Robert Michael Idel

Rice University, Houston, TX, 77005 • Cell: +1 (713) 985 9466 • Mail: Robert.idel@googlemail.com

RESEARCH FIELDS

Energy Economics, Applied Microeconomics, Market Design

EDUCATION

Rice University, Texas *Expected May 2022*
PhD in Economics
Dissertation: "Electricity Market Design without Marginal Operating Costs."
Committee: Peter Hartley (Chair), Kenneth Medlock, Mallesh Pai, Daniel Cohan

Rice University, Texas *Expected May 2022*
MSc in Econometrics and Quantitative Economics

University of Mannheim, Germany *June 2014*
MSc in Mathematics in Business and Economics

University of Mannheim, Germany *June 2012*
BSc in Mathematics in Business and Economics

PROFESSIONAL EXPERIENCE

Baker Institute for Public Policy at Rice University *2019-2022*
Graduate Fellow at the Center for Energy Studies

TWS Partners, Munich *2014-2017*
Economic consulting focused on Auction Design, Game Theory, and Market Design.
Project Manager

PRESENTATIONS AND SEMINARS

Presentations
IAEE Conference, Denver *November 2019*
OSWEET Conference, Cornell University/University of Oregon *October 2020*
IAEE International Conference *June 2021*
IAEE Conference & IAEE PhD Hour *November 2021*

Seminars/Webinars
Baker Institute Webinar *July 2020*

Podcasts/Industry Talks
Game Changer *April 2021*
TNG Tech Day *May 2021*

TEACHING EXPERIENCE

Teaching assistant for Master in Energy Economics, **Rice University** *2019-present*
Macroeconomics, Electricity, Geopolitics of Energy, Energy Economics, Finance, Risk Management

Teaching assistant for Economics PhD, **Rice University** *2018-2019*

Microeconomics

RESEARCH PAPERS

Searching for Efficiency - Electricity Market Design without Marginal Operating Costs, **Job Market Paper**

This paper examines the feasibility of current wholesale market pricing mechanisms to support a market supplied solely by intermittent and non-dispatchable sources generating with zero-marginal costs (like wind and solar), plus storage. After introducing and discussing a comprehensive list of goals which must be achieved by an optimal market mechanism, this paper proves that current pricing mechanisms will not satisfy these goals. Using simulations based on the German and ERCOT market data, this paper proposes a modified pricing mechanism that solves some but not all the issues of spot price auctions and concludes that the perfect pricing mechanism is yet to be found.

Bidding Strategies of Electricity Storage Owners in Multi-Unit Sequential Spot Price Auctions, *working paper*

Once they reach a relevant market share and evolve from price takers to market participants with significant market power, owners of large-scale electricity storage systems need to find an optimal bidding strategy in a multi-unit sequential spot price auction where they are both buyers and sellers. Using a novel computational approach tailored to electricity markets, this paper introduces a recursive bidding equilibrium algorithm that considers the dynamics of market power. Acknowledging the complexity and computational requirements, the paper concludes with two closed-form bidding solutions that can be used to approximate the recursive bidding algorithm and thus more suitable for extensive simulations.

Levelized Full System Costs of Electricity, *R&R at The Energy Journal*

As they fail to account for costs associated with intermittency and non-dispatchability, Levelized Costs of Electricity (LCOE) are unable to evaluate renewables like wind and solar properly. This paper introduces the Levelized Full System Costs of Electricity (LFSCOE), a novel cost evaluation metric that compares the costs of serving the entire market using just one source plus storage. The paper first calculates LFSCOE for several technologies using data from two different markets to then elaborate on possible refinements.

Assessing Energy Transition Risks Related to Mining, Trade, and Political Dependence: Perspectives from the US, with Jim Krane, *Energy Research and Social Sciences*, *forthcoming.*

The upcoming transition of the energy landscape towards renewables and the accompanying impacts on supply security is a controversial discussion in U.S. policy. This paper argues that transitioning towards renewable energy will increase supply security. After addressing concerns of potential embargoes by pointing out the fundamental difference between construction risk and fuel risk, we show that the overall mining requirements will decrease significantly when wind farms replace electricity generated from coal.

RESEARCH IN PROGRESS

Was it worth it being cold? Evaluation of the value of lost load using the power outages during the Texas Snow Storm 2021.

Rethinking efficiency – How to steer optimal demand response in a system with wind, solar, and storage?

TECHNICAL AND LANGUAGE SKILLS

Technical: Python, R, Matlab, Julia, LaTex, Microsoft Office
Languages: German (Native), English (Fluent), French (Beginner)

ADDITIONAL ACTIVITIES

Science Slam: Scientists present scientific discoveries entertainingly (youtube, >1m views, in German)
Water Polo: First division player in Germany for 5 years; Currently Head Coach of Rice Water Polo.

REFERENCES

Professor Peter Hartley
Rice University
+1 713 348 4683
hartley@rice.edu

Professor Kenneth Medlock
Director of Center for Energy Studies at Baker Institute
+1 713 348 3757
medlock@rice.edu

Dr. Jim Krane
Fellow at Baker Institute
+1 (713) 348-3567
jkrane@rice.edu

Dr. Sebastian Moritz
Managing Partner at TWS Partners
+49 89 2000 4037
Sebastian.moritz@tws-partners.com