

11<sup>th</sup> LBS Symposium, Vienna

# **STELA**

## **Crowdsourcing Energy Data for Participatory Renewable Energy Planning and Modelling**

Sagl, Resch, Summa, Mayer, Sun, Lee

27 November 2014

RUPRECHT-KARLS-  
UNIVERSITÄT  
HEIDELBERG  
EXZELLENZUNIVERSITÄT



# Participatory Planning ::: Motivation

- Energy turn-around: massive reconstruction of energy infrastructure
- ➔ More intense public participation necessary/desired
- ➔ Data poverty reduces planning accuracy



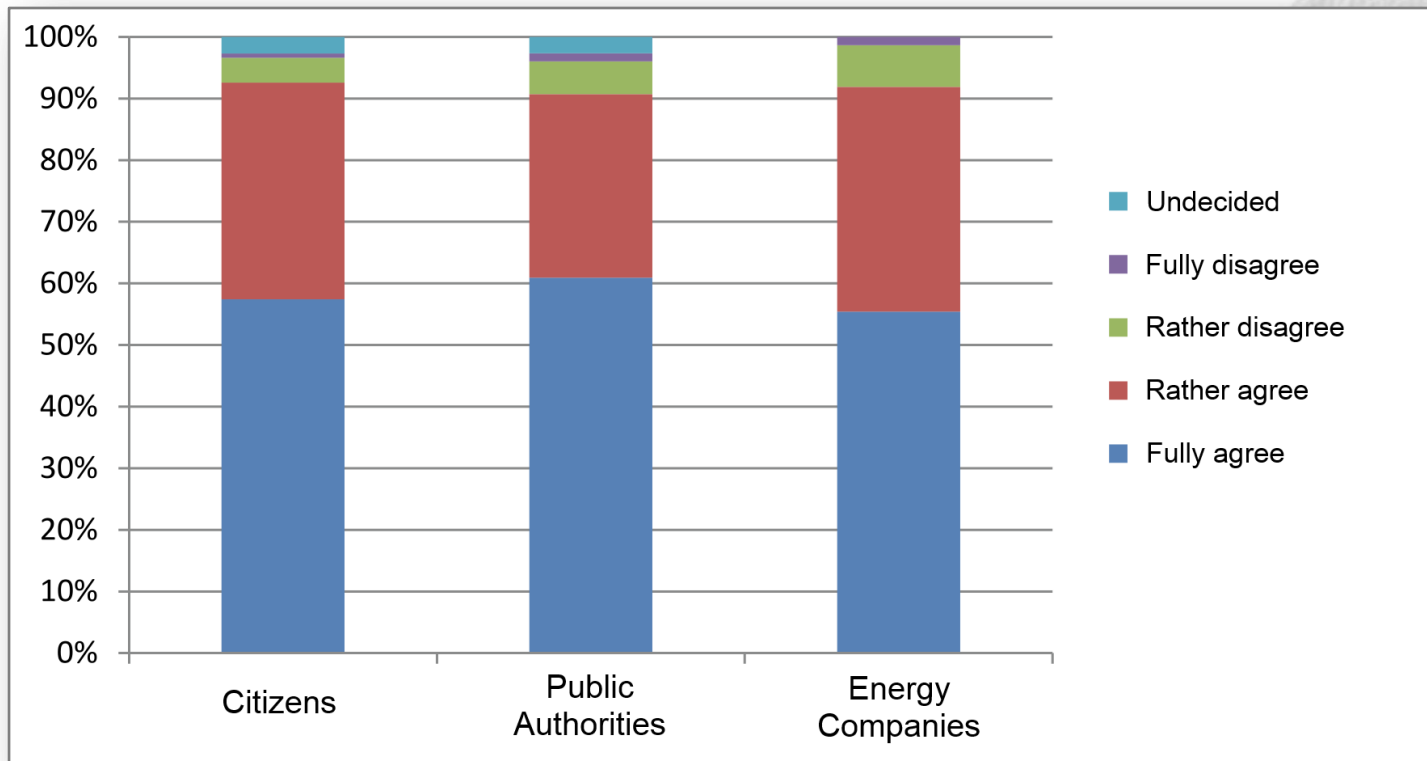
# Participatory Planning ::: Requirements

- Requirements analysis for GIS-based online public participation (energy infrastructure projects)
- N = 377 (149 citizens, 153 public authorities, 75 energy industry)
- ➔ Necessity of GIS-/map-based applications for public participation, requirements, types of projects

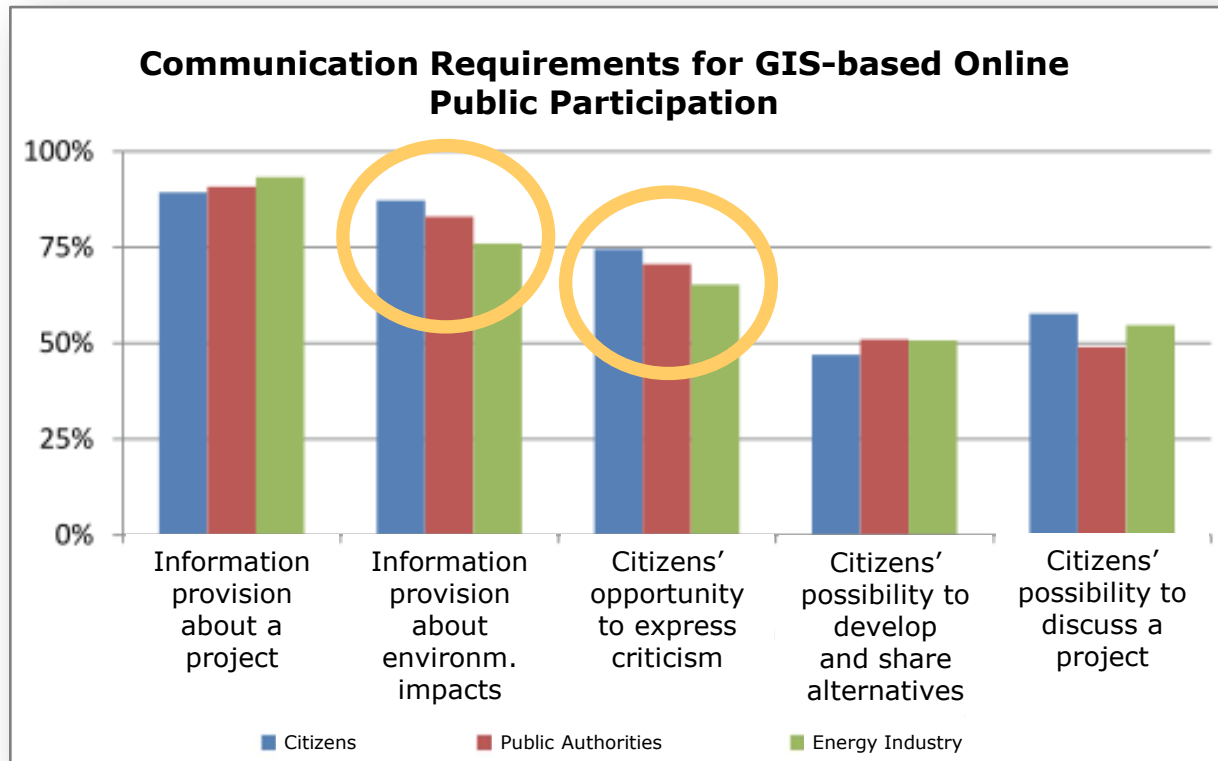


# Participatory Planning ::: Requirements

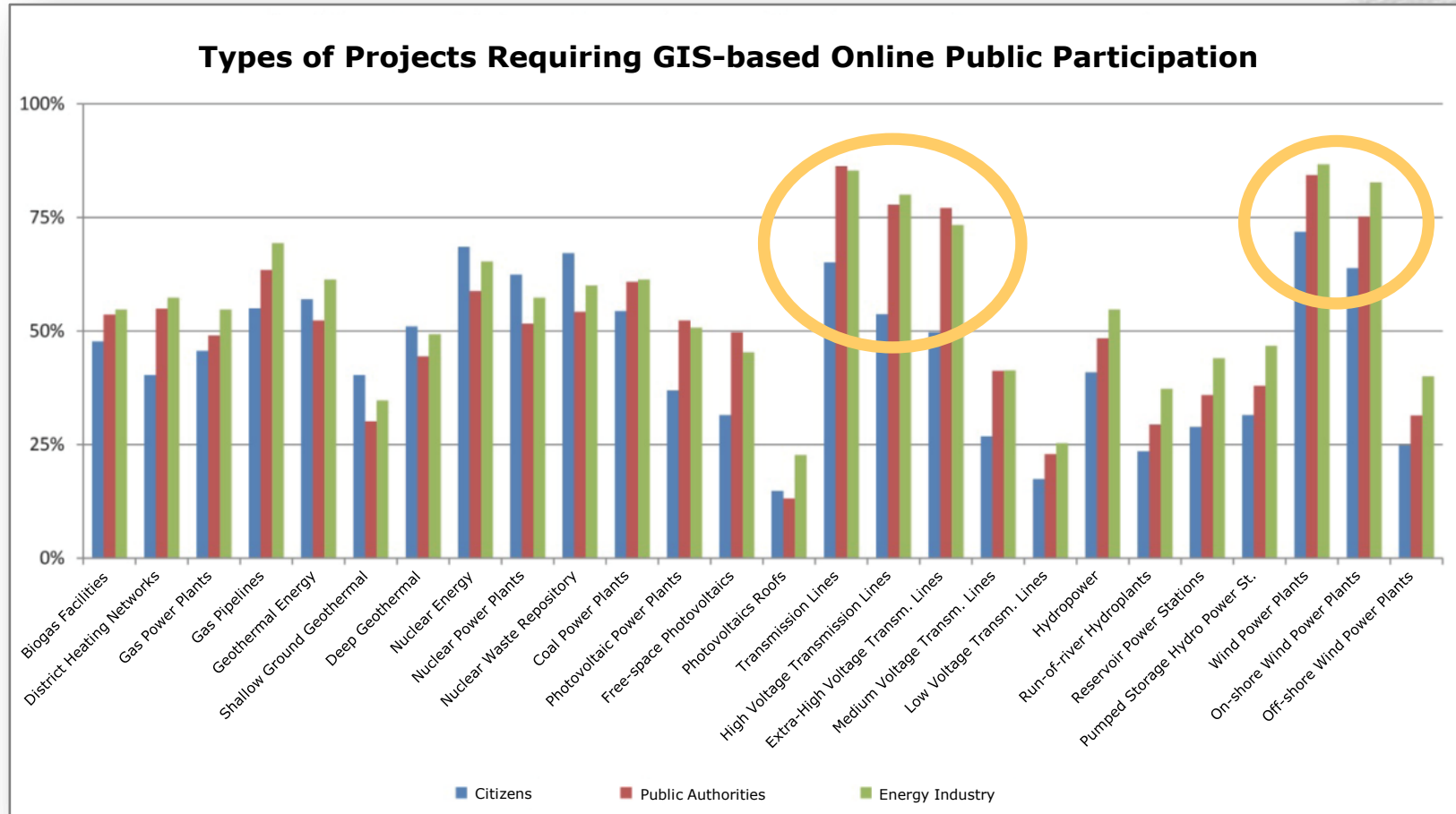
Necessity of GIS-based Online Public Participation



# Participatory Planning ::: Requirements



# Participatory Planning ::: Requirements





# Participatory Planning ::: Motivation

- Sustainable renewable energy planning requires **detailed and fine-grained** energy data
- Spread simple tasks to **many collaborators** rather than to few experts
- Collect energy data on a building or household-level using **mobile and location-aware technologies**



Source: [www.gizmag.com](http://www.gizmag.com)

# Participatory Planning ::: STELA App

The screenshot displays the STELA App interface. On the left is a data entry form, and on the right is a map of Mannheim, Germany. A blue callout box on the map instructs the user to click on the map to specify the position. A large blue arrow points from the form to the map, and another blue arrow points from the map to a detailed data entry window.

**STELA** + Solarpanel + Haushalt

Benutzername Passwort Anmelden Registrieren

Foto  Keine ausgewählt

Fläche der Anlage  m<sup>2</sup>

Anzahl der Kollektoren

Typ der Kollektoren

Orientierung

Ort der Anbringung

Baujahr  Jahr(e)

Breite  49,328702118051

Länge  8,41552734375

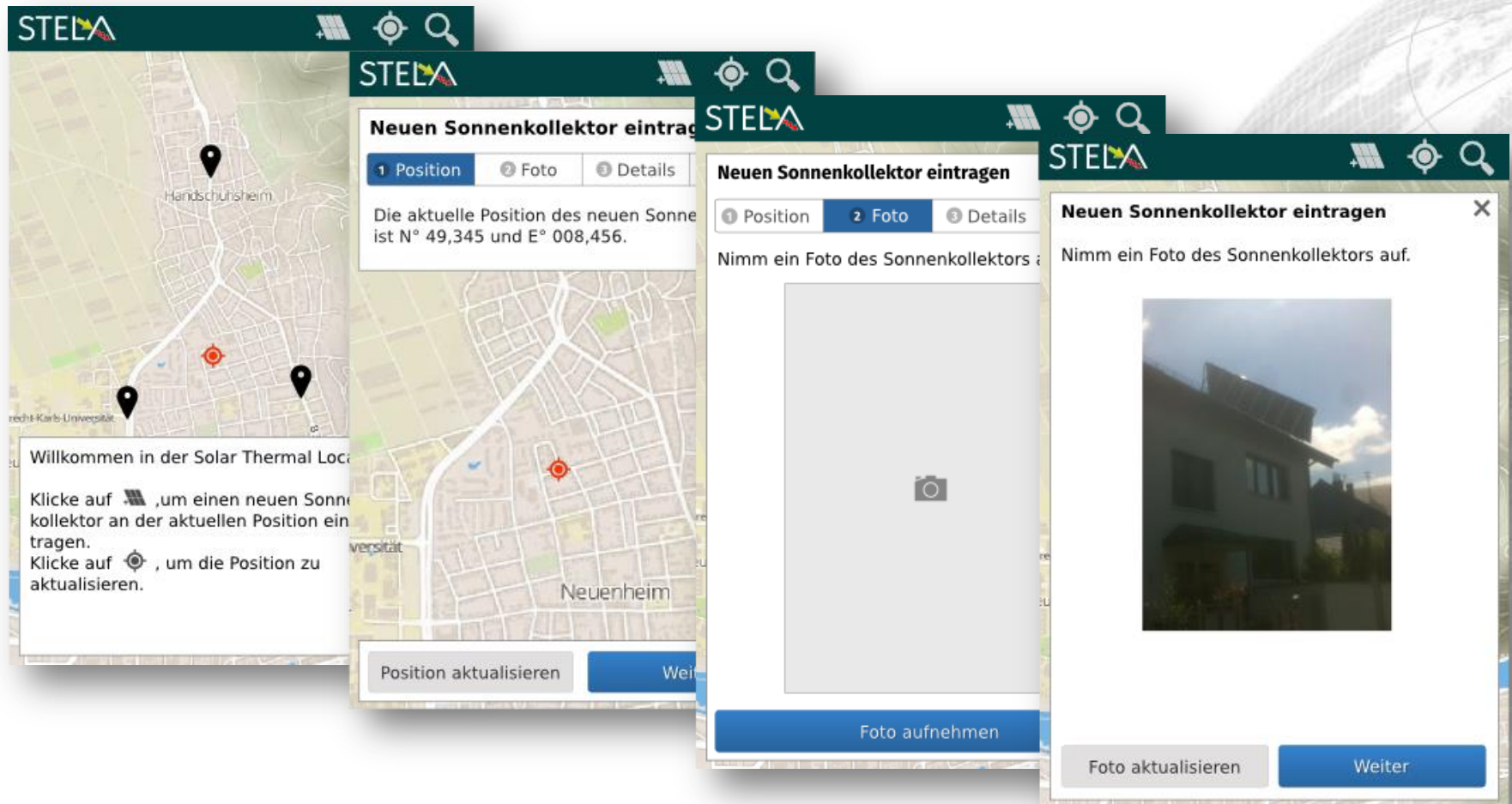
Bitte auf der Karte die Position durch Klicken angeben.

Reichelsheim Bensheim Bürsdorf Worms Frankenthal Mannheim Weinheim Heide Hockenheim Speyer Bruchsal Kraichtal Eppingen Heilbronn

- Aktualisiert: 2014-04-22
- Kollektorfläche: nicht eingegeben
- Anzahl der Kollektoren: 8
- Paneltyp: nicht eingegeben
- Orientierung: Süd-West
- Ort der Anbringung: Dach
- Jahr der Konstruktion: nicht eingegeben
- Datenverfasser: Tester\_02



# Participatory Planning ::: STELA App



# Conclusion

- Public Participation necessary/desirable
- LBS: potential to generate fine-grained energy data
- Numerous future challenges
  - ◆ Motivation/incentives
  - ◆ Privacy/data protection
  - ◆ Lacking support from energy industry



# Acknowledgements

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- Tobias Törnros
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- Carsten Kropp
- Sebastian Herkel
- Hartmut Gündra
- Anja Summa, Christoph Mayer, Sen Sun, Minji Lee
- ...



Source: [www.eagletechnosys.com](http://www.eagletechnosys.com)

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