

## SUEZ GdF Jan '14

### **Remarks**

Rather than ranking the list of projects, I propose to present the strategic framework that determines the focus of EnTranCe. The activities (projects) are and will be selected such that the focus is given content in an as efficient as possible way.

EnTranCe's overall purpose is to demonstrate the strategic role of natural gas for supporting the challenging ambitions of the energy transition.

For this, EnTranCe is being developed

- as an open innovation culture
- for decentralized balancing.

Our request is to develop a co-innovative network, in order to give a EU impact to the gas message. In this context, EnTranCe might very well be regarded as a virtual centre.

### ***EnTranCe framework***

Recently, a pitch has been presented for the EU network ENCORD (building, construction and installation sectors). As the content is very much in line with the discussion that we had, I have added the text.

The overall challenge in the coming decades for the EU community is to develop the flexibility to match demand and supply, in a future where the fossil supply will fade away.

Evidently, energy efficiency is the first win. But apart from energy efficiency measures, there are three tools in development to fill the gap:

- Smart grids; not just the electricity grid: the horizontal integration of gas, electricity and heat is involved.
- Energy storage. Also here, the horizontal integration is at stake. As well as the short term and long term integration. And the small scale and large scale integration.
- Power to gas, power to fuel, power to feedstock. Strategically, this development bridges the gap to the development of sustainable economies, in a more general sense.
- To complete, there will be "game changers" that are still unknown at the moment.

## ***Activities***

For each, examples of projects are given. Please be aware that most projects fit within more than one tools. Evidently.

All projects mentioned are carried out in co-ownerships of knowledge providers, universities and market parties (energy based as well as foreign (new entrees, start ups), in different form of open innovation.

### *Smart grids*

- Flexines (development of smart electricity grid, functional demonstration, development of communication protocols, peer to peer, consumer to grid)
- Flexigas (development smart biogas grid, identification of pathways, design of controllable digesters, development of “broad band’ applications, business case virtual pipeline)
- Flexiheat (development of smart heat grid, integration of geothermal heat, development of business models, development of smart control algorithms, three cases [heavy industrial area, city, horizontal integration heat – gas – electricity in industrial context])
- Flexinet (to live the smart grids [ horizontally integrated electricity – gas – heat], in a controlled practice scale, in order to define white spots in the system for follow up R&D)
- I-Balance (natural gas as back up for sustainability, fuel cells [solid oxid] – windturbines – PV, a small village for demonstration, one of the Wadden islands as a living lab and for demonstration)
- The autonomous energy region (development of systems to be disconnected from electricity grid, only a natural gas connection to support sustainable choices, demonstration in a holiday resort)

### *Energy storage*

- Time shifts in refrigerators (incorporate energy storage devices, such that external energy supply is restricted to once in 24 hours)
- Chemical and phase change energy storage
- Gas storage by absorption
- Gas storage by hydrates
- Build up a lab for energy storage

### *Power to gas*

- Build a proof of principle to demonstrate the concept of power to gas
- Flexigo (development and demonstration of power to gas concept based on reversible fuel cells; focus on decentralized load balancing; is defined one of the strategic projects in Pays Bas)

## *Others*

- Microturbines (testing prototypes of 3 kW power capacity; in development by MTT)
- Solid oxid fuel cells (testing performances of Blue Gen 65% electrical efficiency appliances; close to market entree)
- New heat pumps
- PV carports for public parking places (focus on development of business cases to support start ups of enterprises)
- New EU level MSc programmes (in a EUREC context the eng MSc is in the air, and two follow up MSc's are in preparation [engineering and management, engineering and policy]; these are located in the centre of the open innovation activities at EnTranCe; the orientation is to develop talented and critical professionals like we think that the branche will need them in the decades to come)
- RenQi: laboratory for wind tunnels, optical tables, being tools for the MSc programmes mentioned

## ***Ambitions***

The ambition is to demonstrate, as a proof of concept, to all stakeholders how the natural gas's role is to be visualised, to involve society, to introduce the open innovation offer and to boost (decentralized) innovations.

Secondly, the ambition must gain a EU impact, co-created by the most influencial (energy) companies in EU (at least Gasunie, GasTerra, SUEZ GdF, Gassco, ...).

## ***Proposal***

To

- Discuss to make the EnTranCe philosophy an common initiative.
- Discuss how to communicate one "story".
- Involve the EU policy.
- Prepare EU Horizon 2020 proposals.