Best practice of Bavarian-Czech research cooperation:

Landshut University of Applied Sciences and West Bohemian University of Pilsen

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Battery experts at Landshut University of Applied Sciences under the scientific leadership of Prof. Dr. Karl-Heinz Pettinger

10 years of active battery research - Process-oriented and industry-related research on lithium-ion and redox-flow batteries.

30 battery-related research projects - From cell to the system: semi automated cell production, system optimization, battery management,…

Project partners from approx. 20 countries - Strong scientific and industrial networking, e.g. through research platforms.

25 active scientists working in 700m² office and 1.000m² laboratory space.
Best practice of Bavarian-Czech research cooperation – A short history

March’17:
FSTORE research platform: A cooperation between NTC and TZE

March’19:
FSTORE Project Conference, Krumau

March’20:
Horizon proposal preparation: Follow-up cooperation

July’20:
Positive Review from EC

October’20:
HyFlow project start
Project FSTORE: Cross-border platform for research on future energy storage systems and their integration
Project **FSTORE**: Key Facts

- Project partners: UAS Landshut with TZE and UWB Pilsen with NTC
- Investments of the universities in the region funded by INTERREG V Free State of Bavaria – Czech Republic 2014 – 2020
- Investments in the fields of Technology and Manpower
- Investment volume: EUR 1.6 million, therefrom…
  - At the TZE: EUR 1 million
  - At the NTC: EUR 600,000
- Project duration: February 2017 – January 2020
Project Content and Collaborations

- 12 Invited lectures on both institutes
- 7 exchange visits of researchers and students
- Several project meetings and discussions
- Joint conference visits and presentations of results
Outlook and Perspectives

Scientific goals:

- Establishing the platform for permanent cross-border research cooperation
- **Improved knowledge** for the use of flow batteries in the content of regenerative energies
- Evaluation of the potential for increase in efficiency and cost reduction of flow batteries
- Basic concept for hybrid storage systems (power/heat) with flow batteries

Benefits for the region:

- Generating the requirements of working on cross-border research topics
- **Recruitment of young academics** for the research structure in the region
- **Improvement of the international visibility** of both partners
- FSTORE offers the **best conditions** for the initiation of **further research projects** for the region
Project HyFlow: Development of a sustainable hybrid storage system based on high power vanadium redox flow battery and supercapacitor – Technology
Project **HyFlow**: Key Facts

- **Key Facts:**
  - 11 Partner
  - 7 countries
  - Project duration: 36 month
  - Project start: 01.11.2020

- **Cooperation Highlights:**
  - Project idea has been elaborated during one of the FSTORE project conferences.
  - Several external partners from FSTORE research platform are part of HyFlow.
  - Follow-up cooperation between TZE and Spin-Off from NTC
Project Motivation

- Our international consortium, enabled through the EU project HyFlow, will
  - create a modern and sustainable, hybrid energy storage system following the goal of the European Union to decrease the global environmental impact.
  - focus on technological and ecological improvements of the components, the management systems and the interaction through the complete supply chain.
  - enhance components for optimal hybridization of systems, by improved material utilization and cell design, and develop high-level control algorithms.
Cross border collaboration – Key Factors for Success

Sustainable development of a cross border research platform between Bavaria and Czech Republic…

- Close scientific exchange
- Numerous networking and exchange events e.g. invited lectures, project conferences
- Expand research platform with international partners
- Good networking / contacts to other research groups
- Follow-up cooperation possibilities
- Scientific enthusiasm and collaborative thinking among the partners
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