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**Partner search**

**Date (01-09-20)**

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

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| **LC-GD-2-1-2020** **LC-GD-2-2-2020** |

* **Quick description of the project**

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

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

**Coordinator: 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***

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| **+ key words : renewable energy systems, predictive maintenance, fault tolerant control, electrolyzer, hydrogen**  |

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

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| **CRIStAL hosts a laboratory scale clean hydrogen platform which allows to validate advanced methodologies in real-time for:*** **Modelling, simulation, and control of:**
	+ **Photovoltaic and wind turbines systems**
	+ **Storage (hydrogen, Super-capacitors, Batteries)**
	+ **PEM electrolyser and Fuel Cells**
	+ **P2X**
* **Diagnostic (fault detection), prognostics (predictive maintenance), fault and ageing tolerant control of energy systems**
* **Power and fault management of energy systems**

**We have an expertise of H2 electrolyzer/ PEM Fuel Cell dynamical operating management under intermittent (renewable) power supply, including nominal and faulty regimes (e.g. E2C 2 Seas Project,** <https://www.voltachem.com/E2C>). **We also propose to handle the smart predictive maintenance, using physical scalable models and IA data-based methods, under marine conditions.**  |

**Organisation information**

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| **Organisation and country:****Centre de Recherche en Informatique, Signal et Automatique de Lille (CRIStAL – France)** |
| **Type of organisation:****□ Enterprise □ SME □ Academic □Research institute □ Public Body □ Other: Association** |
| **Former participation in FP European projects?****□ Yes □ No** |
| **Web address:**<https://www.cristal.univ-lille.fr/> |
| **Description of the organisation:****Cristal was born on 1 January 2015 under the supervision of the CNRS, Lille 1 University and Centrale Lille in partnership with Lille 3 University, Inria and the Institut Mines Telecom. The unit is composed of nearly 430 members (230 permanent and more than 200 non-permanent). The research activities of Cristal address topics such as: Big Data, human-machine interactions, robotics, control and supervision of large systems, intelligent embedded systems, bio-informatics, etc. With applications particularly in the sectors of renewable energy components or systems, robotics, smart grids and health. The PERSI team (Pérennisation des systems industriels, Sustainability of industrial systems) works, as said before, on modelling, diagnostics and prognostics of multi-physics energy systems.** |

**(\*) Contact details**

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**(\*) –Mandatory**