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## Partner search

Date (14-08-2020)

- (\*) Indicate numbers of relevant topics for Green Deal call:

LC-GD-2-1-2020: Demonstration of innovative critical technologies to enable future large scale deployment of offshore renewable energy technologies

LC-GD-3-2-2020: Demonstration of systemic solutions for the territorial deployment of the circular economy

**LC-GD-4-1-2020: Building and renovating in an energy and resource efficient way**

LC-GD-5-1-2020: Green airports and ports as multimodal hubs for sustainable and smart mobility

LC-GD-6-1-2020: Testing and demonstrating systemic innovations for sustainable food from farm to fork

The competences offered in each topic are described in separated documents.

- Quick description of the project

(describe the objectives, activities, partners requested and their skills)

- (\*) Do you intend to apply as ?:

Coordinator: Yes/No

Participant: **Yes**

**(\*) Either** Description of the expertise requested (up to 1000 characters) - *specify which points of the "expected impact" of the call you are targeting*

Xxxxxx

+ key words :

**Or** Description of the expertise proposed (up to 1000 characters) - *specify which points of the "expected impact" of the call you are targeting*

LC-GD-4-1-2020: Building and renovating in an energy and resource efficient way

- Satellite-based energy assessment for efficient solar power in buildings, combining Earth Observation data with in-situ data from sensors and machine learning methods for data analysis. To be applied essentially for renewal of buildings but also in the construction phase (e.g., for the actual assessment of a site's solar radiation and potential);
- Implementation of digital technologies to monitor and optimize energy efficiency in Buildings, ... (Development of optimization algorithms, Study of sensing abilities and actuators needed, Design of big data usage, control systems and energy trading)



- Reliability and availability analysis for renovation sites
- Selection of environmental impact indicators to assess system performance, to support decision and optimization what concerns to Buildings performance.

**Targeted expected impacts of the topic:**

- Primary energy savings triggered by the project (in GWh/year);
- Investments in sustainable energy triggered by the project (in million Euro);
- High energy performance (nearly zero-energy level within the meaning of Directive 2010/31/EU for retrofitted / positive energy buildings for new constructions);
- Reduction of greenhouse gas emissions towards zero (in tCO<sub>2</sub>-eq/year) for the total lifecycle compared to current situation shown through cradle-to-cradle Life Cycle Assessment;
- Reduction of the embodied energy in buildings by 50 % without concessions with respect to energy consumption and comfort;
- Reduction of air pollutants towards zero (in kg/year) for the total life-cycle compared to current situation shown through cradle-to-cradle Life Cycle Assessment;
- Contribute to the development and implementation of zero-GHG approaches in the building sector.

**+key words:** earth observation; LCA, big data, Renovation wave, Energy Efficient Buildings, Energy Performance

**Organisation information**

**Organisation and country:**

**ISQ – Instituto de Soldadura e Qualidade (Portugal)**

**Type of organisation:**

Enterprise  SME  Academic  **Research institute**  Public Body  Other: Association

**Former participation in FP European projects?**

**Yes**  No

**Web address:**

**www.isqgroup.com**

**Description of the organisation:**

ISQ is an independent, private, non-profit, technical, scientific and industrial oriented organization founded in 1965 with international presence in 16 countries, covering 4 continents. ISQ's main activities include technical inspections, consultancy, testing, metrology, training and research and development in a wide range of technical areas such as materials, joining technologies, structural integrity and risk assessment, sustainability, eco and energy efficiency, health and safety, quality assurance, production technologies, industrial automation and robotics. ISQ provides support to different industrial sectors such as Manufacturing, Process and Agro Industries, Energy (including renewables) and Oil & Gas, Aeronautical and Aerospace, Automotive, Construction and infrastructures, among others. It is one of the largest Portuguese technological infrastructures. ISQ's know-how is supported by 16 accredited laboratories (accordingly with EN ISO/IEC 17025) and by a large involvement in National, European and International R&D projects, having participated in more than 400 R&D projects, in the last 30 years, in different funding programs (LIFE, LIFE+, RFCS, IEE, FP5, FP6, FP7, H2020), with a strong background of collaboration with a large number of Universities, Scientific Research Institutes, industrial companies and other institutions worldwide. Research and Development at ISQ supports all operational in-house technical areas in the enhancement of existing technologies and new solutions. It also encourages the development of breakthrough technologies and solutions that lead to new products/technologies/methodologies/services, promoting new Business areas and thus contributing to the technological development and competitiveness of the economy. ISQ headquarters are at Porto Salvo, Oeiras, Portugal, with national delegations in Oporto, Castelo Branco, Loulé and Sines. At international level, ISQ is represented at: Angola, Brazil, Cape Verde,



China, French Guiana, Mozambique, Norway, Saudi Arabia, Spain, United Arab Emirates, Turkey, Timor and USA.

ISQ is a leading European Technological Infrastructure of applied research, a strong and reliable long-life partner for industry contributing to its technological development. ISQ has been selected by relevant scientific organizations as a competent and reliable partner to be involved in the main International Scientific projects as LHC-Large Hadron Collider (CERN), International Thermonuclear, Experimental Reactor (ITER), IXV - Intermediate eXperimental Vehicle (ESA) and E-ELT-Extremely Large Telescope (ESO). The large experience and know-how of ISQ staff, allows us to face the future challenges in the ceaseless search for new solutions towards sustainability. ISQ has a long-term relationship with Industry, providing technical expertise, technological transfer, training, thus contributing to the improvement of its competitiveness and sustainability. ISQ participates in a number of International Networks/Associations namely The European Steel Technology Platform (ESTEP); European Technology Platform for advanced Engineering Materials and Technologies (EUMAT); Energy Materials Industrial Research Initiative (EMIRI); Sustainable Process Industry Through Resource Efficiency (SPIRE), National Group for Process Integration (GNIP), The European Virtual Institute for Integrated Risk Management (EU-VRI); European technology platform on industrial safety (ETPIS); Aeronautic, Space and Defense Cluster (AED Portugal), Production Technologies Cluster (PRODUTECH, Portugal) among others.

ISQ has large experience and transversal competences in areas which are very relevant to the Green Deal Call, specifically in the 5 topics identified above, namely in ICT tools development, application of AI technologies and machine learning, design and implementation of i4.0 concepts, digitalization, advanced manufacturing technologies as the additive manufacturing, advanced non-destructive techniques, systems' monitoring and control, interfaces development using virtual, augmented and mixed reality technologies, circular economy (tools, methodologies, business models), eco-efficiency, LCA/LCC, Reliability, Availability, Maintainability and Safety tools, earth observation, energy efficiency, system's simulation and optimization, which are the most relevant.

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**(\*) –Mandatory**