community.

**Evaluations:** In 2004 I was appointed as assistant professor at CIRCLE in international competition and was the clear first choice for the post according to the extensive report by the evaluator (Docent Jan Bohlin, Göteborg). He wrote: “Of the remaining three applicants, I find that Kander clearly ranks ahead of (the others). Her research is innovative and has resulted in important new knowledge of the environmental effects of economic growth in a historical perspective. In her work with long time series data, she has demonstrated her ability to perform the kind of research that will be essential for the Assistant Professor in Economic History at CIRCLE.” In the evaluation for docent (Oct 2006) I received highly complimentary remarks from the evaluator, (Professor Ulf Olsson, Göteborg), who wrote: “Kander’s research has proven extremely fruitful for international collaboration projects, which has resulted not only in a number of articles, but also in the establishment of the international EGP (Energy-Growth-Pollution) network, where Kander functions as a coordinator and her thesis as a reference work. She has also been active in international conferences, as both an organizer

and presenter of own contributions... From what is stated above, it should be obvious that Kander is a skilled researcher, who after her dissertation in 2002 has established herself quickly both within and outside Sweden. During this process, she has both widened her research experiences and shown great independence. Considering the extraordinary qualities of the [doctoral] thesis and the substantial and significant papers that Kander has added to her contributions, I think she fulfils these requirements and recommend that she is appointed as docent.” In the evaluation of Lund University in 2008 (RQ 08) my article for the Economic History Review (2007) was chosen by the department of Economic History as their best example of novel research. In 2009 I received a position as Senior Lecturer in Economic History with special regard to long-term economic growth, innovation and environment, in international competition. I was clearly ranked first among four applicants and the concluding statements by the evaluators professor Olle Krantz and Lena Andersson-Skog read: “Her research is innovative, clearly presented, varied and shows progression.”

### **Pedagogic merits**

#### **Pedagogic Courses**

Bachelor in Education for primary school, Lund University.	1982-1985
“PBL- an introductory package”, workshop at UPC (University Pedagogic Centre), Lund University, two days’ course.	1996
“Teaching course for social scientists”, at UPC, Lund University, two weeks’ course.	1997
“Research supervision – an educational task with possibilities”, two days’ course at UCLU, Lund University	2004
Pedagogic continuation course, at CED (Centre for Educational Development), Lund University, two weeks’ course.	2006
Communication course, at CED, Swedish and English, one week course	2008

Language Course in Riverside, UK, offered by LUSEM (Lund University School of Economics and Management), one week intensive course	2009
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### **Teaching**

I have taught at the university level since 1994. In extent, my teaching activity is equivalent to approximately two years' full time teaching as lecturer.

I have been involved in elaborating (developing) and/or teaching the following courses

Elaborator and teacher of the 7.5 credit Master course: Sustainable Growth in Global Competition	2010-ongoing
Elaborator and teacher of the 7.5 ECTS credit Master course: Energy, Innovation and Sustainability	2008-ongoing
Elaborator and teacher of the course: Growth and the Environment, (EKH418), 15 ECTS credits, at the Department of Economic History, Lund University. This course has recently been developed into EKHB18, consisting of EKHB19 and EKHB20.	1998- ongoing
Environmental History in the 4-year Environmental Science programme at Lund University.	2000-2003
Co-elaborator and teacher of the course: Economy and the Environment, 7.5 ECTS credits, in the International Master's Programme, LUMES (Lund University Master of Environmental Studies).	1998-2003
Co-elaborator and teacher of the course: Development and the Environment, 7.5 ECTS credits at the International Master's Programme LUMES (Lund University of Environmental Science).	1997-2001
Teaching in some general courses in Economic History, Lund University -- for instance, Society, Firms and Capital Markets.	1994-1998

I have taught at various levels, from undergraduate to Master's-level courses. I have taught not only economic history, but also interdisciplinary courses in the LUMES MSc programme (Lund University Master's of Environmental Science), energy history at IMES (Institutionen för miljö och energisystem, at LTH) and environmental history in the environmental science education programme (Natural Sciences Faculty).

A qualitative indicator of my teaching is provided in the positive course evaluations that my 15 ECTS credit course Growth and the Environment has received over a number of years. A summary by our student advisor of the course evaluations can be found (in Swedish) at [www.ekh.lu.se](http://www.ekh.lu.se), under the headings of student and then kursutvärderingar.

The TLAs (teaching-learning-activities) that I use most are lecturing, seminar discussions (including role games), and written home assignments. When I lecture, I use activating techniques that I have learnt at pedagogic courses, such as small-group 5-minutes focused chats and starting a lecture by referring to a concrete experience.

