Easy, fast, cheap: choose 2?

Powering the Energy Transition

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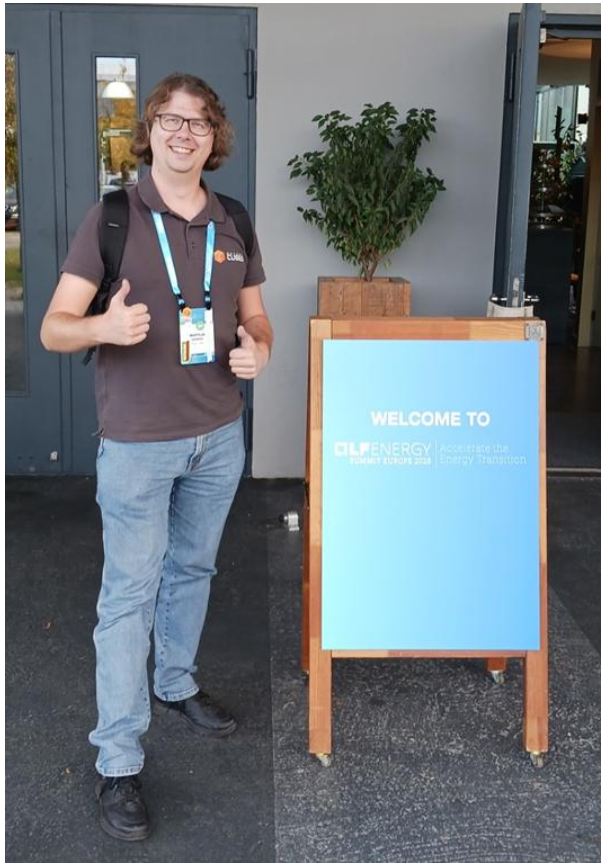
BRIGHT CUBES

Who am I?

- Martijn Govers
- M.Sc. in Physics (Ghent University)
- Scientific Software Engineer Consultant at Bright Cubes
- Currently at Alliander
- Previously at Philips and ASML
- Core maintainer of Power Grid Model (PGM)



The problem

- Energy transition
  - Many initiatives
  - Often: many power system calculations

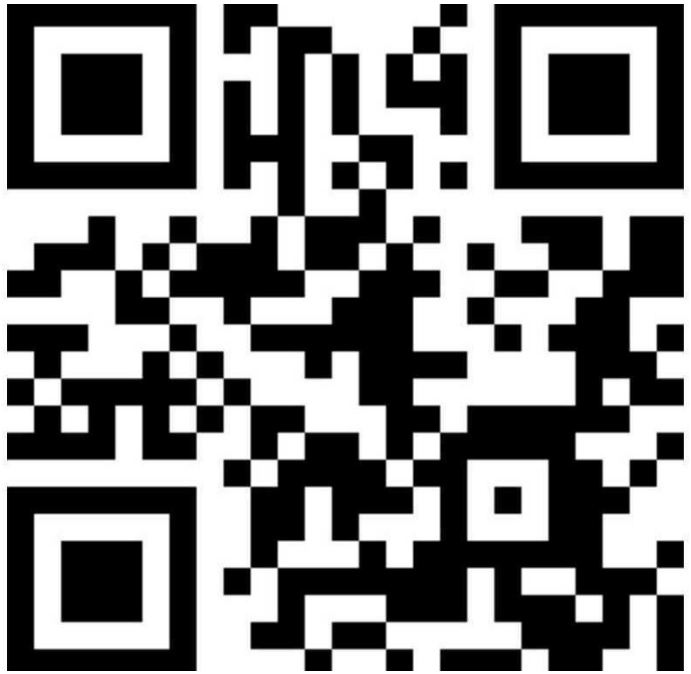
- Custom power system calculator?
  - Hard
  - Keeping it performant is expensive
  - Rebuilding is wasteful

The underlying issue

- Easy, fast, cheap: choose 2?
- Cheap + easy = shortcuts
  - ➔ Slow
- Cheap + fast = special-purpose
  - ➔ Hard to (re)use
- Fast + easy = complex
  - ➔ Expensive

The solution

- PGM solves these issues in one go
  - Open-source power system calculation engine
- Strict boundary with stable, clean API
  - ➔ Easy to use
- Internal: do whatever you want
  - ➔ Fast
- Open-source: maintain standard, don't cut corners
  - ➔ Cheaper in long run as community grows
- Just like: Python, NumPy, …

Conclusion

- Easy, fast, cheap
  - You **can** have hem all
- Combine
  - Stable, user-friendly API
  - Fast core
  - Open-source
- Come talk to me!