

Elena Verdolini

Dipartimento di Giurisprudenza, Università degli Studi di Brescia,

Via S. Faustino 41, 25121 Brescia, Italy

emails: elena.verdolini@unibs.it, elena.verdolini@eiee.org, elena.verdolini@cmcc.it

Research Interest

Economics of Innovation, Environmental Economics, Energy Economics, Industrial Organization, Development Economics, Expert Elicitations, Uncertainty, Policy Analysis

Recent Professional and Academic Positions

12/2018 – present Assistant Professor (Ricercatore a tempo determinato di tipo B), Economia Politica, Dipartimento di Giurisprudenza, Università degli Studi di Brescia

04/2018 – present Lead Author, WGIII, 6th Assessment Report of the IPCC (Chapter 16)

01/2012 – present Affiliate Scientist, CMCC - Euro-Mediterranean Center on Climate Change, Italy

03/2008 – present Affiliate Researcher, FEEM - Fondazione Eni Enrico Mattei, Italy

03/2017 – 12/2018 Contract Lecturer, Università degli Studi di Milano, Italy. Master in Environmental and Food Economics, course: Statistics and Econometrics.

08/2015 Visiting Researcher, Resources for the Future, Washington DC, USA

09/2008 – 12/2008 Visiting Fellow, OECD Directorate for the Environment, Paris, France

Education

10/2006 – 03/2011 PhD - Economics and Finance of the Public Administration (DEFAP), Università Cattolica del Sacro Cuore, Milan, Italy. Supervisor: Prof. Marzio Galeotti.

09/2000 – 09/2003 Master of Public Administration (MPA), Master of Arts in International Studies (MAIS), Certificate in International Development and Management. University of Washington, Seattle, WA, USA. Supervisor: Prof. Leigh Anderson.

09/1995 – 09/2000 Laurea in Scienze Politiche, *Magna cum Laude*, Università di Pavia, Italy. Supervisor: Prof. Enrica Costa Bona.

Teaching Experience

2018, 2017, 2015 Lecturer, Università degli Studi di Milano, Milano, Italy. Statistics and Econometrics, Econometrics Module, 40 credits, Masters in Environmental and Food Economics

09/2009 – 06/2013 Teaching Assistant, Università degli Studi di Milano, Milano, Italy. Microeconomics (Bachelor and Masters Classes): Prof. Marzio Galeotti and Prof. Franco Donzelli

09/2007 – 12/2009 Teaching Assistant, CRELI, Università Cattolica del Sacro Cuore, Milan, Italy. Labour economics. Prof. Lorenzo Cappellari

12/2001 – 06/2002 Teaching Assistant, University of Washington, Seattle, USA. Italian, Environmental Policy, Statistics. Prof. Leigh Anderson.

Fundraising and Project Management

12/2016 – 11/2020 DEEDS “DialoguE on European Decarbonisation Strategies” (EU H2020). *Role: Researcher; lead of the writing team for Chapter 8 of the report of the European Commission’s High Level Panel on Decarbonization Pathways*

12/2016 – 11/2020 INNOPATHS “Innovation pathways, strategies and policies for the Low-Carbon Transition in Europe (EU H2020)”. *Role: Scientific Coordinator for CMCC; Work Package Leader*

12/2016 – 12/2017 Member of the T20 Task force

01/2015- 12/2015 DDPP - Deep Decarbonization Pathways Project - Italy - DDPP-Italy. (FEEM Ricerca di base). *Role: Researcher*

06/2015 - 03/2016	The Political Economy of Clean Energy Transition (United Nations University - UNU-WIDER). <i>Role: Co-author</i>
01/2013 - 12/2016	ADVANCE (EU FP7). <i>Role: Researcher</i>
09/2012 - 09/2015	ENTRACTE (EU FP7). <i>Role: FEEM Scientific Leader</i>
10/2011 - 09/2014	LIMITS Low climate Impact scenarios and the Implications of required Tight emission control Strategies (EU FP7). <i>Role: Researcher</i>
09/2011 - 08/2012	TEAM Technology Elicitations and Modeling Project (FEEM Ricerca di base). <i>Role: Researcher</i>
04/2011 - 09/2012	CLIMTECH Diffusion of Climate-Friendly Technologies. The Role of Intellectual Property Rights, Human Capital and Environmental Policy (State of Baden Wuttenberg). <i>Role: Co-Investigator</i>
01/2010 - 09/2013	ICARUS Innovation for Climate change mitigation: a study of energy R&d, its Uncertain effectiveness and Spillovers (ERC Starting Grant). <i>Role: Researcher.</i>
2008 - 2010	TECH-CHANG (FEEM ricerca di base). <i>Role: Researcher.</i>

Google Scholar Profile

H-Index: 14 i10-index: 16 Citations: 1122 (as of February, 10th, 2019)

Publications under review

Nesta L., **Verdolini E.**, Vona F. (under review) "Threshold Policy Effects and Directed Technical Change in Energy Innovation", GREDEG WP No. 2018-01.

Galeotti M., Salini S., **Verdolini E.** (under review) "Measuring Environmental Policy Stringency: Approaches, Validity, and Impact on Environmental Innovation and Energy Efficiency", Centro Studi Luca D'Agliano Development Studies Working Papers 421/2017.

Recent and Most Relevant Publications:

Conti C., Mancusi M.L., Sanna-Randaccio F., Sestini R., **Verdolini E.** (2018) "Transition Towards a Green Economy in Europe: Innovation and Knowledge Integration in the Renewable Energy Sector", *Research Policy* 47(10):1996-2009

Verdolini, E., Vona F., Popp D. (2018) "Bridging the gap: do fast reacting fossil technologies facilitate renewable energy diffusion?", *Energy Policy* 116:242-256

Verdolini, E., Anadón L. D., Baker E., Bosetti V., Aleluia Reis L. (2018) "The Future Prospects of Energy Technologies: Insights from Expert Elicitations", *Review of Environmental Economics and Policy* 12(1):133-153

Galeotti M., Rubashkina Y., Salini S., **Verdolini E.** (2018) "Environmental Policy Performance and its Determinants: Application of a Three-level Random Intercept Model", *Energy Policy* 114:134-144

Verdolini, E., Bak C., Ruet J., Venkatachalam A. (2018). "Innovative green-technology SMEs as an opportunity to promote financial de-risking," *Economics Discussion Papers* 2018-8, Kiel Institute for the World Economy (IfW).

Verdolini, E. (2018). " Environmental policy and innovation: A sectoral analysis," *Papeles de Energía FUNCAS*, nr. 5 Junio 2018.

Witajewski J, **Verdolini E.**, Tavoni M. (2017) "Directed Technological Change and Energy Efficiency Improvements", FEEM Nota di Lavoro 2015.78, *Energy Economics* 68(S1):1-168

Verdolini, E., Bak C, Ruet J., Anbumozhi V. (2017) "Innovative green-technology SMEs as an opportunity to promote financial de-risking", G20 Insights. http://www.g20-insights.org/policy_briefs/innovative-green-technology-smes-opportunity-promote-financial-de-risking/

Verdolini E. and Bosetti V. (2017) "Environmental Policy and the International Diffusion of Green and Brown Technologies" *Environmental and Resource Economics* 66: 497-536.

Dasgupta S., De Cian E., **Verdolini E.** (2017) "The Political Economy of Energy Innovation", in THE POLITICAL ECONOMY OF CLEAN ENERGY TRANSITIONS, ed. D. Arent, C. Arndt, Mackay Miller, Finn Tarp, and Owen Zinaman, Oxford University Press.

Nemet G., Anadon L. D., **Verdolini E.** (2016) "Quantifying the effects of expert selection and elicitation design on experts' confidence in their judgments about future energy technologies", *Risk Analysis*. doi:10.1111/risa.12604

There was a 5 months career break in 2016 due to maternity leave

- Witajewski J., **Verdolini E.**, Tavoni M. (2015) "Bending the Learning Curve", *Energy Economics* 52(1):S86-S99
- Virdis M. R. et al. (2015). "Pathways to deep decarbonization in Italy", SDSN - IDDRI
- Bosetti V., Cattaneo, C., **Verdolini, E.**, (2015) "Migration of Skilled Workers and Innovation: A European Perspective", *Journal of International Economics*, 96(2):227-434
- Rubashkina, Y., Galeotti, M., **Verdolini, E.**, (2015) "Environmental Regulation and Competitiveness: Empirical Evidence on the Porter Hypothesis from European Manufacturing Sectors", *Energy Policy* 83:288-300
- Verdolini E.**, Anadon Diaz L., Liu J., Nemet G. (2015) "The effects of expert selection, elicitation design and R&D assumptions on experts' estimates of the future costs of photovoltaics", *Energy Policy* 80:233-243
- Voigt S., De Cian E., Schymura M., **Verdolini E.** (2014), "Energy Intensity Developments in 40 Major Economies: Structural Change or Technology Improvement?", *Energy Economics* 41(C): 47-62

There was a 5 months career break in 2013-2014 due to maternity leave

- Fiorese G., Catenacci M., Bosetti V., **Verdolini E.** (2013), "The Power of Biomass: Experts Disclose the Potential for Success of Bioenergy Technologies", *Energy Policy*. 65(C): 94-114
- Diaz Anadon L., Nemet G., **Verdolini E.** (2013), "The Future Costs of Nuclear Power using Multiple Expert Elicitations: Effects of RD&D and Elicitation Design", *Environmental Research Letters* 8(2013), 034020
- Catenacci M., **Verdolini E.**, Bosetti B., Fiorese G. (2013), "Going Electric: Expert Survey on the Future of Battery Technologies for Electric Vehicles", *Energy Policy* 61: 403-413
- Fiorese G., Catenacci M., **Verdolini E.**, Bosetti V. (2013), "Advanced Biofuels: Future Perspectives from an Expert Elicitation Survey", *Energy Policy* 56: 293-311
- Verdolini E.**, Johnstone N., Hašič I. (2012), "Empirical Study of Energy Efficiency and Carbon Intensity in Fossil Power Generation", in *Energy and Climate Policy: Bending the Technological Trajectory*, OECD, Paris
- Bosetti V., Catenacci M., Fiorese G., **Verdolini E.** (2012), "The Future Prospect of PV and CSP Solar Technologies: An Expert Elicitation Survey", *Energy Policy* 49(11): 308-317
- Lanzi E., **Verdolini E.**, Hašič I. (2011), "Efficiency Improving Fossil Fuel Technologies for Electricity Generation: Data Selection and Trends", *Energy Policy* 39(11): 7000-7014
- Lanza A., **Verdolini E.** (2011), "The Role of R&D+i in the Energy Sector", in I. Galarraga , M. González-Eguino, A. Markandya (eds.) *Handbook Of Sustainable Energy*, Edward Elgar Publishing
- Verdolini E.**, Galeotti M. (2011), "At Home and Abroad: An Empirical Analysis Of Innovation And Diffusion in Energy Technologies", *Journal of Environmental Economics and Management*, 61(2): 119-134
- Carraro C., De Cian E., Nicita L., Massetti M., **Verdolini E.** (2010), "Environmental Policy and Technical Change: A Survey", *International Review of Environmental and Resource Economics*, 4: 163-219

Work in progress

- Granella, F. and **Verdolini E.** *Patent Cooperation in Low-Carbon Technologies*
- Bonacorsi, L. and **Verdolini E.** *Environmental Policies, Low-Carbon Technologies and Trade*

Editorial, Referee and Project Evaluation Activity

- | | |
|---------------------------|---|
| Member of Editorial Board | Global Challenges, Wiley and Sons |
| Project Evaluator | ANR - Agence Nationale de la Recherche |
| Referee | Journal of Environmental Economics and Management |
| | Journal of the Association of Environmental and Resource Economists |
| | European Journal of Innovation Management |
| | Research Policy |
| | Journal of Agricultural and Resource Economics |
| | Climatic Change |
| | Environmental and Resource Economics |
| | Energy Economics |
| | The Energy Journal |
| | Ecological Economics |
| | Australian Economic Review |
| | Energy Policy |

Recent Seminars and Conferences

INVITED SPEAKER

- Economics of Innovation: Spillovers*. T20 Seminar, Mercator Institute, Berlin, 19 May 2015
- The impact of policy uncertainty on innovation in the wind industry: evidence from EU countries*. Resource for the Future CECE Seminar, Washington DC, 06 August 2015
- Stimulating innovation: insights from the ENTRACTE Project*. ENTRACTE Final Meeting: European Climate Policy – Insights and Interactions, Brussels, 25 September 2015
- Decarbonization of the energy sector*. First meeting of the High-level Panel of the European decarbonisation pathways initiative, European Commission, Bruxelles, 21 October 2016
- Generating growth from innovation for the low carbon economy*. T20 Meeting, Berlin, 27 February 2017
- Innovation effects of environmental policy*. CARISMA Workshop: “Climate change mitigation in the EU: from research to practice”, Stockholm Environment Institute, Stockholm 27 March 2017
- Transition towards a green economy in Europe: Innovation and knowledge integration in the renewable energy sector*. Seminar of the Institut d’Economia de Barcelona, Barcelona, 23 November 2017
- Threshold effects and directed technical change in energy innovation*. 8th Annual Economics for Energy Workshop: “Economic challenges for energy”, Barcelona, 16 February 2018
- Transition towards a green economy in Europe: Innovation and knowledge integration in the renewable energy sector*. 2018 Academic Workshop: Developments in Energy Economics, Barcelona, 16 February 2018
- Decarbonization Innovation: What it could bring? How to make it work?* High Level Workshop “R&I contribution to the strategy for long term EU greenhouse gas emissions reduction”, European Commission, Brussels, 28 June 2018

CONFERENCES

- The impact of policy uncertainty on innovation in the wind industry: evidence from EU countries*. 29th Annual Congress of the European Economic Association, University of Toulouse, Toulouse, 25–29 August 2014
- The impact of policy uncertainty on innovation in the wind industry: evidence from EU countries*. 3rd Annual Conference, Green Growth Knowledge Platform (GGKP): "Fiscal Policies and the Green Economy Transition: Generating Knowledge – Creating Impact", Ca' Foscari University, Venice, 29-30 January 2015
- Drivers of investment in cleaner energy*. 3rd Annual Conference of the Italian Association of Environmental and Resource Economists, University of Padua, Padova, 20-21 February 2015
- The drivers of investment in cleaner energy production*. 21st European Association of Environmental and Resource Economists Annual Conference, University of Helsinki, Helsinki, 24-27 June 2015
- Intra-EU knowledge flows in the renewable energy sector: a patent citation analysis*. Conference on the Economics of innovation, diffusion, growth and the environment. Grantham Research Institute, London, 16-18 September 2015
- Demand System Analysis for Italian Households: Elasticities and Welfare Effects of RES-E Incentives*. 4th Annual Conference of the Italian Association of Environmental and Resource Economists, Bologna, 11-12 February 2016
- The Political Economy of Energy Innovation*. 1st Energy Symposium of the Association of Italian Energy Economists: “Current and Future Challenges to Energy Security”, Bicocca University, Milan, 30 November - 2 December 2016
- Rebound Effects in Europe*. 5th International Academic Symposium: “Challenges for the Energy Sector”, University of Barcelona, Barcelona, 7 February 2017
- Transition towards a green economy in Europe: innovation and knowledge integration in the renewable energy sector*. 23rd Annual Conference of the European Association of Environmental and Resource Economists, Athens, 28 Jun – 1 Jul 2017
- The Carrot or the Stick? Directed Technical Change and Nonlinearities of Policy Effectiveness in Energy Innovation*. 6th European Conference on Corporate R&D and Innovation and Industrial Dynamics: “Challenges for the next decade”, Seville, 27-29 September 2017

Transition towards a green economy in Europe: Innovation and knowledge integration in the renewable energy sector. 2017 IP Statistics for Decision Makers (IPSDM) Conference, Mexico City, 14-15 November 2017

The Carrot or the Stick? Directed Technical Change and Nonlinearities of Policy Effectiveness in Energy Innovation. 10th Conference on Model-based Evidence on Innovation and Development (MEIDE), Montevideo, 16-17 November 2017

Threshold policy effects and directed technical change. SPRU Friday Seminar, University of Sussex, Brighton, 27 April 2018

Threshold Policy Effects and Directed Technical Change in Energy Innovation, 11th International Workshop on "Empirical Methods in Energy Economics" (EMEE), Fondazione Eni Enrico Mattei, Milano, 14-15 June 2018

Environmental Policy and International Trade: New Evidence from Structural Gravity. 6th World Congress of Environmental and Resource Economists (WCERE), Gothenburg, 25-29 June 2018