Carl von Ossietzky
Universität
Oldenburg

Workshop

Mini-Grids for Resilient Energy Supply:
the Community of San Rafael as Case Study

Herena Torio
Adrian Jimenez

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Agenda

- **Why this workshop?**
- **Workshop outlook**
- **Participants profile**

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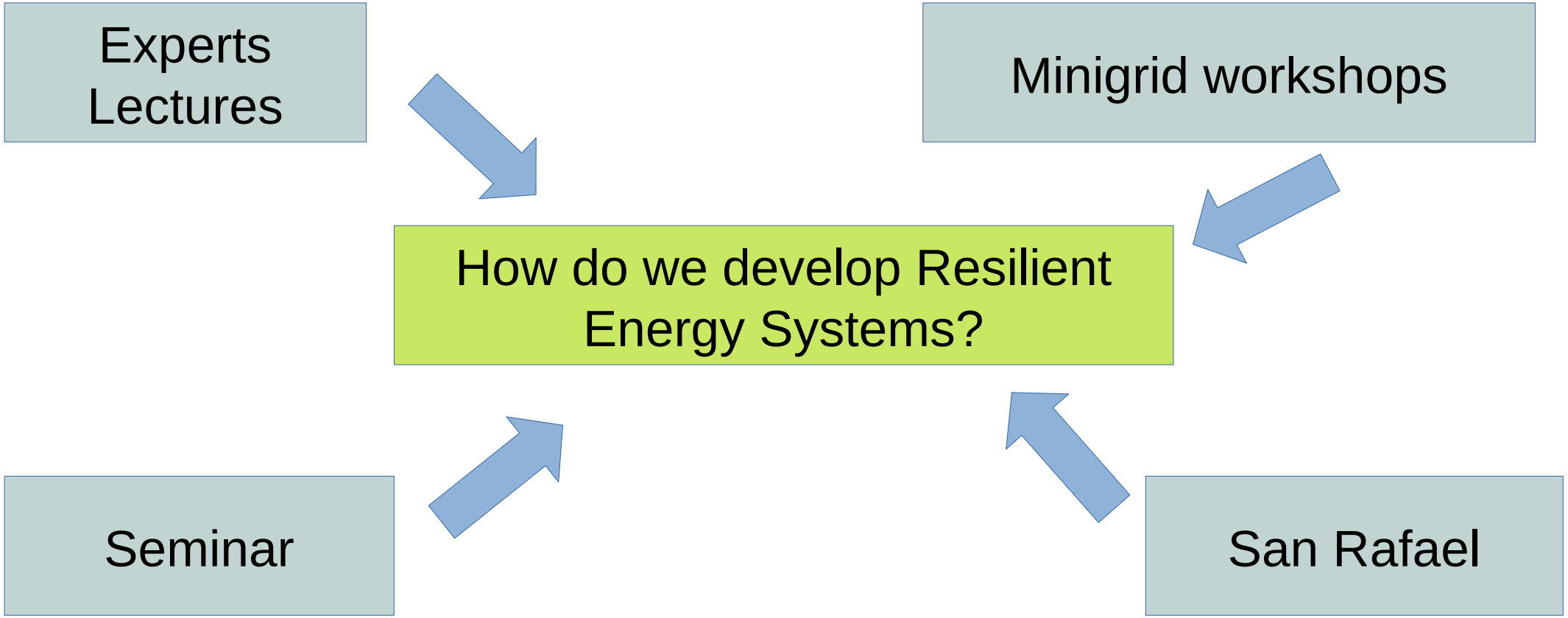
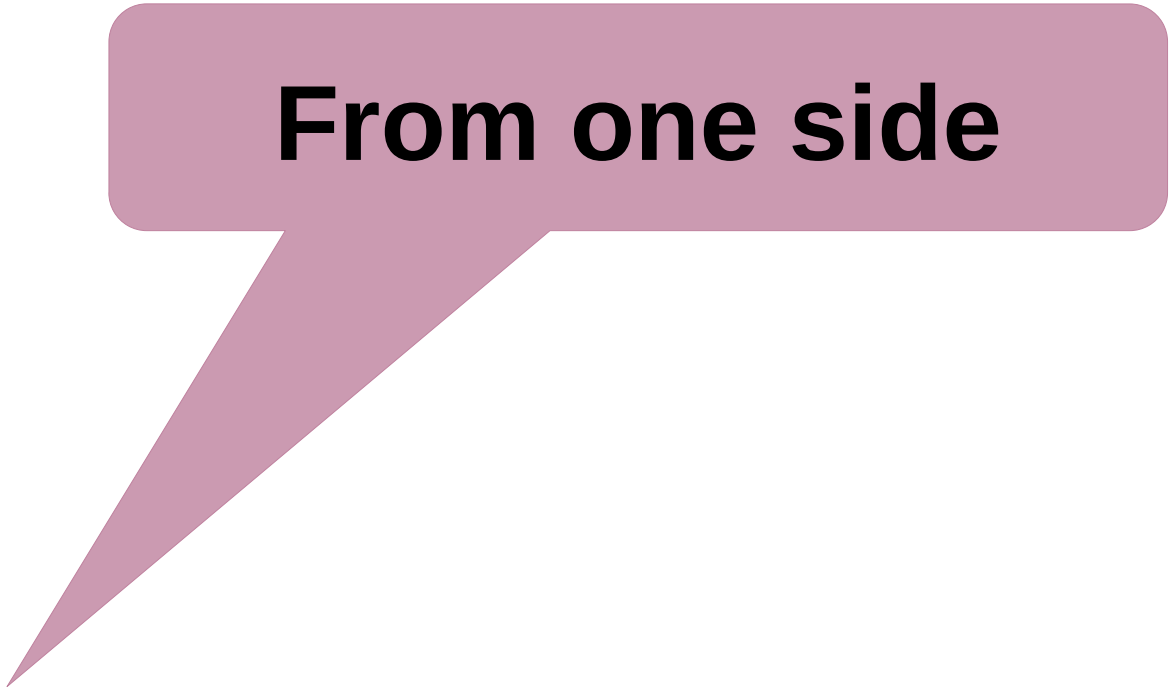
Our experience in the topic

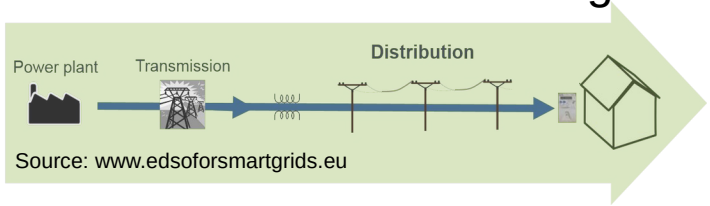


Why a workshop on Mini-Grids for Resilient Energy Supply?



Why resilience in RE Systems?

From traditional lineal and centralized grids…



Why resilience in RE Systems?

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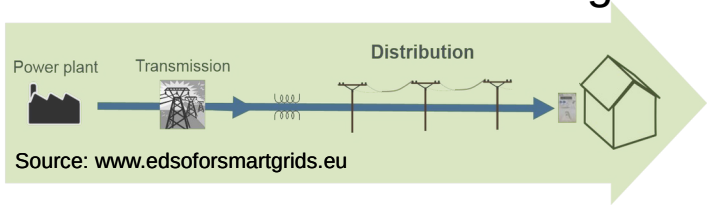
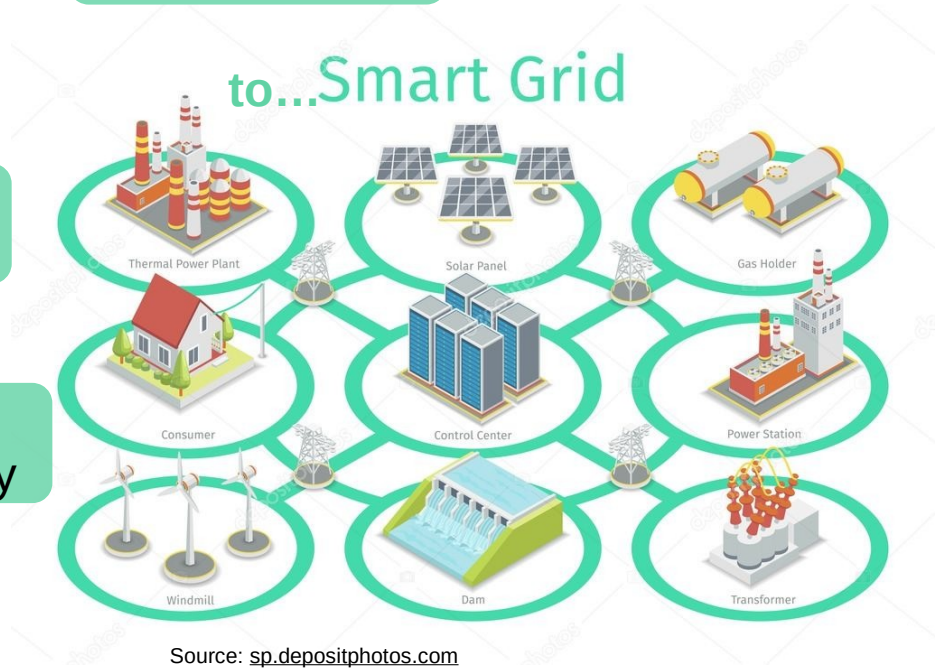


Bidirectional

Consumers/
Prosumers

Higher
complexity

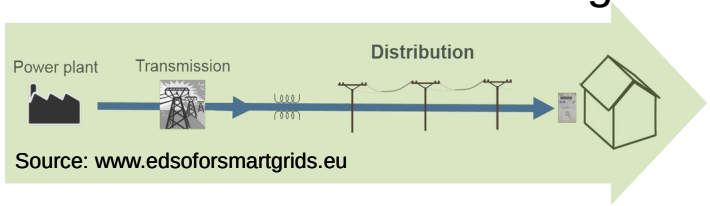


Source: sp.depositphotos.com

… to complex descentralized grids

Why resilience in RE Systems?

From traditional lineal and centralized grids…

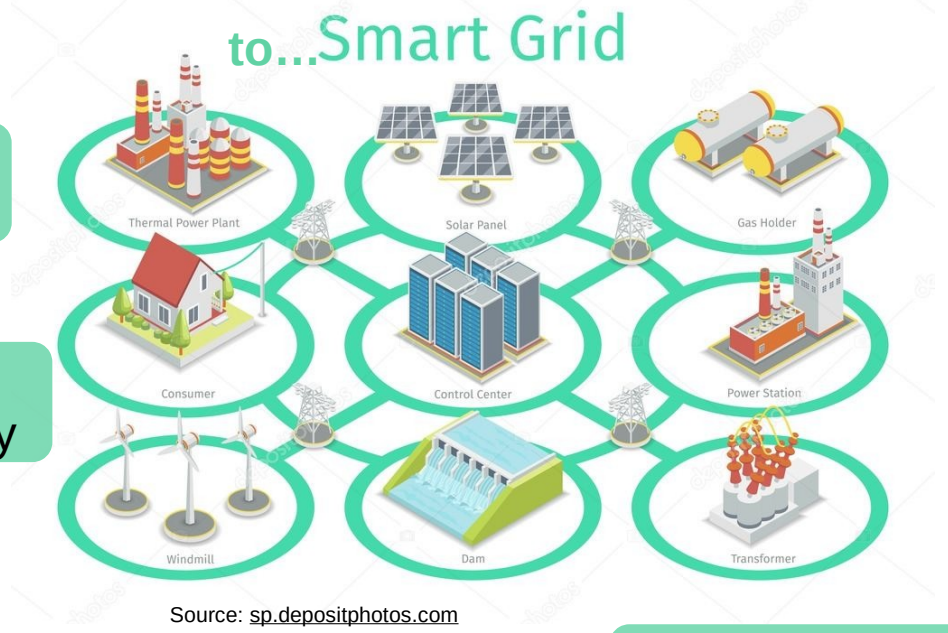


Bidirectional

Sector coupling

Consumers/ Prosumers

Higher complexity



Source: sp.depositphotos.com

… to complex descentralized grids

Redundant structures

Fluctuating generation

Why resilience in RE Systems?

Why resilience in RE Systems?

Climate change

Transformations in the "global south"

- Social
- Ecological
- Economical
- Technological

Local Energy Transitions to Renewable Energy

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Why a workshop on Mini-Grids for Resilient Energy Supply?

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Workshop outlook

Day 1

- Session 1: Setting the Frame
- Session 2: Community transformation processes
- Session 3: Resilience and vulnerability
- Session 4: The technology of minigrids

Day 2

- Session 1: Minigrid models and economics
- Session 2: Previous results: San Rafael goes for its own supply
- Session 3: The way forward

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Workshop outlook – Detail Day 1 (1/2)

Time	Day 1 (Wed 27th Sept)
8:45 – 9:00	**Welcome and opening**
	Session 1: Setting the frame
	Keynotes I:
9:00 – 9:30	Mini-grids and (rural?) electrification.
9:30 – 10:30	Getting to know the community of San Rafael and their search for a sustainable and resilient energy supply.
10:30 – 10:45	15 min coffee break
	Session 2: Community transformation processes
	Keynotes II:
10:45 – 12:45	Transformation, development and local community systems (90 min + 30 min discussion).
12:45 – 13:15	Intersectional transformative approaches at San Rafael.
13:15 – 14:15	1 h lunch break

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Workshop outlook – Detail Day 1 (2/2)

Time	Day 1 (Wed 27th Sept)
13:15 – 14:15	1 h lunch break
	Session 3: Resilience and vulnerability of mini-grids
	Lectures:
14:15 – 15:00	Introduction to resilience
15:00 – 16:00	Resilience and vulnerability of energy systems
16:00 – 16:30	30 min coffee break
	Session 4: The technology of Mini-grids
16:30 – 17:30	Hybrid Mini-Grid Systems: micro Hydropower (MHP) and PV based mini grid systems Resource analysis and potential estimation at San Rafael
17:30 - 18:00	**Flash Feedback** Me and the workshop - own thematic interests and wishes
	End of 1st day.
19:00	Dinner for „in presence“ participants. Details to be announced. (Individually paid)

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Workshop outlook – Detail Day 1 (1/2)

Time	Day 2 (Thur 28th Sept)
	Session 1: The economy of mini-grids
	Lectures
9:00 – 9:30	Key Maker Model in Mini-Grids
9:30 - 10:30	Innovative tariff designing for Mini-grids
10:30 – 11:00	The local economy at San Rafael
11:00 – 11:15	15 min coffee break
	Session 2: Previous results: San Rafael goes for its own supply
	Lectures
11:15-12:15	The first potential analysis: an agent-based model for the community Mini-grid optimization and sizing: the cost of energy independence Vulnerability analysis
12:15 - 13:15	60 min lunch break

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Workshop outlook – Detail Day 2 (2/2)

Time	Day 2 (Thur 28th Sept)
12:15 - 13:15	60 min lunch break
	Session 3: The way forward
	Impulses
13:15 – 14:15	Community speaks and recap: main needs, interests and pitfalls
14:15 – 15:45	**Workshop with Coffee** Low hanging fruits: identifying the greatest potentials Defining next steps
	Session 4: Closing and Evaluation
15:45 – 16:15	Feedback and closing

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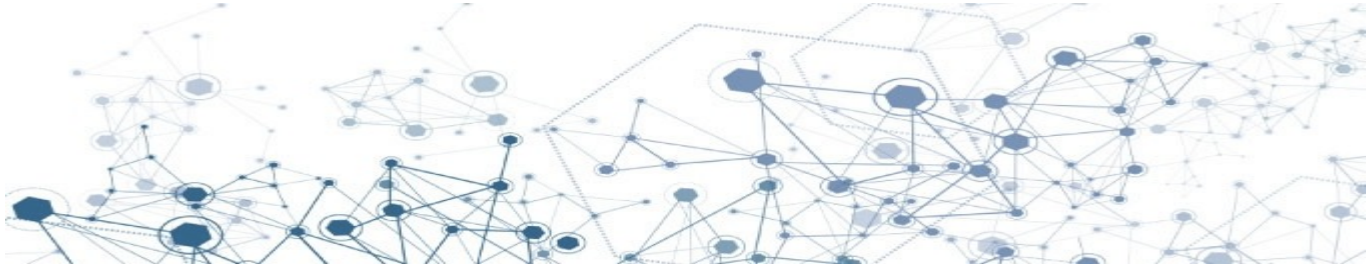
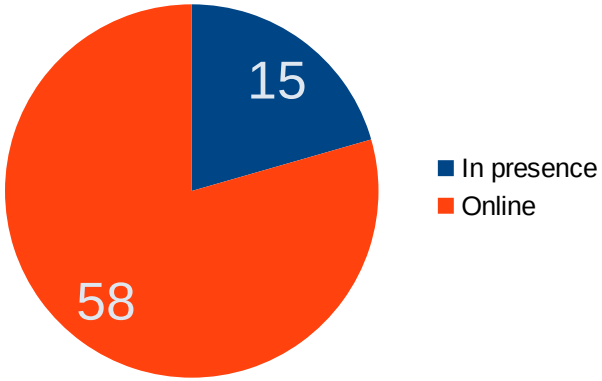


About you, the participants



		Absolute	Relative
1	In presence	15	21%
2	Online	58	79%
	Total	73	

University	Participants
Sustainable Renewable Energy Technology (SuRE)	23
Renewable Energy Management (TH Köln)	23
TH Köln	7
Other	6
TropHEE (TU Darmstadt)	4
WASTE University of Stuttgart	3
TU Berlin	2
Master Earth and Climate System Science	1
HTW Berlin	1
Rhein Waal University	1
Tropical Hydrogeology and Environmental Engineering	1
NRM	1
International and Development Economics in HTW	1
EPOS	1
HfWU Nürtingen Geislingen	1

About you, the participants