

# Empirical research on flexibility options in open energy models

*Anya Heider, Ricardo Reibsch*

*Berlin, 26<sup>th</sup> march 2020*



# Agenda

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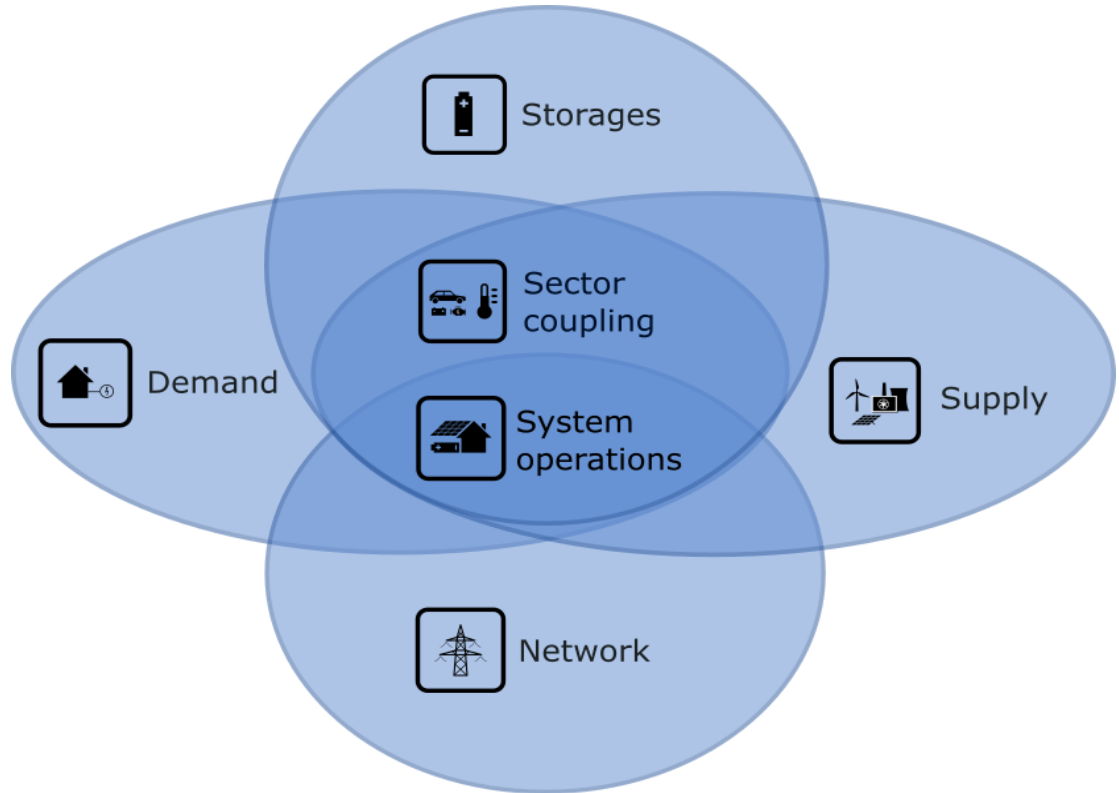
**Flexibility in energy system models**

**Aim of empirical research**

**The survey**

# What is flexibility in power systems?

- Ability of a system to **adapt its operation**
  - to predictable and unpredictable changes (demand and/or generation)
  - at different time scales
  - within economical boundaries

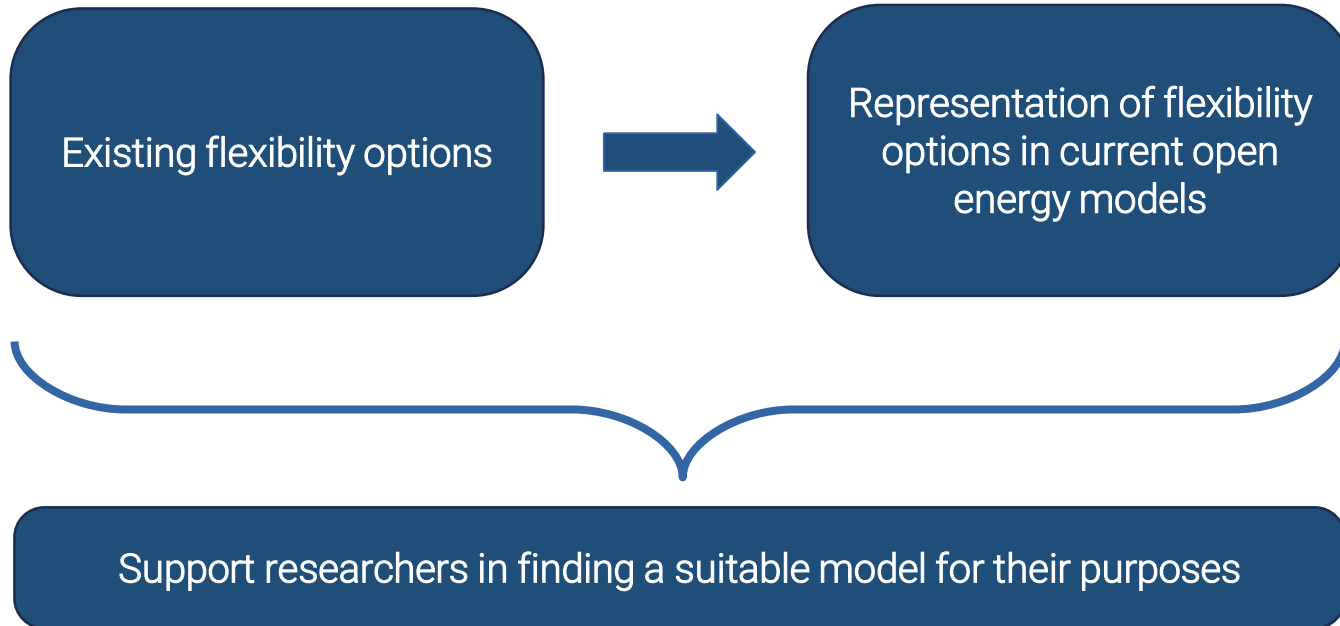


- Operational constraints of technologies (ramp rate, reaction time)
- Wide range of open energy system models with different focus
- Open questions:
  - Which model is best suited to answer specific questions concerning flexibility?
  - What functionalities are missing in current models?

# Aim of research

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Review paper that addresses open questions



- **Aim:** investigate characteristics of open energy models considering flexibility options
- What is the **current status** of energy models and which features are planned for the future?
- **Structure:** From general features of the model/framework to specific questions concerning flexibility options (e.g. representation of storage, DSM, ...)

- Part 0: **Basic information** (name, version etc.)
- Part 1: **Model** (temporal and spatial scope, sector representation etc.)
- Part 2: **Technology representation**
  - Operational constraints (ramp rates, grid representation, technology specific parameters)
  - Predefined classes/objects of flexibility options

# Survey – How to contribute?

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- The completion of the survey takes approximately 15-30 min
- Two options to fill it out:
  - 1) by yourself
  - 2) in an interview situation via phone or Skype or ...

It will help us a lot if you participate! Please type suitable models in the chat ;)

You can contact us at [anya.heider@rl-stiftung.de](mailto:anya.heider@rl-stiftung.de)



# Thank you for your attention!



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Tel: +49 (0)30 1208 434 90  
E-Mail: [anya.heider@rl-stiftung.de](mailto:anya.heider@rl-stiftung.de)  
Web: <http://www.rl-stiftung.de/kolleg>

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