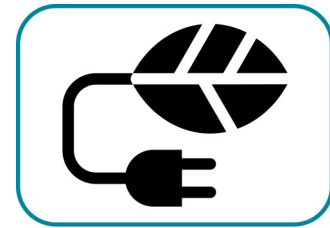


ENERGY

Presenters: Jean-Yves Dieulot / Luce Brotcorne



Energy

Description

The Energy cross-cutting theme brings together two complementary areas.

Theme (1) involves the modelling, management, diagnosis, prognosis and optimisation of energy systems and markets, with a focus on renewable sources and hydrogen.

Theme (2) involves reducing the energy footprint of software and implementing incentives, with applications in embedded systems, large databases and vision.

'Emblematic' projects

- Thematic (1): ANR SyNPID, CPER RITMEA, Horizon Europe ELECTROLIFE, H2020 INCIT-EV, Interreg 2 mers E2C
- Thematic (2): Défi Inria-OVHcloud FrugalCloud ANR PRCE Distiller Défi Inria-Qarnot computing PULSE, PEPR CareCloud, ICPEI Cloud Carbon Tower, ANR ULP Cochlea, CHIST-ERA APROVIS3D Chaire industrielle Luxant-ANVI, PEPR IA Emergences

Teams concerned

♣ **Thematic 1:** INOCS, PERSI, SCOOOL, SHOC, VALSE

♣ **Thematic 2:** CFHP, FOX, INOCS, SCOOOL, Spirals, GT SISE



Two distinct themes

- *First theme:*

The first theme (1) of the axis is to federate skills for the management and optimisation of the energy system (production, consumption, transport), the optimisation of energy markets, the implementation of digital twins (physical and data-based models), the design of control, diagnostic and prognostic tools specifically adapted to energy systems.

Applications will include hybrid renewable energy systems, demand flexibility in energy networks and markets, buildings and mobility (electric vehicles).

- *Second theme:*

The second theme (2) concerns software issues that aim to reduce energy consumption, for example performance optimisation under energy constraints; in the same vein, the action focuses on reducing the energy footprint of software, for example for learning algorithms.

Another key element is to define incentives for the efficient and sparing use of resources.

These low-energy consumption aspects can be found in the study of embedded systems, the design of neuromorphic information processing architecture, and at a higher level, the definition of incentives for better use of resources.

Applications include computer vision, biodiversity monitoring, high-performance computing, mobility, security, large-scale databases and the cloud.