

Renewable sources and energy storage (fuel cells, solar cells, lithium batteries, hydrogen storage, etc.)

Proposer: HZB (N Kardjilov)

Partners:

Estimated budget (in person months, other direct cost) and tentative distribution per partner

Abstract of your innovative activity: *(please make sure that you mention the following points)*

1. State of the Art

Many nations count on coal, oil and natural gas to supply most of their energy needs, but reliance on fossil fuels presents a big problem. Fossil fuels are a finite resource. Eventually, the world will run out of fossil fuels, or it will become too expensive to retrieve those that remain. Fossil fuels also causes air, water and soil pollution, and produce greenhouse gases that contribute to global warming. Renewable energy resources, such as wind, solar and hydropower, offer clean alternatives to fossil fuels. They produce little or no pollution or greenhouse gases, and they will never run out.

2. What is new? Why should it be done on a European consortium level (synergies)?

Due to change of the energy strategy in Europe for more clean and safe energy sources the investigation and optimisation of renewable sources and the storage of the produced energy are priority tasks for all countries in the European Union. Neutron sources placed in different countries can contribute.

3. How could your activity be connected with other methods and techniques (outside the neutrons community)?

Here the activity can be connected with expertise from

- Electro-chemical community - using analytical investigation methods
- Synchrotron community - using complementary methods on different length scale
- Engineering community - providing technical challenges
- ...

4. Is there any link with national initiatives/projects (e.g. national data initiatives, but also European roadmaps etc)?

For sure there are national and European initiatives related to the optimisation and implementation of renewable energy sources in the economy.

5. How is the user community involved in your activity? Benefit for the user (evtl for any specific science community?)

A broad group of users involved in investigation and optimisation of renewable sources will be involved.