# SolChargE

(re)presented by:

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* Attending remotely (online)

LEAP-RE

Long-Term Joint EU-AU Research
and Innovation Partnership on Renewable Energy

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## Consortium

Technical University of Munich

Coordinator - Long history of successful relevant projects in the African context; vast experience in e-mobility R&D; additional focus on rural mobility analysis and LCA/LCCA.

South Africa case - PV systems research facility; training / educational "hub"; real-life experiments PV energy forecasting and battery modelling.

Stellenbosch University
IYUNIVESITHI
UNIVERSITEIT

Ethiopia case - rural mobility focus; local availability of components and detailed sourcing strategy; agricultural value chain; local training/education hub.

Complete PV value chain research and testing/fab facilities; focus on the PV and batteries part: design, monitoring, analysis, second-life.

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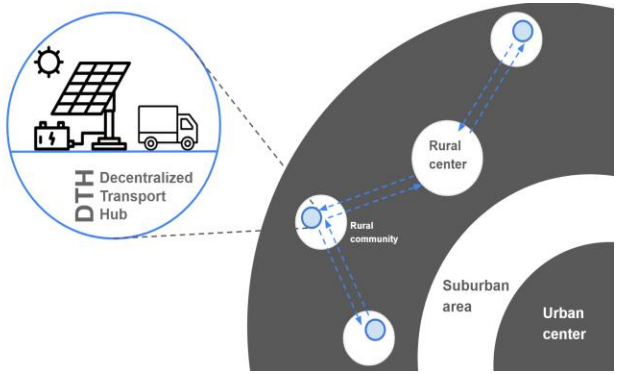
## Aim of the project




To develop, build, and pilot a novel stand-alone solar charging station (SASCS) for electric vehicles (EVs) as the central component of a decentralized transportation hub (DTH), in the African context.

## Addressed MARs

1. **Mapping joint research and innovation actions for future RES development** – Consolidation of detailed map of R&I initiatives in Europe and Africa → support industry to prioritize and contextualize target areas of RES deployment

2. **End-of-life and second-life management and environmental impact of RE components** - Component value chain, identification of key stakeholders & successful business models promote replicability scenarios of operational models in concerned regions.

3. **Smart stand-alone systems (SAS)** - Development of RE-SAS demonstrator(s) considering the diversity of potential local RE sources and the local effective environment.

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## Key challenges addressed by the project

1. Access to sustainable electricity, esp. in rural areas.
2. Uptake of reliable mobility in rural areas
3. Recycle/Reuse : Streamline end-of-life management of PV and battery solutions
4. Address cost barriers for certain end-users, e.g. small farmers.
5. Public awareness, engagement and capacity building on the topic.

## Expected results :

1. A SASCS optimized for local production and circular principles;
2. A circular business model for local DTH stakeholders;
3. A sustainable investment case for impact investors;
4. Local capacity building for DTH stakeholders;
5. Holistic assessment of DTH (inc. LCA, LCCA)
6. User involvement; Female participation;
7. Intercultural student project.

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## Expected outcomes in case of success of the project (2030)

1. System's design, hardware/software fully functional, optimized and scalable/replicable ;
2. Circular business model deployed, validated; Technology/System's on commercial route.
3. Established value & supply chain, include O&M practices loop learning;
4. Up and running training activities, curricula, capacity building of local professionals;
5. End-users / local communities: Proved reliable access to (and benefit from) sustainable electricity and e-mobility;
6. Gender dimension: sustained 50% involvement of female end-users, researchers, professionals, students;
7. Attracted interest for new potential cases and replicators.

## Main risks of failure during project implementation

1. Users are reluctant to participate in pilot field tests (M,H)
2. Difficulties to source relevant components for SASCS (M,M)
3. 2nd life components do not meet quality standards (M,M)
4. Regulatory hurdles to import 2nd life components from EU (M,H)
5. Regulatory hurdles to import aCar in SA (L,H)

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## Contribution of the project to AU – EU R&D cooperation

- EU→AU knowledge transfer: Address knowledge/research gap on how to implement and maintain solar-powered EV solutions (esp. SASCS) in the African context.
- Aim to contribute to better and more reliable access to sustainable electricity and e-mobility, in accord with relevant multilateral agreements and international governance efforts. These include the Addis Ababa Action Agenda, the African Union's Agenda 2063, as well the recent auto green paper on the advancement of new energy vehicles in SA that proposes a roadmap for the production of electric vehicles in the country.
- AU/EU local capacity building for all DTH stakeholders.
- AU/EU dissemination for awareness, understanding, action and exploitation (workshops, webinars, etc).
- Intercultural student projects.

## Interest of Consortium members in participating in LEAP-RE clustering activities

- To share: REX and know-how from the operation and monitoring of our system, the user profiles and the circular concepts on PV and batteries.
- To "receive": REX and know-how from projects addressing possibly the same MARs and/or other relevant MARs e.g.
  - Smart grid (different scale) for off grid application
  - Innovative solutions for priority domestic uses
- More to be discussed in the clustering event.