

Dongchen He

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Research Interests

Energy Economics & Policy
Empirical Industrial Organization
Asset Pricing

References

Prof. Bert Willems Department of Economics Université catholique de Louvain Email: bert.willems@uclouvain.be	Prof. Ronald Huisman Department of Business Erasmus University Rotterdam Email: rhuisman@ese.eur.nl	Prof. Nicola Pavanini Department of Finance Tilburg University Email: n.pavanini@tilburguniversity.edu
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Education

Tilburg University, Tilburg, Netherlands <i>Ph.D. in Economics</i>	Expected April 2026
Tilburg University, Tilburg, Netherlands <i>Master in Economics, summa cum laude</i>	2021
Renmin University of China, Beijing, China <i>Master in Finance</i>	2019
Central University of Finance and Economics, Beijing, China <i>Bachelor in Economics</i>	2016

Job Market Paper

Who Pays, Who Adopts? Efficiency and Equity of Residential Solar Policy

Abstract: This paper studies the equilibrium outcomes of diverse residential solar subsidies within a nested discrete choice framework, introducing endogenous capacity choice and heterogeneous household preferences. I find solar subsidies have intensive effects and would motivate different sizes of solar panel installation. Furthermore, households respond heterogeneously to subsidies: switching from a subsidy based on future production to one that reduces upfront investment costs shifts solar photovoltaics adoption toward lower-income households. There is no single dominant policy in both cost-efficiency and equity. I propose a novel policy screening that is the most cost-efficient, but at the expense of equity. The method of raising subsidies also shapes distributional outcomes. These findings highlight the importance of subsidy policy design.

Working Papers

Flexibility in Power System: Market Design Matters (*with Bert Willems*)

Abstract: The growing share of renewable energy requires sufficient investment in power system flexibility. In this paper, we frame a three-stage peak-load pricing model consisting of investment, commitment, and production, considering that electricity generation is costly to adjust on short notice. The results demonstrate the importance of increasing time granularity in electricity markets with efficient state-contingent prices. Adapting the idea of real options theory, which states that waiting is valuable, flexible firms avoid producing in the low-demand state and earn a premium to recoup investment costs. On top of that, this paper discusses the efficiency of alternative market designs in the investment of flexible assets. Without an efficient real-time market, day-ahead forward price results in under-investment in flexible technologies and over-investment in inflexible ones. This distortion, in theory, can be corrected by a time-varying options market with technology-specific payment while any centralized auction fails to achieve optimum. Finally, this work briefly illustrates the effect of demand flexibility, showing that an increase in demand response does not necessarily reduce the reliance on production flexibility if rationing is done randomly.

Electricity Forward Premium: Renewable Integration and Skewness Preference (*with Ronald Huisman & Bert Willems*)

Abstract: This paper presents new components that explain the risk premium priced in electricity forward and futures contracts. These components relate to the inclusion of renewable power sources in electricity markets. We build upon the equilibrium pricing model presented by Bessembinder and Lemmon (2002), which comes from a time wherein intermittent renewable power supply was negligible. We extend their framework by including intermittent supply from zero marginal costs renewable power sources such as wind and solar and by assuming that agents consider mean-variance-skewness preferences instead of mean-variance only. Beyond variance and skewness of wholesale spot prices as components found before, we show that components that relate to the covariance and coskewness between renewable supply and spot prices explain the power forward risk premium as well. We find empirical evidence that these new components are statistically significant and improve the explanatory power of empirical regressions. Our results suggest the importance of considering the asymmetry of renewable supply shocks in explaining electricity forward premiums.

Research Visits

Toulouse School of Economics, *Toulouse*

March-April 2025

Conferences & Seminars

ASSA 2026, <i>Philadelphia</i>	Jan 2026
EEA 2025, <i>Bordeaux</i>	Aug 2025
IAEE International 2025, <i>Paris</i>	June 2025
FMA European 2025, <i>Limassol</i>	June 2025
Canadian Economics Association 58th Annual Meetings, <i>Online</i>	May 2024
Conference on Climate and Energy Finance, <i>Hannover</i>	Nov 2023
Energy Workshop, <i>Toulouse</i>	Oct 2023
EEA-ESEM 2023, <i>Barcelona</i>	Aug 2023
CEEM Ph.D. Conference, <i>Paris</i>	Apr 2023
Young Energy Economists and Engineers Seminar, <i>Cobbenhagen</i>	Sep 2022
6th AIEE Energy Symposium: Current and Future Challenges to Energy Security, <i>Online</i>	Dec 2021

Workshops

Engineering Energy Summer School by Frank Wolak (Stanford), <i>Stockholm</i>	June 2024
Empirical Environmental and Energy Economics by Hunt Allcott (Stanford), <i>Amsterdam</i>	June 2023
Energy Market Winter School, <i>Oppdal</i>	Feb 2022
Energy Transition Empiric Workshop by Mar Reguant (Northwestern), <i>Online</i>	Aug 2021

Teaching Experience

Tilburg University, Teaching Assistant

Contract Theory, Graduate level	2024-2025
Information Economics, Bachelor level	2023-2025
Game Theory, Graduate level	2020-2023
Intermediate Economics, Bachelor level	2022
Microeconomics 1, Bachelor level	2021

Renmin University of China, Teaching Assistant

Advanced Microeconomics, Graduate level	2017
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Awards & Grants

Funded PhD program, €150000, <i>Tilburg University</i>	2021-2025
Jenny Ligthart Prize (best research master), €1500, <i>Tilburg University</i>	2022
Koopmans Scholarship, €48000, <i>Tilburg University</i>	2019-2021
Academic Scholarship, RMB51600, <i>Renmin University of China</i>	2016-2018
College Academic Scholarship, <i>Central University of Finance and China</i>	2014-2015
Second Prize, <i>Students' Platform for Innovation and Entrepreneurship Training Program</i>	2014

Software Skills

- Matlab, LaTeX, Stata, Python

Languages

- Southwestern Mandarin (Native), Mandarin, English, Dutch (beginner)