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energy  
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Accelerating user-centric integrated solutions  
for the renewable energy system of tomorrow.

Dr. Christian Panzer | Chairman of Green Energy Lab | Wien Energie

February 2018, Graz



VORZEIGEREGION  
ENERGIE

Eine FTI-Initiative des Klima- und Energiefonds

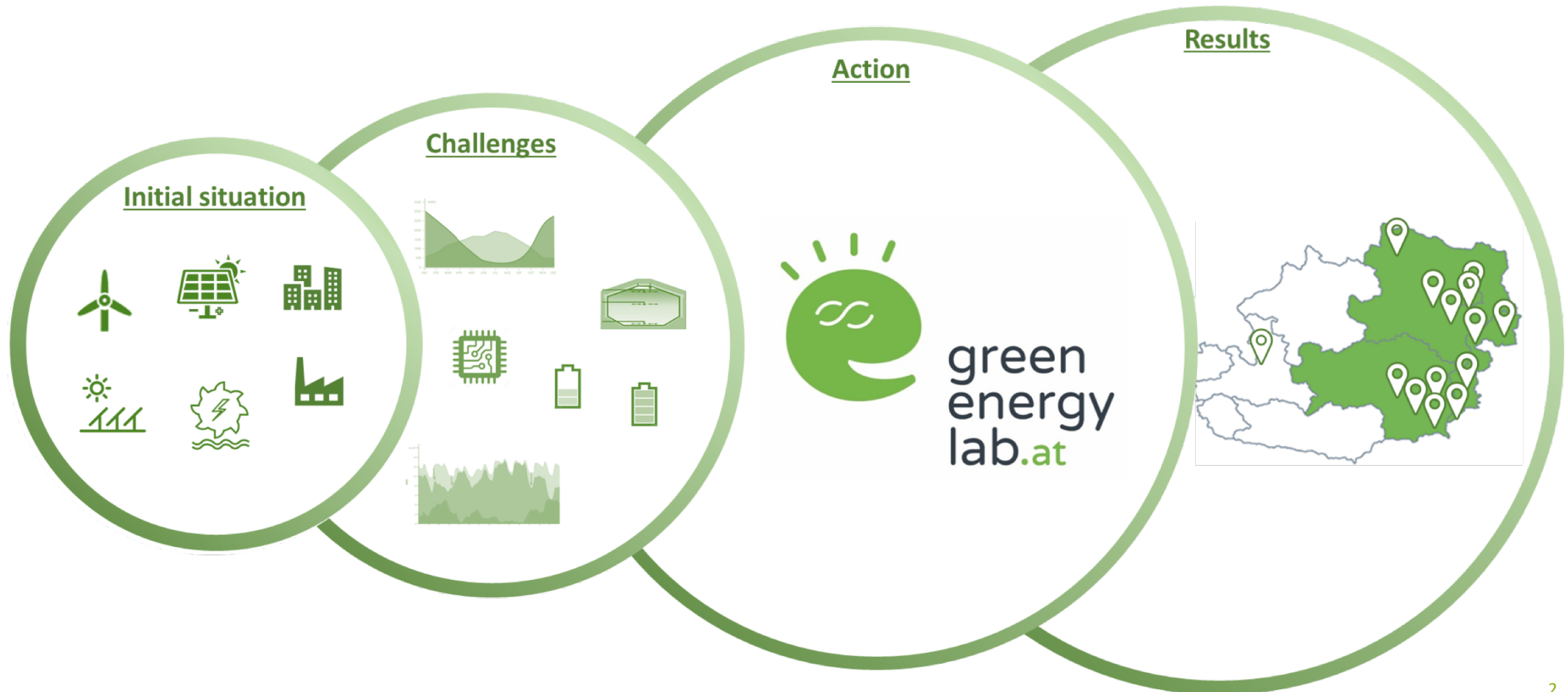


# Our approach

From individual pioneers to integrated solutions

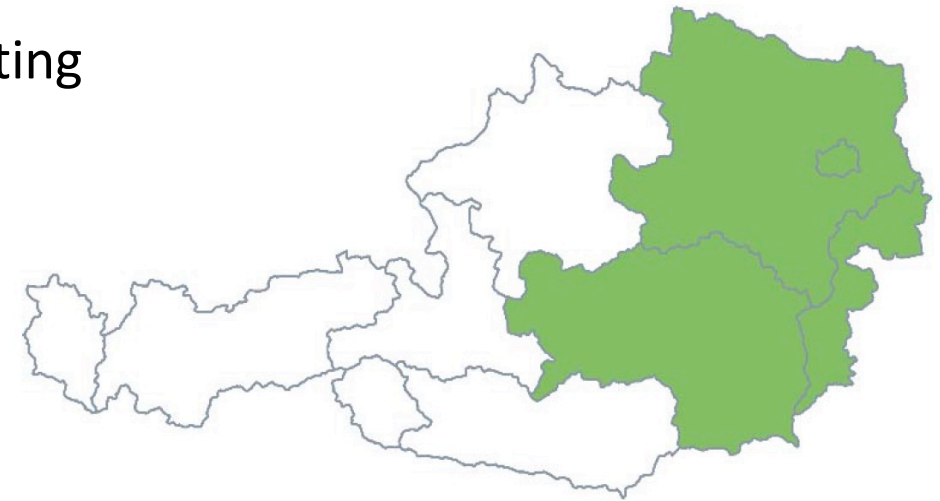
Global testbed for the integrated energy system

Meet the green future -  
Made in Austria



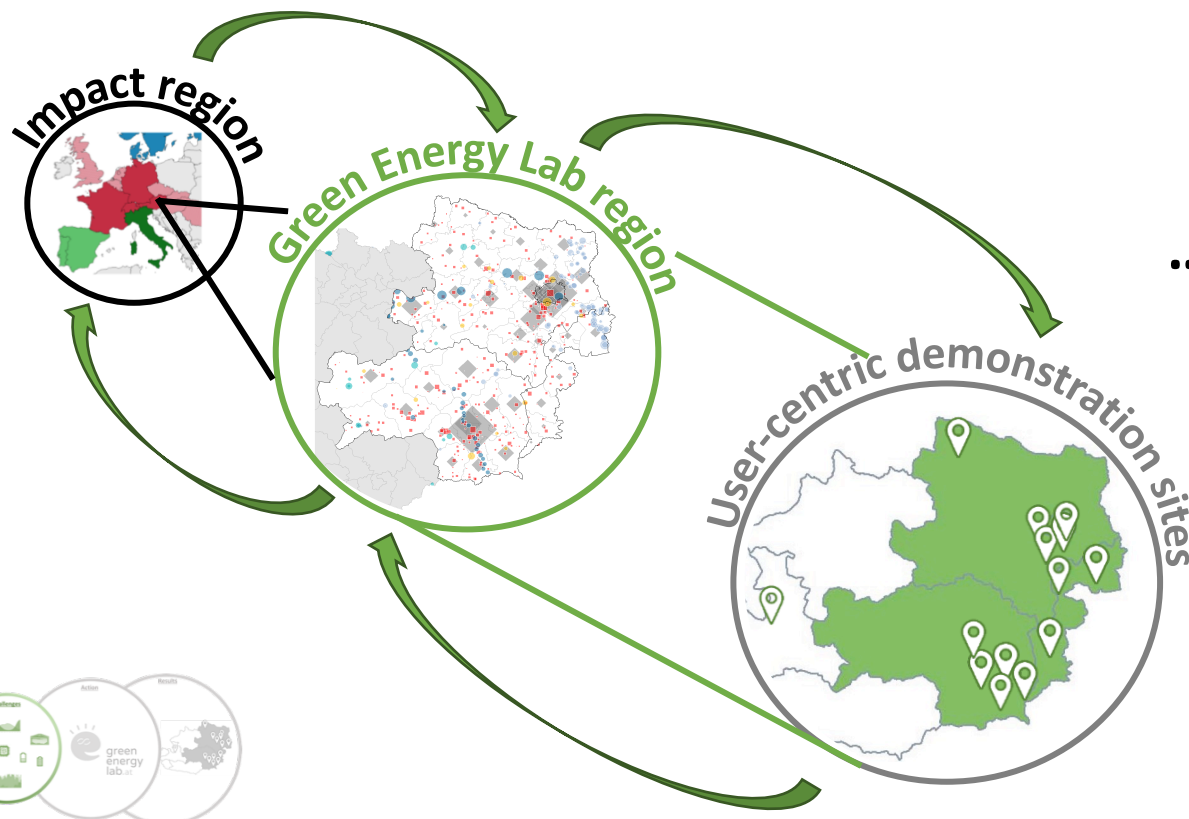
## Initial situation & regional strengths

- 4 Federal States and energy suppliers, 5 Mio. energy users.
- Covering rural regions as well as urban areas representing some of the largest power sinks.
- Hosting fluctuating renewables: wind 98% , PV 64%.
- Pioneers for single technologies & global green technology leaders & outstanding research strength.
- Based on the four exploratory projects EnergyLab East & Windvermarktung & Green Tech Valley & Heat Swap.



## Multi-layered challenges on a national and international scale ...

- Local fluctuating generation
- Decoupled supply and demand
- Energy storage
- Separated grids (power and heat)
- Digitalisation & innovation dynamics
- Sustainable business models





... are addressed by 5 key innovations fields ...

  
Business Model  
Development

  
Digitalization

  
Customer  
Integration

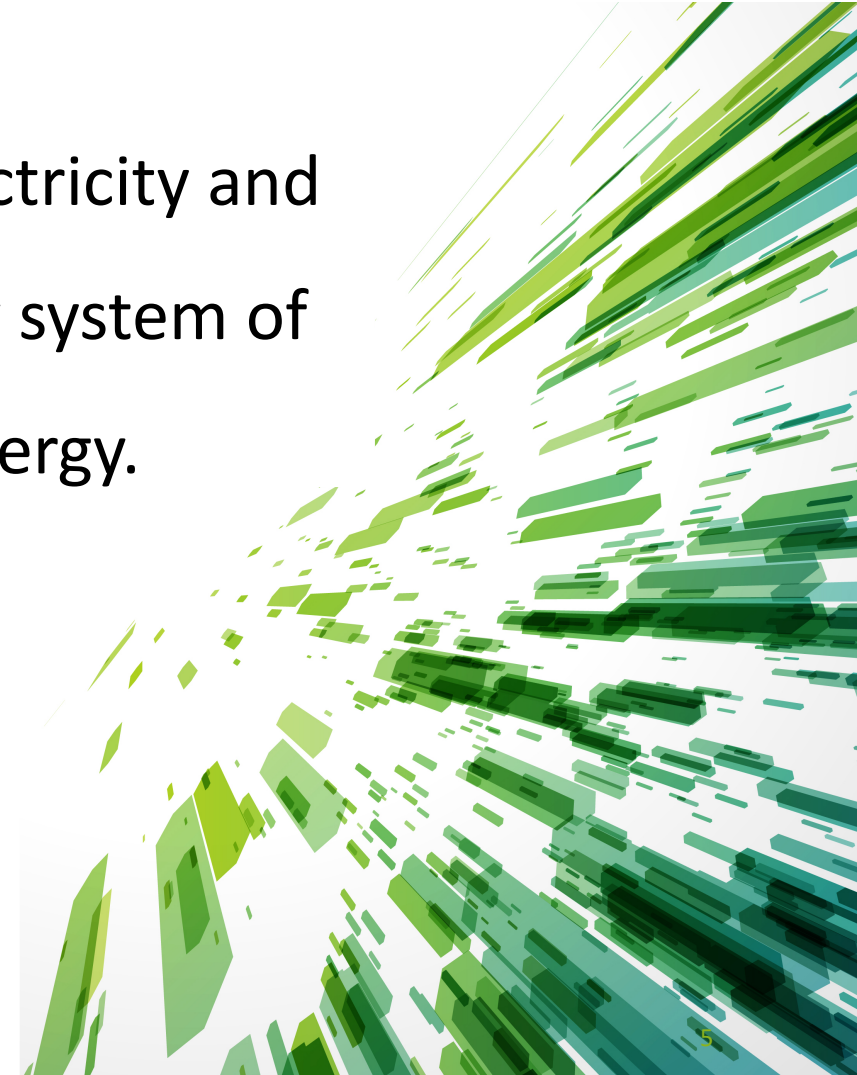
  
Flexibility

  
Integrated  
Systems



**... and lead to our joint vision.**

To form a better energy future by merging single electricity and heat solutions for the flexible and renewable energy system of tomorrow, handling up to 100 % renewable energy.



## We foster an open innovation system ...

- Expansion and operation of an innovation system to actively support interdisciplinary open innovation collaboration and to strengthen open innovation competence and culture.
- 4 phases
  - Explore
  - Ideate & Create
  - Demonstrate
  - Launch
- Development of user-centric innovation projects including suitable business models that support acceleration and launch of developed products & services.



1. EXPLORE



2. IDEATE & CREATE

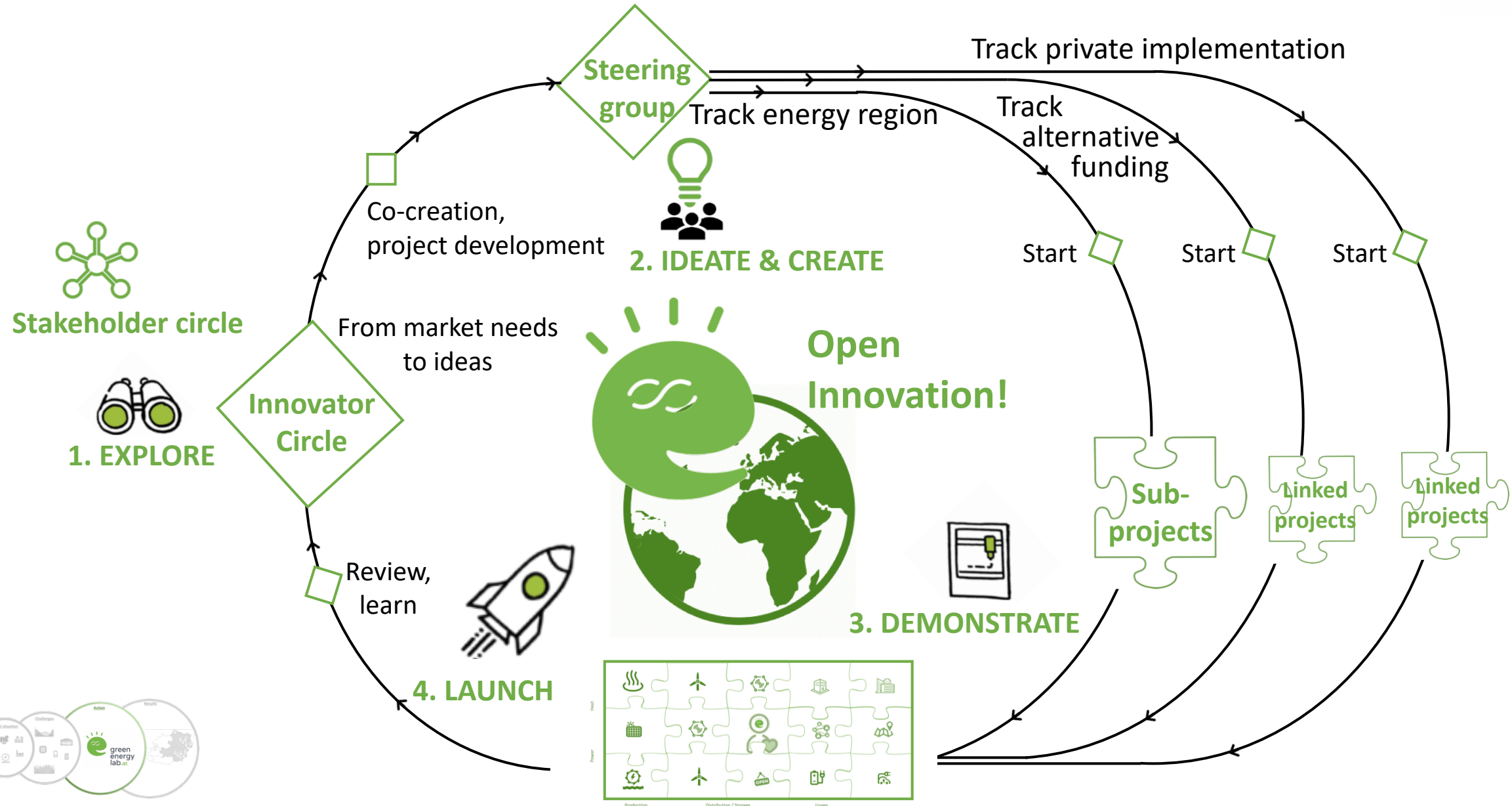


3. DEMONSTRATE



4. LAUNCH

**... based on a holistic process ...**



... by now including > 100 partners representing the whole innovation chain.

R&D



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Technology  
providers

Multiplicators



Lead users /  
energy suppliers

# We offer multiple Innovation Lab actions ...



## ... to foster pioneering products, services and processes ...

- Energy storage systems: second life batteries, sorption storage (zeolite), plug and play concepts.
- User centric blockchain platform for local energy exchange.
- Smart grid controllers for households and industries including grid beneficial charging of e-mobility.
- User friendly Open Data Platform for research and industry.
- Flexibility retrofit system for hydropower.
- Thermally activated facade elements for heating and cooling.
- Novel spatial planning processes and tools.



*Within Green Energy Lab we will support the creation of a Blockchain based platform, that enables prosumers to share network capacities among themselves.*

Erwin Smole  
Grid Singularity, co-founder



*Green Energy Lab will help us to develop, demonstrate and export our integrated solutions for urban solar district heating & storage.*

Christian Holter,  
CEO, S.O.L.I.D





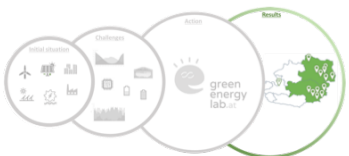
## ... and to enable unique user integration.

- Sustainable business models for renewable generation technologies by co-creation processes involving a high number of end-users.
- Demonstration of novel digitalization concepts to enhance the market and system integration of all end-users.
- Development of local markets for energy exchange and use of flexibilities.
- Consideration of energy relevant end-user behavior in further energy system development.
- Large scale demonstration sites for different local challenges of 100% renewable supply: hands-on, interactive and international presentable.



*My family and I support a sustainable way of life. Experiencing the possibilities of energy-transition within Green Energy Lab would be a great challenge for us.*

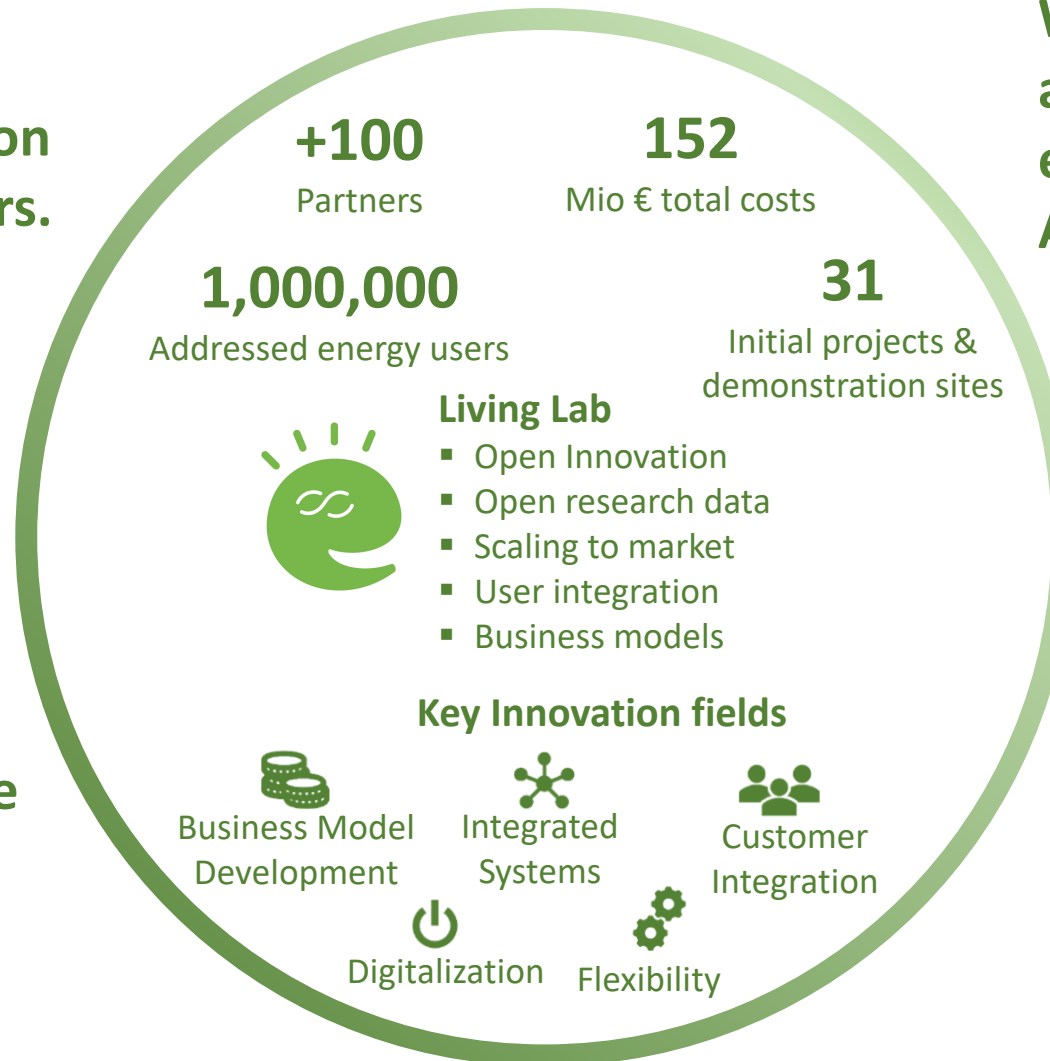
Heidi Naumann,  
Private end-user, Lower Austria



# We shape the green future – Made in Austria!

We actively involve the whole innovation chain including users.

We develop, demonstrate and export integrated energy solutions made in Austria.



We strengthen Austria as a leading market for innovative energy technologies.







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We take action to positively influence the development of the energy system to create a better energy future for all.

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