

Research & Development Request

H2020 project on energy storage looking for solar storage manufacturers, solar hot water system assemblers, heat pump specialists, research center for electricity storage deployment / management and SMEs involved in electricity storage

Summary

A French company is building a project on H2020 EEB-06-2017 call dedicated to energy storage. The project aims at developing a unique solution able to solve energy production peak thanks to a buffer energy box. The French company is looking for research cooperation agreement with at least for 2 SMEs joining the consortium. Specific tasks are expected: on electric development and IoT (Internet of Things) electronics. A bigger SME or Research Centre is needed to coordinate the project.

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Details

Description

The EU countries use more and more renewable in their energy mix, this is the only solution to solve the global warming, and save fossils GDP (Gross Domestic Product) expense into local employment. This fact creates needs for new strategies:

- How to manage intermittent production of renewables?
- How to mix fossil production with renewables?
- How to progress to a 100% renewable mix?
- How to preserve installed grid electricity distribution with this big shifting of production plants?
- How to store energy at home level, better than plant level?

The solution is to store buffer energy, at least for 12h locally, where the energy consumption is. This is simple on the paper, but no one has achieved such an ambitious project. There is no real technical barrier for that, just a ROI (Return On Investment) problem. The storage system must be a positive investment for the owner, and quickly.

State of the Art

Many energy storage systems are used since more than 100 years, this is required by the grid:

an active balance must be done, every time. We use energy wheels for very short peaks, then capacitors, battery banks, coal plants, hydraulic power and so on. The bigger generators stay stable, and we switch a myriad of lighter sources around. The cost of such system is very high: most of them are 24/7 ready, but work for 10% of the time, maybe less. But such technical requirements can disappear as soon as a buffer storage solution can be installed at point of use.

The Project:

The SME plans to develop a buffer storage solution which could be embedded into a super insulated container acting as a battery working with PCM (Phase Change Material) technologies. It will be necessary to select the correct mixture, validating past research, establishing the exchange strategy (store & distribute), setting the accurate fusion temperature for diverse needs (heating and cooling), elaborate scenarios with heat pumps for extra pv power valorization and so on.

The final objective is to create 100kWh heat storage container around 500 USD; this means a kWh storage price of 15 USD street price, this is really easy to payback in less than 3 or 5 years, depending on the case.

The consortium

- The leading French SME will act as a core partner and work package (WP) leader: the French company has skills in industry, materials, innovation strategy, IP, thermal exchange at low temperatures, Solar harvesting, hybrid solar, connected strategy, and embedded electronics.
- For south EU climate, a renowned French lab, specialist in Mediterranean climate buildings is involved.
- For central Europe, a University of technology which has high end skills in metrology will be involved. They will be, as the French lab, responsible to deploy demonstrators, and achieve the best possible measurements and analysis
- A Moroccan Institute will work on PCM selection, cycling test, material property enhancement with add ons (plastic and PCM).

Partner search to complete the consortium:

- Companies specialised in installation & monitoring of electricity storage.
- Research center for electricity storage deployment / management
- Industrial SMEs interested in this field of application: solar, solar hot water, heat pump.

The call EEB-2016-2017 from H2020 program has been launched to create demonstrators of such solutions. The goal is to manufacture demonstrators, using proven technologies, deploy in at least two EU climates, and monitor it. The target is reached if the ROI is 7 years maximum, based on energy saving costs.

EOI deadline: 12 December 2016

Call deadline: 19 January 2017

Advantages and Innovations

The project aims at developing a buffer storage solution, clusterable, 100kWh, less than 1 cube meter, less than 2000€ target street price, with handling IoT electronics, district clustering capability, with a life duration of 20 years. The kWh stored price is less than 20€.

Stage of Development

Proposal under development

Comments Regarding Stage of Development

The company has already patented the container (prototype available and tested), but needs to invest in R&D to find the good and optimized solution for PCM as well as structure the development and pre-industrialisation of the innovative product.

IPR Status

Secret Know-how, Patents granted

Comment Regarding IPR status

A big foreground IP is in front of the company concerning PCM R&D.
Background IP is already granted on Container manufacturing method.

Keywords

Technology

04001003	Storage of electricity, batteries
04002007	Heat pump
04002008	Cooling technologies
04005005	Solar/Thermal energy
04009	Carbon capture and energy

Market

06003001	Solar/thermal energy
06008	Energy Storage

NACE

G.47	Retail trade, except of motor vehicles and motorcycles
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Network Contact

Issuing Partner

IAPMEI - AGENCIA PARA A COMPETITIVIDADE E INOVACAO IP

Contact Person

Vanda Narciso

Phone Number

+351 266 739 751

Email

een-portugal@iapmei.pt

Open for EOI : **Yes**

Dissemination

Send to Sector Group
Intelligent Energy

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

2015

Turnover

<1M

Already Engaged in Trans-National Cooperation

Yes

Experience Comments

Partner interest for manufacturing or distribution of the technology

Languages Spoken

English
French

Client Country

France

Partner Sought

Type and Role of Partner Sought

- Industrial SMEs interested in this field of applications (solar storage manufacturers, solar hot water system assemblers, Heat pump specialists (CO2 technology preference)
- Research center for electricity storage deployment / management
- SME's involved in electricity storage.

No more French companies needed by now.

The company is open to give the consortium management (administrative project lead) to another partner (company or research center) as it might be challenging for a two-year old start-

up to handle a such project.

Type and Size of Partner Sought

SME 11-50, University, R&D Institution, >500 MNE, 251-500, SME 51-250, >500

Type of Partnership Considered

Research cooperation agreement