

# What is SPARCs?

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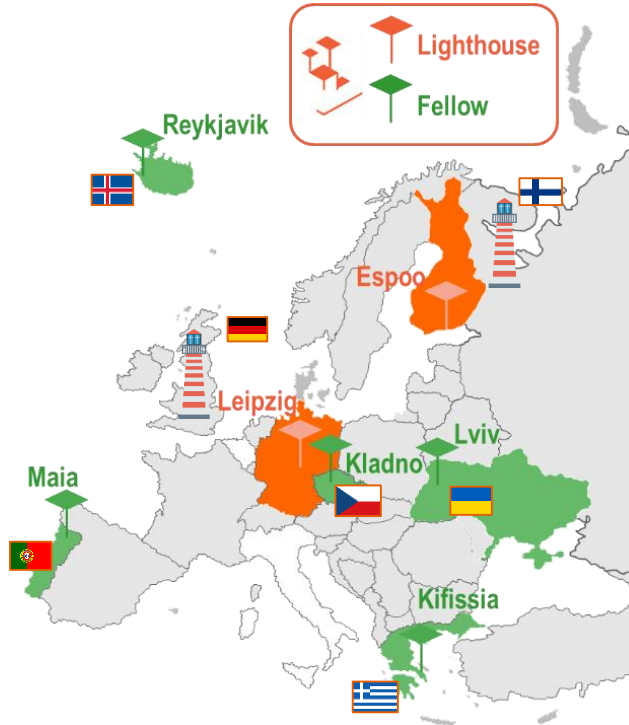
**SPARCS**

**Sustainable energy Positive & zero cARbon Communities**



**Who are we?**

# Partners and countries



# Duration and fundings

**Duration:** 60 months (5 years)

**Estimated Project Cost:** €23,853,178

**Requested EU Contribution:** €19,701,216



Lighthouse CITY	Total investment M€	municipal funds M€	private funds M€	EC contribution M€
Espoo	686.2	172.3	507.27	6.6
Leipzig	761.3	137.5	616.8	7.0



# PED Concept: Virtual Positive Energy Community

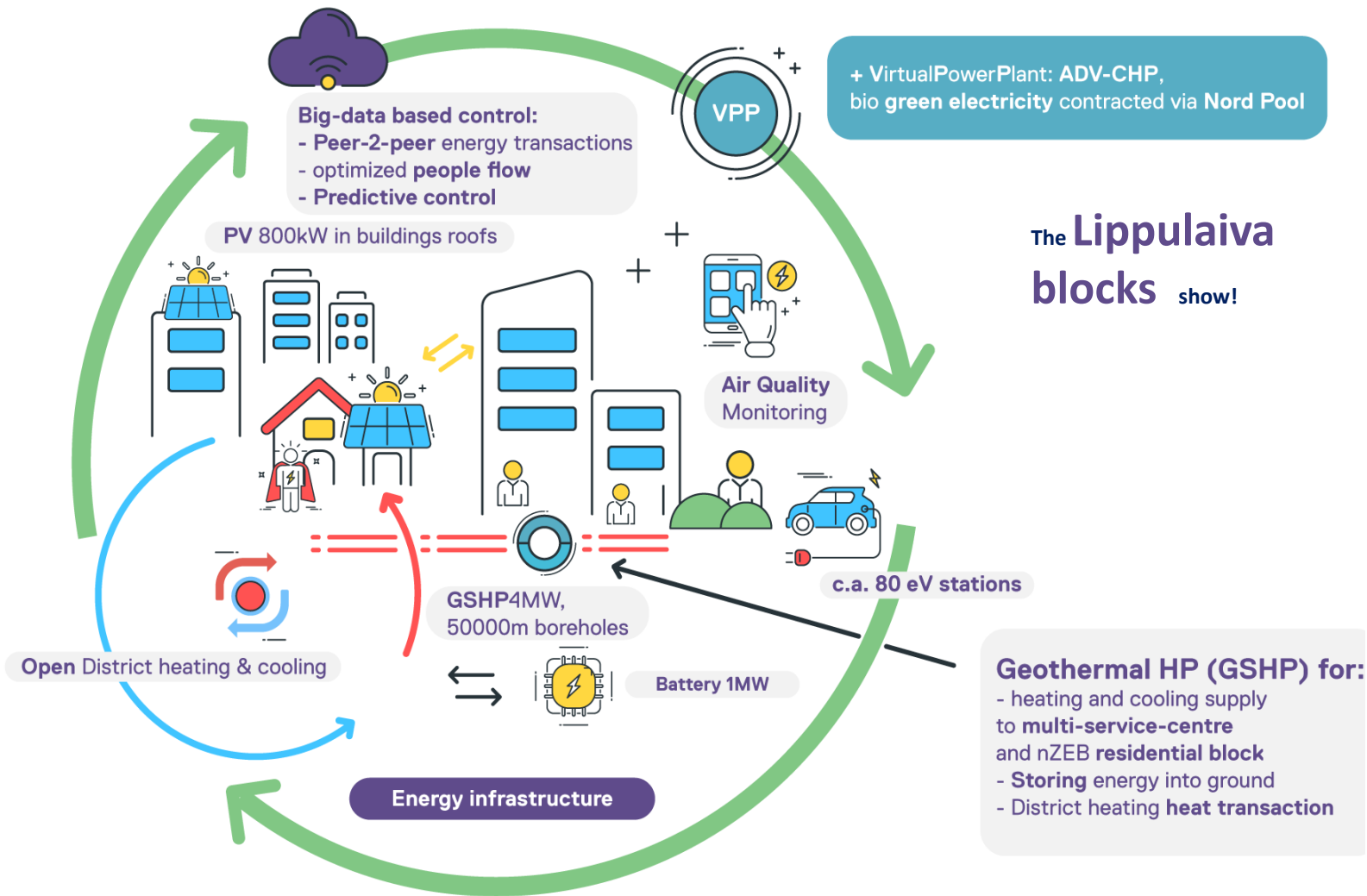


*„Virtual PED ( $PED_{virtual}$ ): net positive yearly energy balance **within the virtual boundaries** of the PED but **dynamic exchanges** with the hinterland to compensate for momentary surpluses and shortages“*

*5. 6. 2019, PED Definition EERA Workshop, Brussels*



*„**SPARCS** positive districts multiple generating, storing and consuming assets are **virtually connected** to additional generating and storing entities, physically located outside the district physical boundaries.“*



+ VirtualPowerPlant: ADV-CHP, bio green electricity contracted via Nord Pool

**Big-data based control:**  
 - Peer-2-peer energy transactions  
 - optimized people flow  
 - Predictive control

PV 800kW in buildings roofs

Air Quality Monitoring

c.a. 80 eV stations

Open District heating & cooling

Energy infrastructure

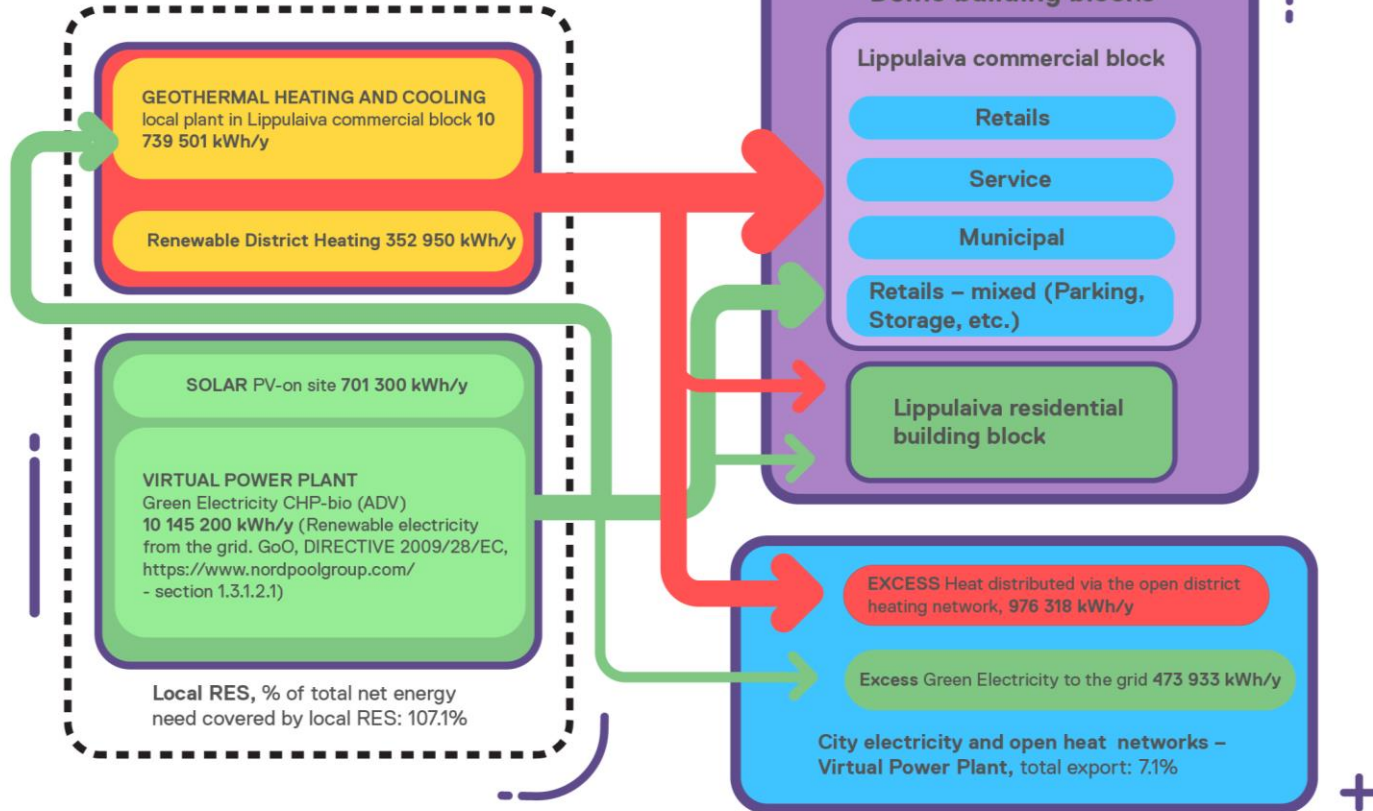
GSHP4MW, 50000m boreholes

Battery 1MW

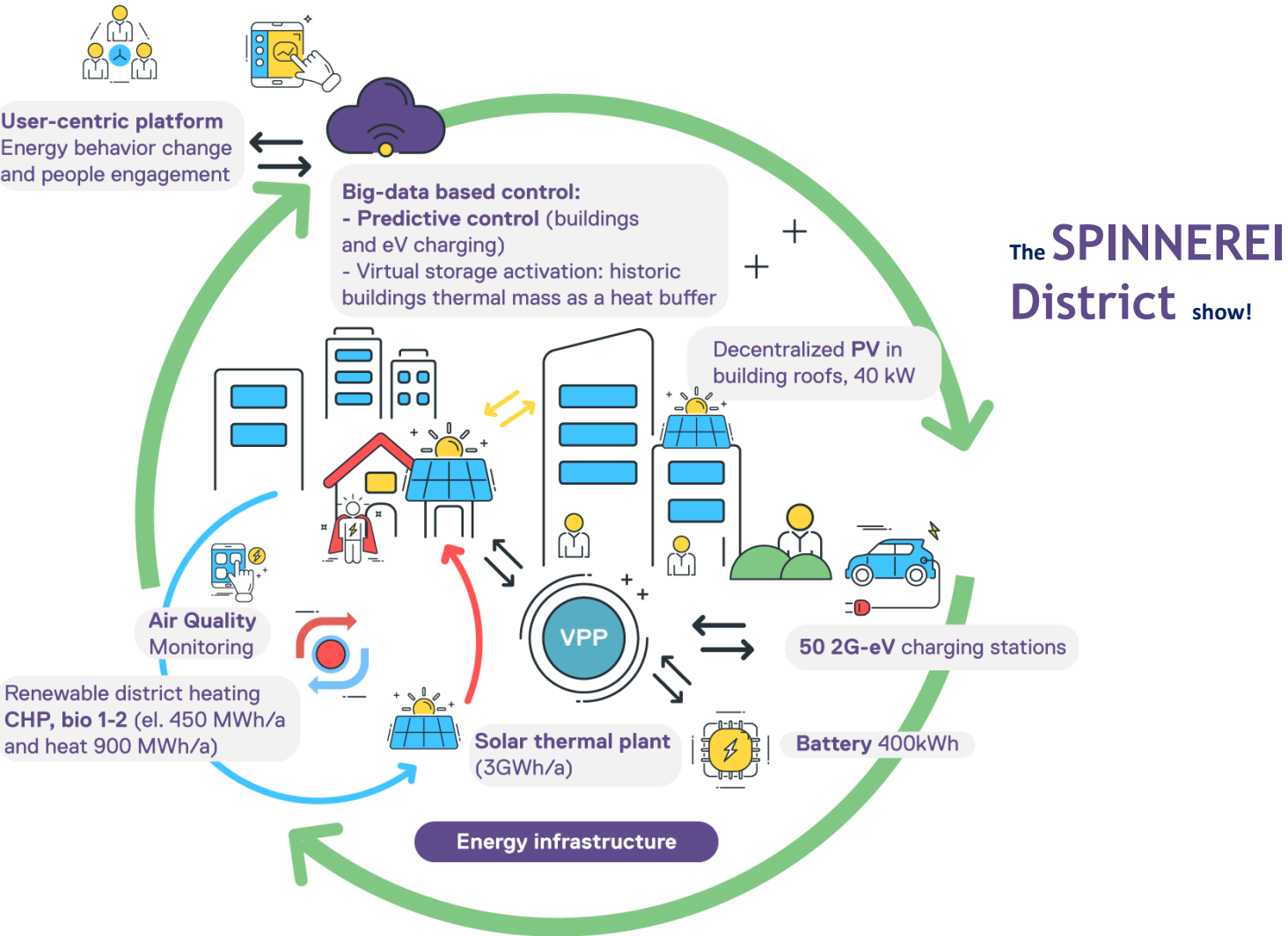
**Geothermal HP (GSHP) for:**  
 - heating and cooling supply to multi-service-centre and nZEB residential block  
 - Storing energy into ground  
 - District heating heat transaction

The Lippulaiva blocks show!

**Espoonlahti District  
Lippulaiva blocks**

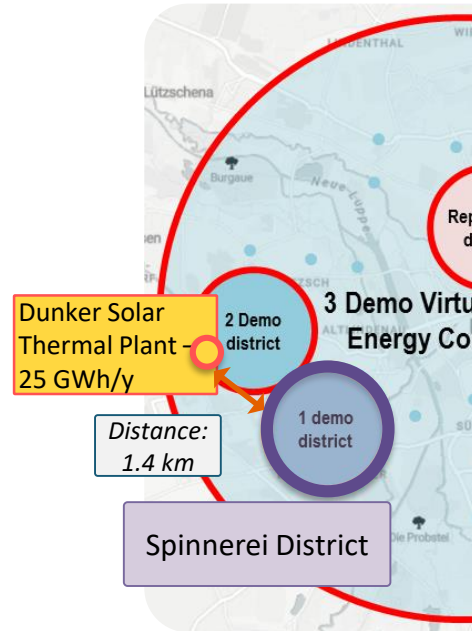
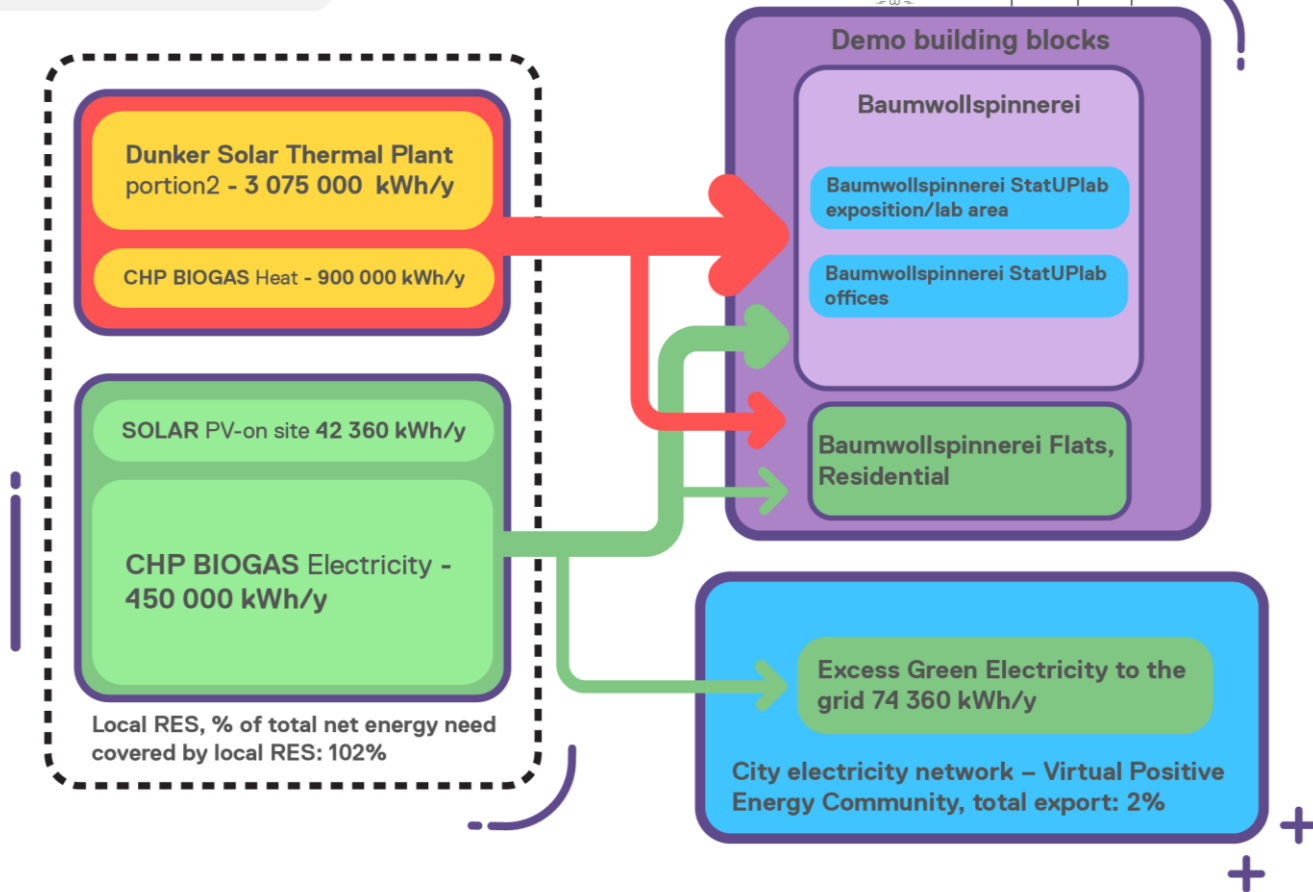


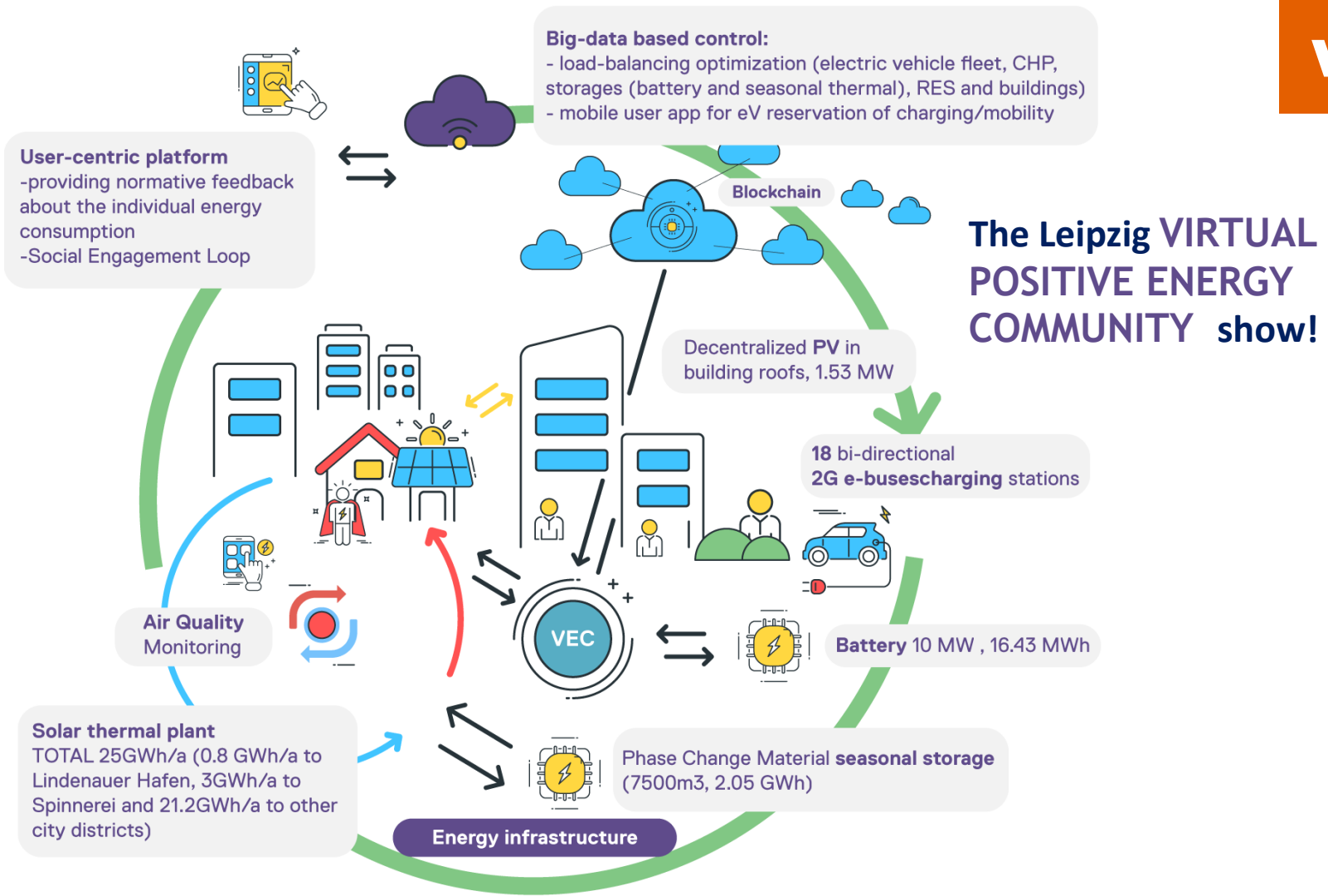




The **SPINNEREI**  
**District** show!

# Leipzig Baumwollspinnerei







# Positive Energy District Annex

# IEA EBC PED Annex

## Subtask A: Definitions and context

- **Subtask leaders:** Steinar Grynning (SINTEF, Norway), Xingxing Zhang (Högskolan Dalarna, Sweden), Vicky Albert-Seifried (Fraunhofer, Germany)

## Subtask B: Methods and technologies

- **Subtask leaders:** Ursula Eicker (Concordia University, Canada), Genku Kayo (Tokyo City University, Japan), Andrea Gabaldón Moreno (CARTIF, Spain)

JOIN us

## Subtask C: Organizing principles and impact assessment

- **Subtask leaders:** Francesco Guarino (Palermo University, Italy), Dorian Frieden (Joanneum, Austria), Adriano Bisello (EURAC Research, Italy)

## Subtask D: Demos, implementation and dissemination

- **Subtask leaders:** Niki Gaitani (NTNU, Norway), Florencio Manteca González (CENER, Spain), Neumann Hans-Martin (Fraunhofer, Germany)

# Thank you!

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