**OPEN INNOVATION LAB - UDJG**

**Annex 4 – Challenge no. 22**

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| 1. **Name of the challenge** *(short, powerful and inspiring description):*  * ***Thermal energy savings in a building by using phase change materials (PCM)*** |
| 1. **Context*:*** *(what is the background information behind the challenge, what is the state of the art of the sectors, the role of the organization in this context, the target group to whom the solution need to be addressed, etc.)*   Electrical energy consumption has been varied significantly during the day and night according to the demand by industrial, commercial and residential activities.  In hot and cold climate countries, the major part of the load variation is due to domestic space heating and air conditioning respectively.  Better power generation/ distribution management and significant economic benefit can be achieved if some of the peak load could be shifted to the peak load period that can be achieved by thermal energy storage for heating and cooling in various application. |
| 1. **Problem:** (*what i*s *the problem that needs to be solved, why is important to solve, impact of this problem in the close future, impact of the problem on local or international area)*   Thermal energy storage (TES) is the temporary storage of high or low temperature energy for the later use. It bridges the time to gap between energy requirements and energy use. Among the various heat storage techniques of interest, latent heat storage is particularly attractive to its and ability to provide a high storage density at nearly isothermal conditions.  Phase-change thermal energy storage systems offer other advantages, such as a small temperature difference between storage and retrieval cycles, small sizes of unit and low weight per unit storage capacity. One of prospective techniques of storing thermal energy is the application of phase change materials. |
| 1. **Additional info (for internal use):** *(what is expected to be delivered by the team (idea/concept/prototype), what are the specific tools & instruments that shall be used (e.g. Programing language etc.), what are the asset (as: knowledge, materials) will be given to the team.*   - The team should provide a solution concerning for using PCM like cold energy storage. |
| 1. **Skills of the team** (optional for the seeker, but useful for internal use)**:** *what specific skills shall the team have in order to address the challenge.*   - The team should possess skills in heat transfer, heating and refrigeration systems. |
| 1. **About the Seeker:**   **- Description of company/institution:**  Frigorex SRL is a small company involved in design, manufactures and installing heating, ventilation, air conditioning in residential and non-residential building applications.  The company is also involved in finding new solutions to reduce energy consumption and protect the environment |