

# Iegor Riepin

---

I am a researcher at the [ENSYS @ TU Berlin](#)

My research stands at the intersection of economics and operations research. My objective is to provide empirical and computational evidence to guide public- and private sector stakeholders in dealing with new and emerging challenges of energy transition.

I believe in open science, and I try to contribute by sharing my code, data and teaching materials.

Personal page: [iriepin.com/](http://iriepin.com/)

LinkedIn: [linkedin.com/in/iegor-riepin/](https://www.linkedin.com/in/iegor-riepin/)

Emails: [iegor.riepin@gmail.com](mailto:iegor.riepin@gmail.com) | [iegor.riepin@b-tu.de](mailto:iegor.riepin@b-tu.de)



## Work experience

---

2022.03 - present	<b>Researcher   Energy system modeler</b> Department of Digital Transformation in Energy Systems (ENSYS) <a href="#">ENSYS @ TU Berlin</a>
2014.11 – 2022.02	<b>Research fellow   PhD student</b> <b>ESM group lead</b> (2021.09 – 2022.02) Brandenburg University of Technology (BTU CS), Germany <a href="#">Chair of Energy Economics</a>
2019.09 – 2019.10	<b>Visiting researcher</b> University of Victoria (UVic), Canada <a href="#">Institute for Integrated Energy Systems</a>
2013.10 – 2014.09	<b>Student assistant</b> Chair of Energy Economics, BTU CS
2013.09 – 2013.10	<b>Intern</b> DIW Berlin, Institute for Economic Research, Germany <a href="#">Department: Energy, Transportation, Environment</a>

## Academic background

---

2014.11 – 2021.12	<b>PhD candidate in energy economics: mathematical modelling of energy markets</b>   Supervision: <a href="#">Prof. Felix Müsgens</a>   BTU CS
2012 – 2014	<b>M.Sc. (Hon) in Power Engineering</b> BTU CS, Germany   Final grade: 1.2

2008 – 2012      B.Sc. (Hon) in Heat Power Engineering  
ZSEA, Ukraine | Final grade: 4.98 (5)

## Completed & ongoing projects at BTU CS

---

2021 <i>Project acquisition and supervision</i>	<b>TransHyDE: System analysis of transport solutions for green hydrogen</b> Funding: BMBF (Federal Ministry of Education and Research) Cooperation: >30 partners   <a href="#">Project web page</a>
2017 <i>Research fellow</i>	Design of auctions for market premia for onshore wind generation: theoretical and experimental testing. Cooperation: CERGE-EI. <a href="#">Summary</a>
2016 <i>Research fellow</i>	<b>Strategy 2020: modelling of forward prices for natural gas in European gas markets.</b> Funding: industry partner. Cooperation: <a href="#">r2b energy consulting GmbH</a>
2014 – 2016 <i>Research fellow</i>	<b>Fundamental gas market analysis in a context of the German energy transition process.</b> Funding: gas trading utility. Cooperation: r2b energy consulting GmbH. <a href="#">Summary</a>

## Peer-reviewed journal articles

---

Research articles #1, #5, #6, #7 form my PhD thesis.

- European gas infrastructure expansion planning: an adaptive robust optimization approach**  
Riepin, I., Schmidt, M., Baringo, L., Müsgens, F.,  
[Working paper](#) at Optimization Online (2021)  
*In review* | [Code](#)
- Risk aversion in flexible electricity markets**  
Möbius, T., Riepin, I., Müsgens, F., Adriaan H. van der Weijde  
[Working paper](#) at arXiv (2021)  
*In review* | [Code](#)
- Grok it and use it: Teaching energy systems modeling**  
Riepin, I., Sgarciu, S., Bernecker, M., Möbius, T., Müsgens, F.  
*In review* | [Course GitHub](#)
- Policy choices and outcomes for the global competitive procurement of offshore wind**  
Jansen, M., Beiter, P., Riepin, I., Müsgens, F. Juarez Guajardo-Fajardo, V.,  
Staffell, I., Bulder, B., Kitzing, L.  
[Working paper](#) at arXiv (2022)  
*In review*

5. Applied Energy (2021). **Modelling uncertainty in coupled electricity and gas systems—Is it worth the effort?**  
Riepin, I., Möbius, T., Müsgens, F.  
DOI: [10.1016/j.apenergy.2020.116363](https://doi.org/10.1016/j.apenergy.2020.116363) | [Code](#)  
Working paper at arXiv (2020): [arxiv.org/abs/2008.07221](https://arxiv.org/abs/2008.07221)
6. Nature Energy (2020). **Offshore wind competitiveness in mature markets without subsidy.**  
Jansen, M., Staffell, I., Kitzing, L., Quoilin, S., Wiggelinkhuizen, E., Bulder, B., Riepin, I., Müsgens, F.  
DOI: [10.1038/s41560-020-0661-2](https://doi.org/10.1038/s41560-020-0661-2) | [Code](#) | [Supplementary data](#)  
[Nature Energy News & Views](#) | Media coverage: [118 news stories from 116 outlets](#)
7. The Energy Journal (2022). **Seasonal flexibility in the European natural gas market.**  
Riepin, I., Müsgens, F.  
DOI: [10.5547/01956574.43.1.irie](https://doi.org/10.5547/01956574.43.1.irie) | [Code](#)  
Cambridge Working Papers in Economics (2019)  
DOI: [10.17863/CAM.43923](https://doi.org/10.17863/CAM.43923) | [Abstract](#) | [Non-Technical Summary](#) | [PDF](#)

### **(Peer-reviewed) conference articles**

---

8. IEEE EEM (2020). **Regret analysis of investment decisions under uncertainty in an integrated energy system.**  
Möbius, T., Riepin, I.  
DOI: [10.1109/EEM49802.2020.9221935](https://doi.org/10.1109/EEM49802.2020.9221935)
9. IEEE EEM (2018). **Integrated electricity and gas market modeling – effects of gas demand uncertainty.**  
Riepin, I., Möbius, T., Müsgens, F.  
DOI: [10.1109/EEM.2018.8469790](https://doi.org/10.1109/EEM.2018.8469790) | [preprint version](#) | [Video](#)
10. IEEE EEM (2018). **Is offshore already competitive? Analyzing German offshore wind auctions.**  
Müsgens, F., Riepin, I.  
DOI: [10.1109/EEM.2018.8469851](https://doi.org/10.1109/EEM.2018.8469851) | [preprint version](#) | [Video](#)
11. IEEE EEM (2016). **Modelling of world LNG market development: focus on US investments and supplies.**  
Montenegro, R., Riepin, I., Hauser, P.  
DOI: [10.1109/EEM.2016.7521361](https://doi.org/10.1109/EEM.2016.7521361)

### **Other publications**

---

12. CarbonBrief (2020). **The era of ‘negative-subsidy’ offshore wind power has almost arrived**

Riepin, I., Jansen, M., Staffell, I., Müsgens, F.

[Guest post](#)

13. e|m|w.trends (2020). **Offshore-Windenergie - subventionsfrei?**

Müsgens, F. and Riepin, I.

[Guest post](#)

14. Oxford Institute for Energy Studies & BTU CS (2015). **A note on climate policy negotiations at the threshold of COP-21 in Paris.**

Müsgens, F., Poudineh, R., Riepin, I.

[PDF](#)

15. ZSEA (2011). **Usage of solar energy for heating service and domestic water heating.**

Riepin, I. | VII all-Ukrainian scientific conference. Vol. 2, pp. 78 - 83.

16. ZSEA (2011). **Ukrainian market prospects in the field of alternative energy sources.**

Riepin, I. | The annual conference for graduate students. pp. 186 - 192.

## Public talks

---

1. **European Natural Gas Infrastructure Expansion Planning: An Adaptive Robust Optimization Approach**

[PDF](#) | [Code](#) @ EWI Cologne & BTU CS Research seminars 2021

[PDF](#) | [Code](#) @ European Conference on Operational Research, Athens, 2021

2. **The costs of ignoring uncertainty and the value of perfect information: a toy model.**

[PDF](#) | [Code](#) @ Doctoral seminar, BTU CS, 2019

3. **Robust optimization of electricity system expansion.**

[PDF](#) | [Code](#) @ University of Victoria, Canada, 2019

4. **Economic impacts of uncertainty in integrated electricity and gas markets.**

[PDF](#) @ 30<sup>th</sup> European Conference on Operational Research, Dublin, Ireland, 2019

5. **Integrated electricity and gas market modelling – effects of gas demand uncertainty.**

[PDF](#) @ EEM2018 Conference, Lodz, Poland, 2018

[PDF](#) @ PhD seminar Cottbus-Leipzig-Dresden, 2018

6. **Integration of electricity and gas market models.**

[PDF](#) @ Energy modelling seminar, IER, Universität Stuttgart, 2018

7. **Application of non-linear and complementarity problems for natural gas market modelling.**

[PDF](#) @ Research seminar with chair of Mathematical Economics, BTU CS, 2017

[PDF](#) @ Internal research seminar, BTU CS, 2016

8. **Natural Gas Storages in Competition with Alternative Flexibility Sources.**

[PDF](#) @ 39<sup>th</sup> IAEE International Conference, Bergen, Norway, 2016

[PDF](#) @ PhD seminar Cottbus-Leipzig-Dresden, 2016

9. **Prospects for Shale Gas Exploration in Europe: Ongoing Experience.**

[PDF](#) @ 38<sup>th</sup> IAEE International Conference, Antalya, Turkey, 2015

## Teaching experience

---

WS17/18 - WS19/20	<b>Energy Systems Modelling</b> (course development, selected lectures, tutorials, supervision of student projects) Lecture: Prof. Dr. Felix Müsgens   <a href="#">Course GitHub page</a>
WS14/15 – SS2018	<b>Power System Economics 1</b> (Winter terms   tutorials) <b>Power System Economics 2</b> (Summer terms   tutorials) Lecture: Prof. Dr. Felix Müsgens and Prof. Dr. Stefan Zundel

## Scholarships & awards

---

2017.11 – 2019.10	Postgraduate scholarship, BTU CS (Promotionsstipendium des Landes Brandenburg, GradV)
2014	Rheinstahl foundation study scholarship (Master degree)
2013	STIBET study scholarship, DAAD (Master degree)
2010	Zaporizhia city administration scholarship (Bachelor degree)

## Some technical skills and languages

---

Mathematical modelling & programming	<b>GAMS</b> (project-related use, research and teaching) <b>Python</b> (research and hobby projects) <b>Git</b> (version control)
Languages	<b>English</b> (fluent)   <b>German</b> (C1 certificate) <b>Ukrainian &amp; Russian</b> (native fluent)

Berlin, Germany | March 2022