

PLAN.  
INNOVATE.  
ENGAGE.



ETIP SNET

EUROPEAN  
TECHNOLOGY AND  
INNOVATION  
PLATFORM

SMART  
NETWORKS FOR  
ENERGY  
TRANSITION



## 2nd ETIP SNET National Webinar: France

"Think SmartGrids R&D Roadmap"

22.03.2018

10:30 – 11:30 CET



# National Webinar Agenda

- **Introduction and guidelines**, Rémi Landau, *ETIP SNET Support Team* - 5 minutes
- **Presentation of the ETIP SNET's scope and activities**: Thierry Le Boucher, *ETIP SNET Vice-Chair* – 10 minutes
- **Presentation of Think SmartGrids (TSG) France** : Valérie-Anne Lencznar, *TSG Managing Director* - 10 minutes
- **Presentation of the Think SmartGrids Roadmap**: Nouredine Hadjsaid (Chairman of *TSG's Scientific Council*) and Pierre Mallet (*TSG's Scientific Council*) – 25 minutes
- **Questions & Answers** – 10 minutes

PLAN.  
INNOVATE.  
ENGAGE.



ETIP SNET

EUROPEAN  
TECHNOLOGY AND  
INNOVATION  
PLATFORM

SMART  
NETWORKS FOR  
ENERGY  
TRANSITION

---

## **ETIP SNET : for an innovative and successful European energy transition**

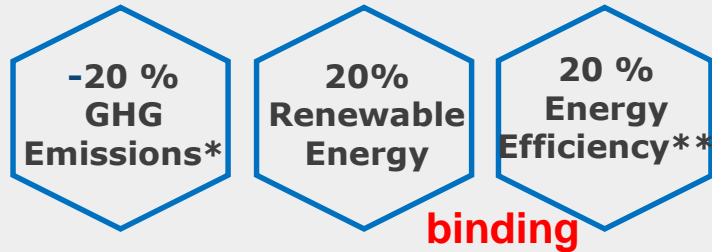
**Thierry LE BOUCHER**

**ETIP SNET Vice-Chair**



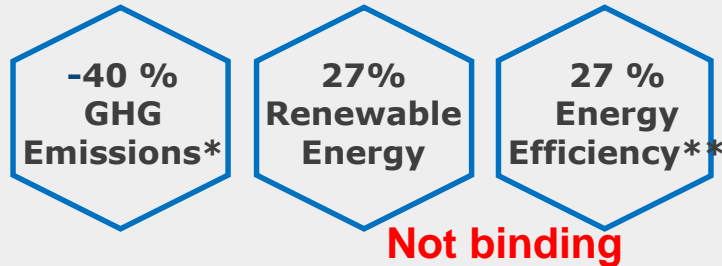
# European R&I energy policies

## ► 2008: The SET Plan



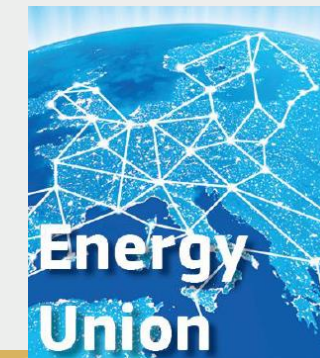
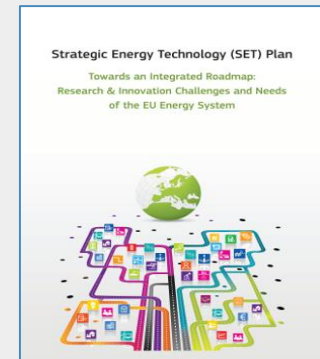
## ► 2014: Towards an Integrated Roadmap

- Individual Technologies → Energy system
- Policy challenges
  - Consumer at the centre
  - Energy efficiency (demand)
  - System optimisation
  - Technologies (supply)



## ► 2015: Energy Union – Priorities

- Energy security, solidarity and trust
- A fully integrated European energy market
- Energy Efficiency (EE) first: moderation of demand
- Transition to a low-carbon society: decarbonising the economy,
- **Research, Innovation and Competitiveness**





# SET Plan key actions



1. Performant renewable technologies integrated in the system

2. Reduce costs of renewable technologies

3. New technologies & services for consumers

4. Resilience & security of energy system

5. New materials & technologies for buildings

6. Energy efficiency for industry

7. Competitive in global battery sector (e-mobility)

8. Renewable fuels

9. Set up R&I activities applying CCS and CCU

10. Maintain safety level & improve efficiency in nuclear energy



ETIP SNET PLAN.  
INNOVATE.  
ENGAGE.

# From a fragmented EU advisory to an integrated framework



A new focus on  
innovation /  
implementation and  
on sector coupling



Main objective is to address the innovation challenges in **energy system** and **market evolution** necessary for achieving climate protection and **renewables integration** with affordability and security of supply ... beyond smart electricity grids (whole energy system)



ETIP SNET PLAN.  
INNOVATE.  
ENGAGE.

# ETIP SNET's main objective

« EUROPEAN TECHNOLOGY AND INNOVATION PLATFORM  
SMART NETWORKS FOR ENERGY TRANSITION »...

... addresses the innovation challenges in energy system and market evolution necessary for achieving climate protection and renewables integration with affordability and security of supply

... beyond smart electricity grids





ETIP SNET PLAN.  
INNOVATE.  
ENGAGE.

# ETIP SNET Video: Understanding Energy Transition





# ETIP SNET's mission

- ▶ **Set-out a vision for RD&I for Smart Networks for Energy Transition** and engage stakeholders in this vision.
- ▶ **Prepare and update the Strategic Research and Innovation Roadmap.**
- ▶ Report on the **implementation of RD&I activities at European, national/regional and industrial levels.**
- ▶ Provide **input to the SET Plan action 4** which addresses the technical challenges raised by the transformation of the energy system.
- ▶ **Identify innovation barriers**, notably related to regulation and financing.
- ▶ Develop enhanced knowledge-sharing mechanisms that **help bring RD&I results to deployment.**
- ▶ Prepare **consolidated stakeholder views** on Research and Innovation to European Energy Policy initiatives.



ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# ETIP SNET's stakeholders



Transmission System  
Operators (TSOs)



Distribution System  
Operators (DSOs)



National  
Representatives



Research  
& Academia



Storage  
(technology and services  
providers)



Consumers  
(aggregated and  
not aggregated)



Thermal Generation  
(flexible)



Renewable Energy  
Sources Generation



ICT, Network and Software  
providers



Equipment  
manufacturers  
and suppliers (non-ICT)



Interface to Other  
Energy Carriers  
(Heat, Transport, Gas, ...)



Regulators



ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# ETIP SNET's organisation



## Governing Board

(30+ members representing key European stakeholders)

Exco (9 members)



## Experts coordination

via Working Groups  
(5 permanent WGs)



## National stakeholders coordination

(Ministry representatives,  
funding agencies, regulators,  
national platforms)

  
**ETIP SNET  
Secretariat**  
(Intensys4EU)\*

\* Intensys4EU is a coordinating consortium formed under the European Commission's Horizon2020 initiative which supports ETIP SNET in delivering RD&I monitoring reports, Roadmaps and implementation plans.



## WG1

Reliable, economic and  
efficient smart grid  
system



## WG2

Storage technologies  
and sector interfaces



## WG3

Flexible Generation



## WG4

Digitisation of the  
electricity system  
and customer  
participation



## WG5

Innovation  
implementation in the  
business environment



## NSCG

National  
Stakeholders  
Coordination  
Group



ETIP SNET PLAN.  
INNOVATE.  
ENGAGE.

# ETIP SNET's Working Groups: + 250 experts from around Europe



## WG1: Reliable, economic and efficient smart grid system

WG1 addresses business and technology trends contributing to the **overall energy system optimization at affordable investment and operation costs.**



## WG2: Storage technologies and sector interfaces

WG2 addresses the technological and market developments related to **energy storage solutions** to ensure the required level of flexibility for the transmission and distribution of electricity.



## WG3: Flexible Generation

WG3 considers the latest business and technology trends to **address the needs for flexibility** in the framework of an integrated energy system.



## WG4: Digitisation of the electricity system and Customer participation

WG4 addresses the use and impact of the **Information and Communication Technologies** as a pervasive tool along the entire value chain of the power generation, transportation and use.



## WG5: Innovation implementation in the business environment

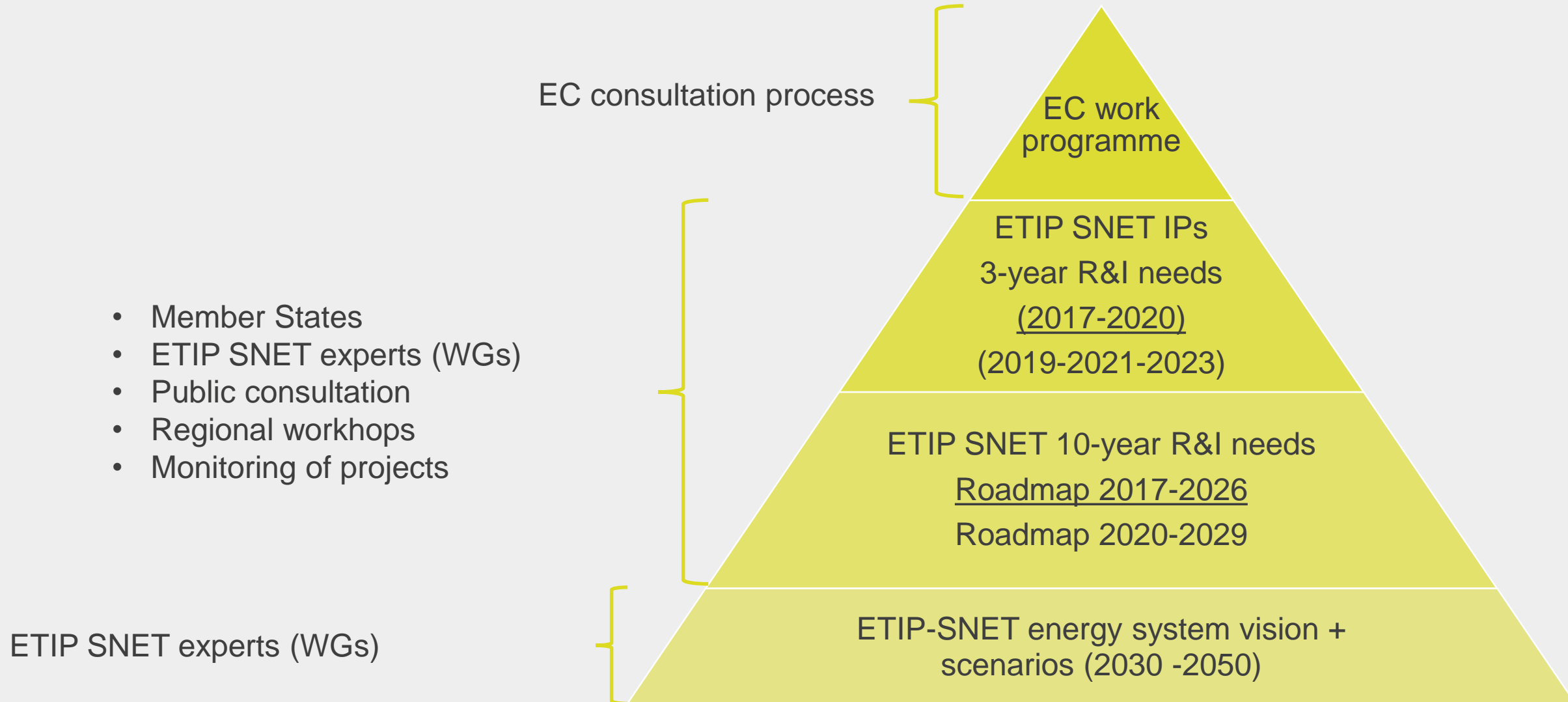
Work Group 5 adopts a helicopter view on **R&I projects and promotes their uptake by the industry** so as to ensure Europe's energy transition.



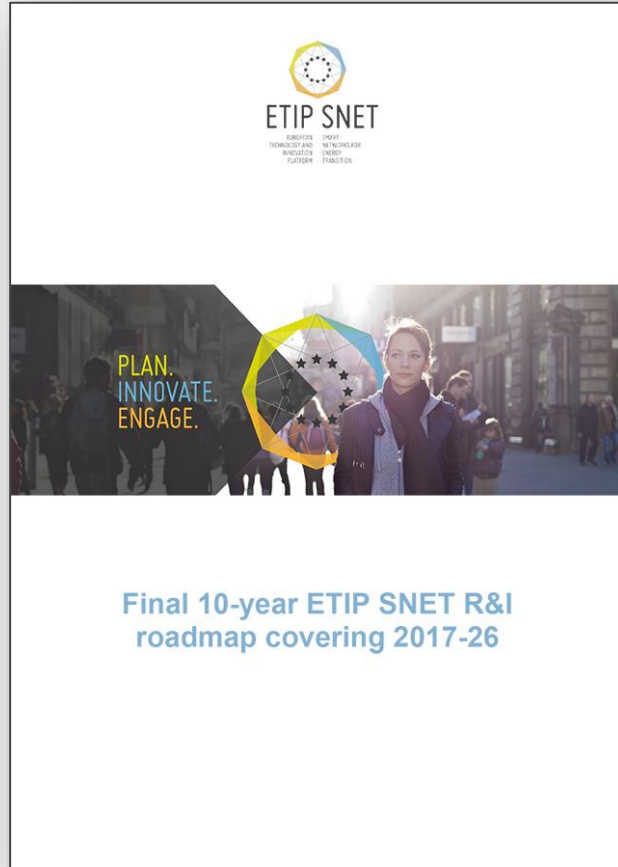
## NSCG: National Stakeholders Coordination Group

NSCG provides a sounding board and **exchange platform for national R&I stakeholders** in the area of energy systems and networks.

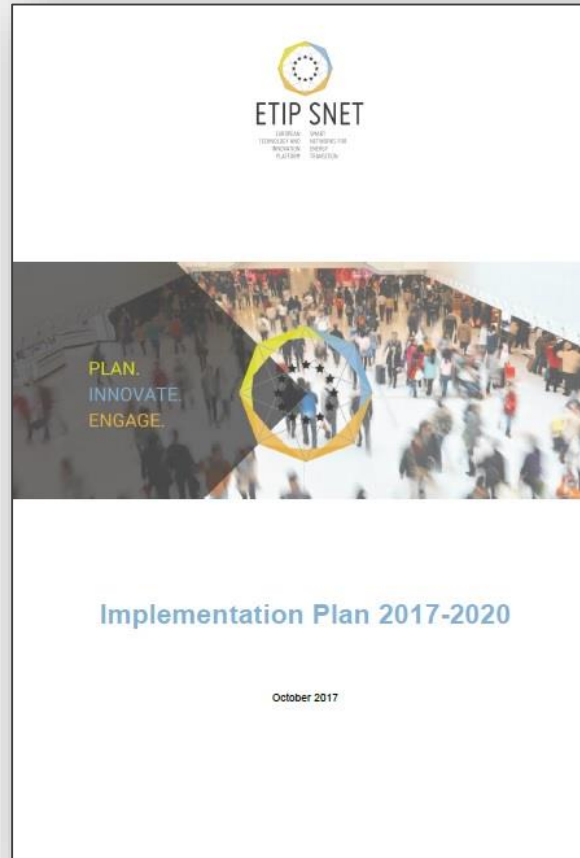
# ETIP SNET “deliverables” and how it can impact EU Research priorities



# Existing and future ETIP SNET deliverables



January 2017



October 2017



March 2018  
tbc

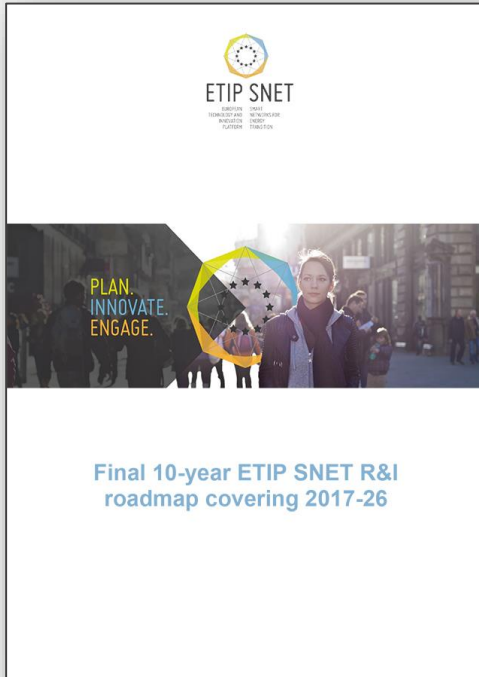




ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# A new roadmap supported by workshops, public consultation and a monitoring exercise



January 2017

The 10-year (2020-2029 ) ETIP SNET updated R&I roadmap specifying the future R&I needs for the energy system will be drafted based upon,

- consolidated and balanced stakeholder viewpoints through “regional” workshops
- consolidated and balanced stakeholder viewpoints through public consultation
- a monitoring/review of national, European and international R&I activities

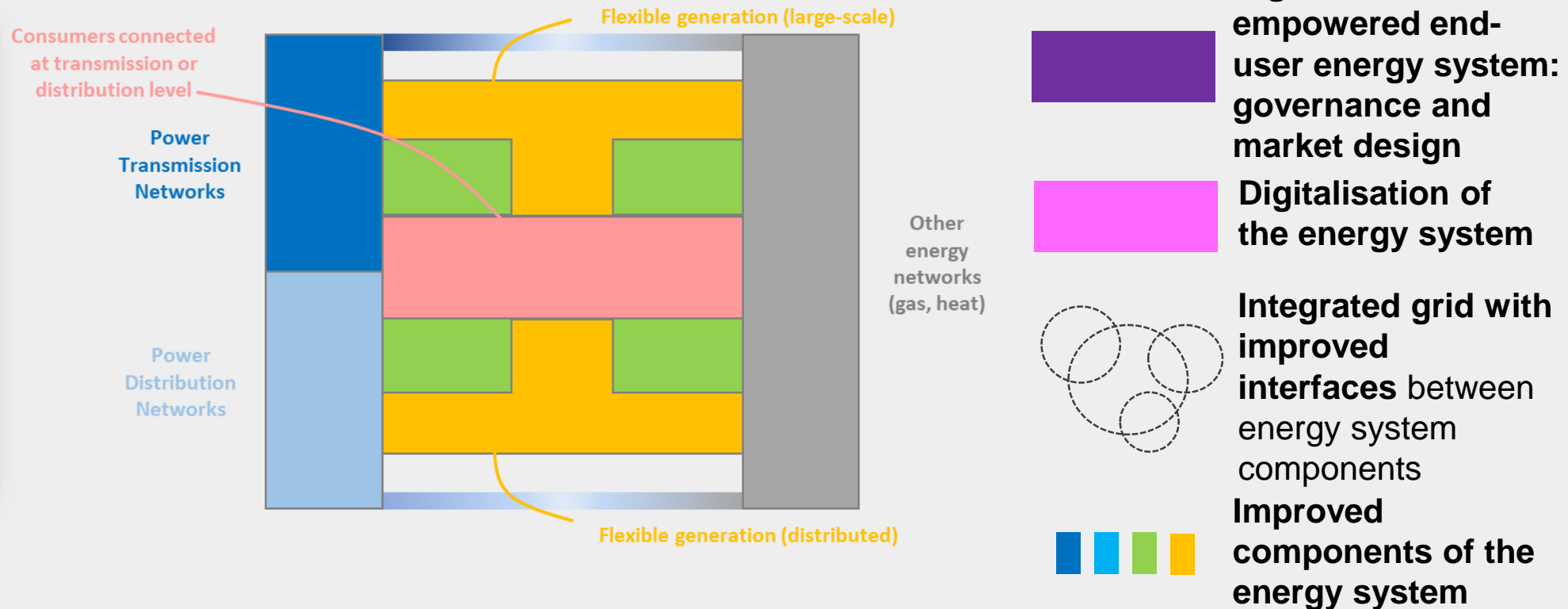
→ assess the coverage of the R&I activities by national and European projects

# A new Implementation Plan on short-term priorities according to the broaden scope of the ETIP SNET

## Final structure of the IP



October 2017



# ETIP SNET's collaboration with national stakeholders

## Objectives

- **Ensure consistency and complementarity** between European R&I and National R&I activities and priorities
- **Know more** about R&I activities carried out at national and regional level
- **Avoid overlaps** between national R&I funding at EU and national levels

## Activities

- **Creation, coordination and animation of the National Stakeholders Coordination Group**, providing a sounding board and exchange platform for national R&I stakeholders in the area of energy systems and networks.
- **Organisation of four Regional Workshops/year** (Aachen, Lisbon, Nicosia and Riga in 2017)
- **Monitoring of R&I projects** implemented at national level
- **Organisation of National Webinars**, in collaboration with national stakeholders

PLAN.  
INNOVATE.  
ENGAGE.



# Thank you for your attention

More information:



[etip-snet.eu](http://etip-snet.eu)



[@etipsnet](https://twitter.com/etipsnet)



[Info@etip-snet.eu](mailto:Info@etip-snet.eu)



[linkedin.com/groups/8208338](https://www.linkedin.com/groups/8208338)

# THE FRENCH SMARTGRIDS SECTOR

March 22, 2018



FRENCH SOLUTIONS FOR SMARTGRIDS



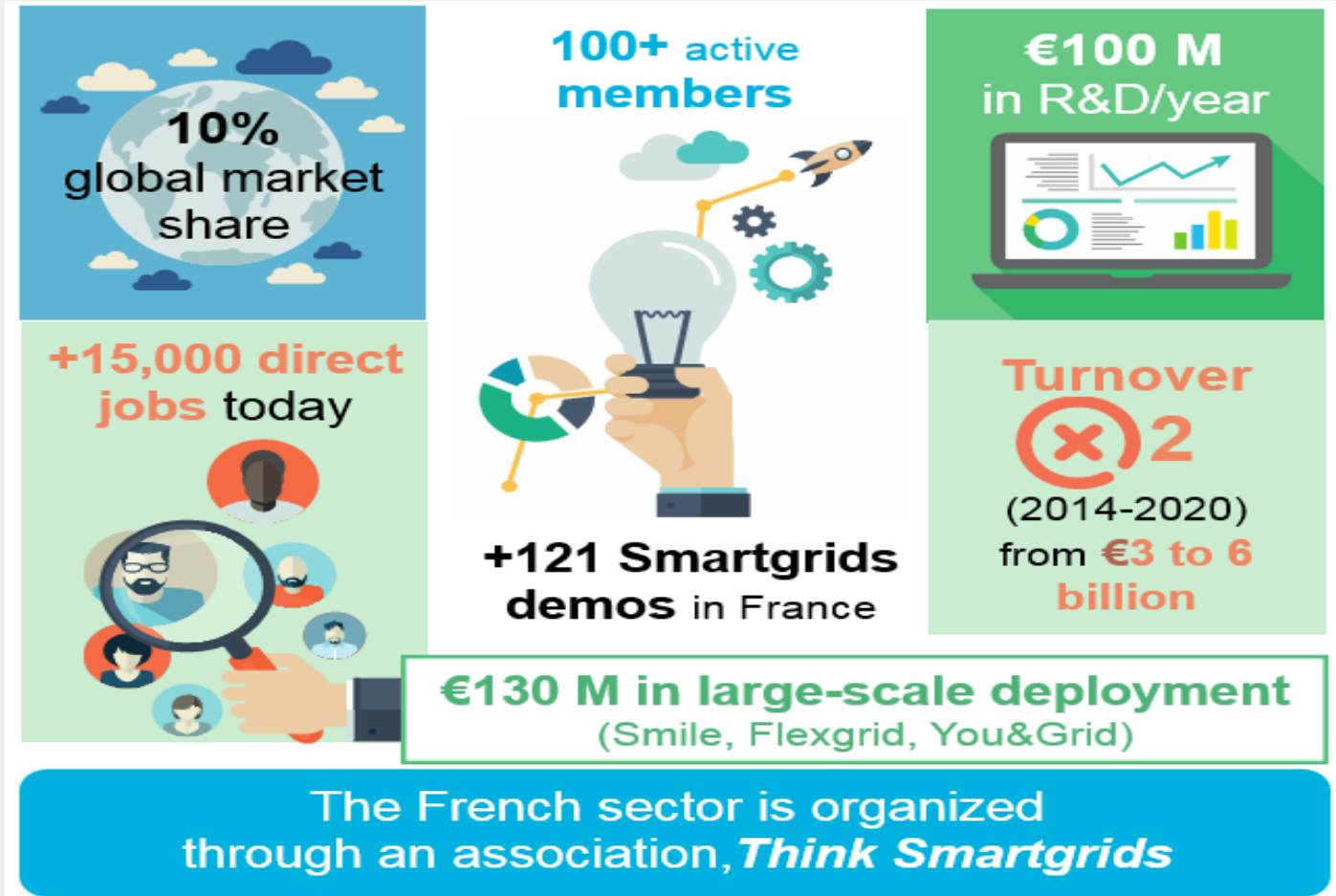
ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# FRANCE is a global leader in Smartgrids

France is spearheading global smart grids sector, through a comprehensive ecosystem, internationally recognized:

- From fundamental research to industrial applications
- From start-ups to large companies, through associations and public authorities





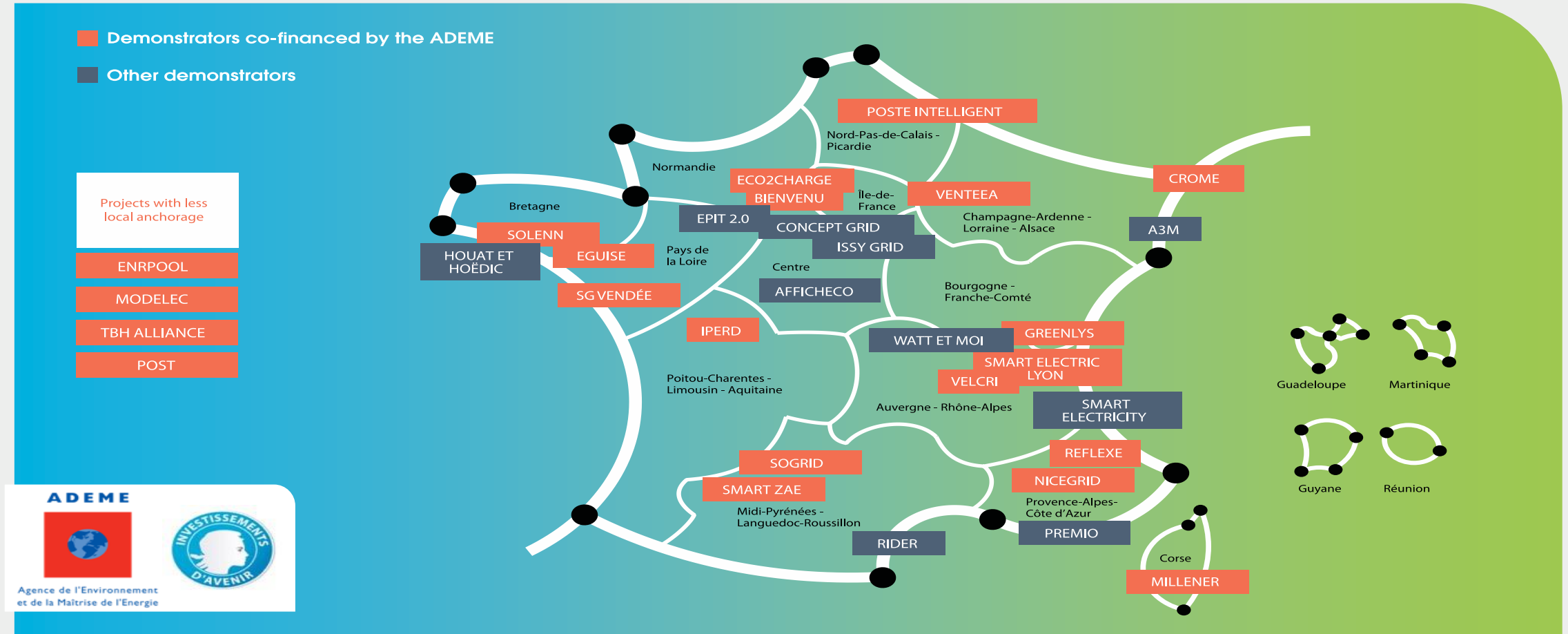


ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# Additional examples of demonstrators in France

Main demonstrators projects located in various areas in France





ETIP SNET PLAN.  
INNOVATE.  
ENGAGE.

# THINK SMARTGRIDS BRINGS TOGETHER A FULL ECOSYSTEM

## Observer members



## Associated members



## Partner members



## 10 clusters



## Schools, Research centers and Labs :

Centrale Supélec, Ecole des Ponts ParisTech, Ecole Polytechnique, LNE, SEE, SNCF Cluster,...

...& 8 local DSOs : Anroc, ES Réseaux, FNSICAE, GEG, Gérédis, RSEIPC, SRD, Urm...

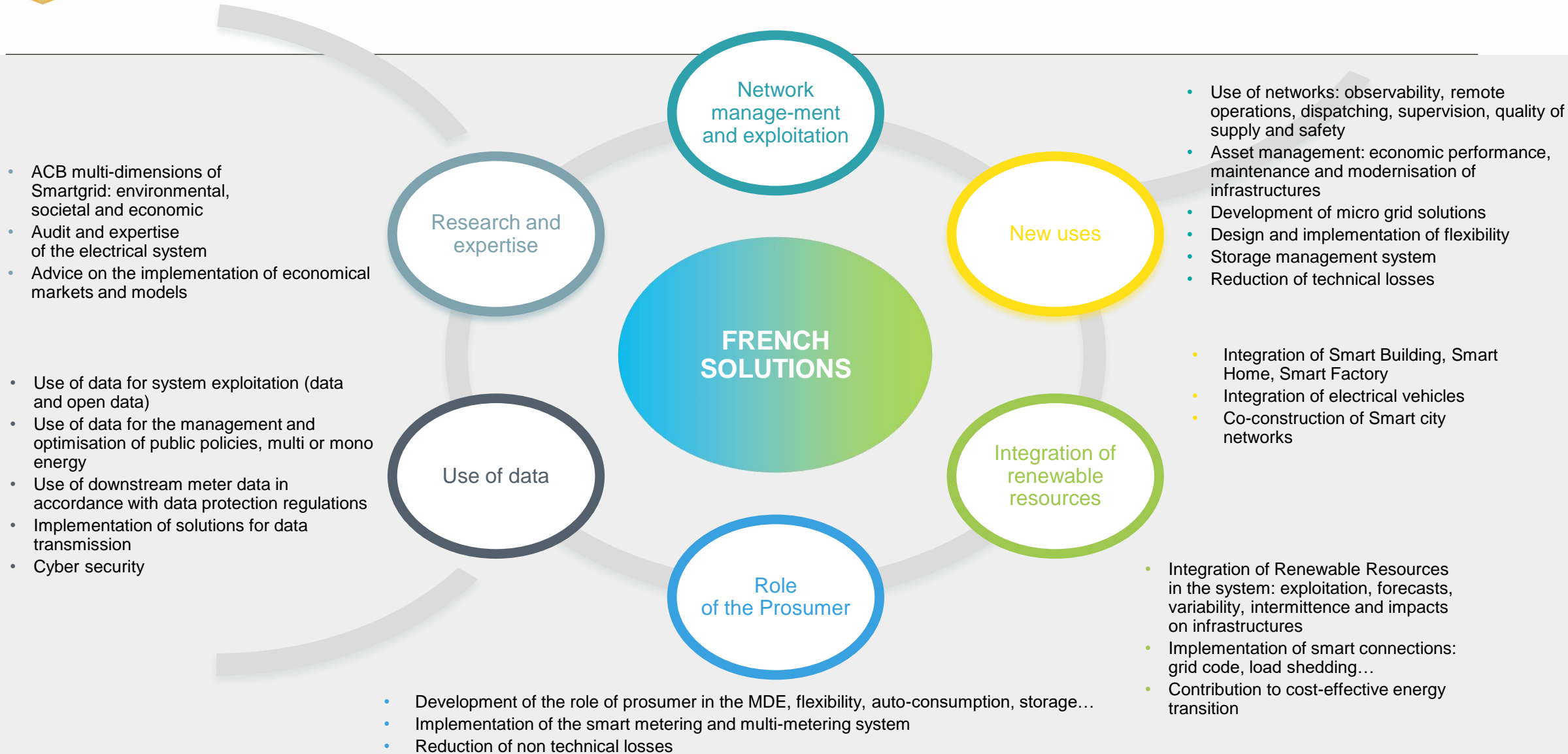
And : Promotelec, UFE...



ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# FRENCH SMARTGRIDS SOLUTIONS





ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# THINK SMARTGRIDS working groups



## INTERNATIONAL

Julien Pelcot, *GE Grid Solutions*

- ❖ Strategic thinking aimed at promoting the French smart grids sector around the world
- ❖ Participation in international SG events (ex: EUW)



## SME & INNOVATION

Bernard Mahiou, *Cap Energies*

- ❖ SME-Large Companies Ethics Charter for optimal cooperation

## DATA & DIGITAL TRANSFORMATION

Cosmotech, *DCbrain*



## SCIENTIFIC COUNCIL

Nouredine Hadisaïd, *INP Grenoble*

- ❖ Sharing and Implementation of the French R&D Roadmap
- ❖ Organisation of the IEEE event “From Smart Grids to Smart Cities” (October 2016, Paris)



## TRAINING

Nadia Maïzi, *Mines Paris tech*

- ❖ Inventory of the French academic trainings and HR needs for industrial actors in the field of smartgrids



## PUBLIC AFFAIRS

Yves Barlier, *Enedis*

- ❖ Position paper regarding French and European (EC) laws and decrees about smartgrids

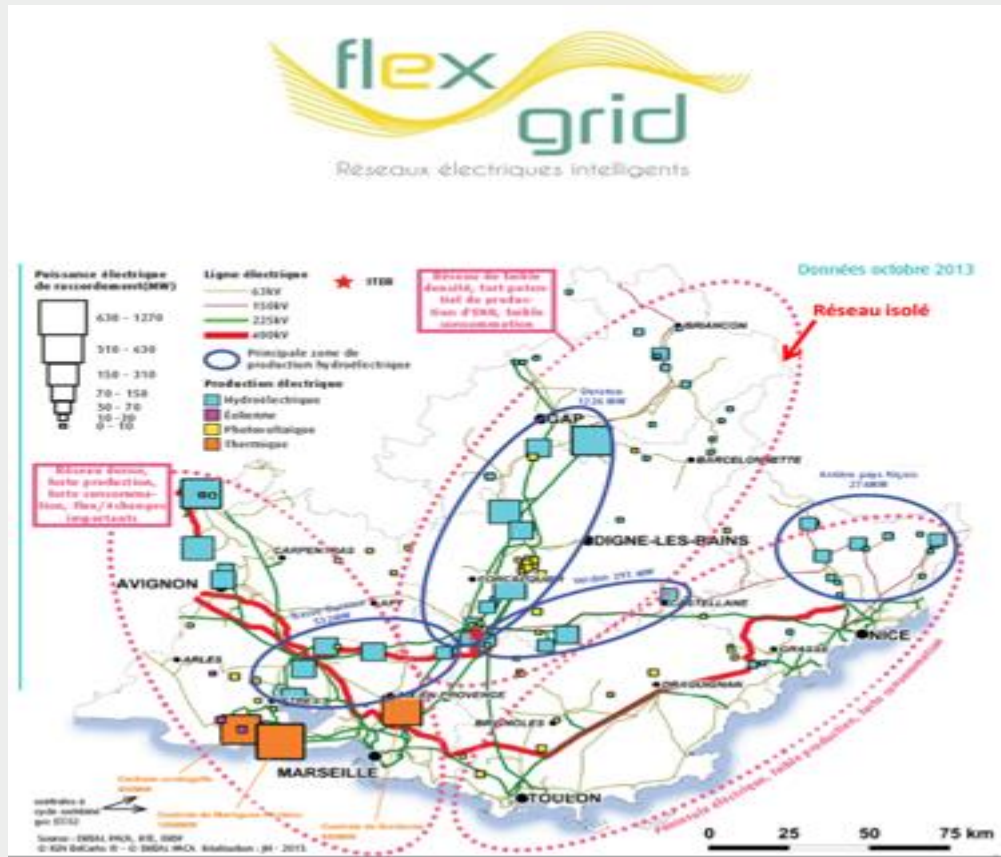


ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# EXAMPLES OF LARGE-SCALE DEPLOYMENT IN FRANCE

3 regions selected\* on 15<sup>th</sup> March 2016, with €50 million public funding over 3 years\*\*



\* Call for projects initiated in April 2015 by the French government in the frame of the "Sustainable City" solution within the New Industrial France Project.

\*\* Besides, RTE the French TSO and Enedis the main DSO in France, invest € 80 M in Flexgrid and Smile projects.



## ACTIONS REALIZED (2017/18)

- Memorandum of Understanding (MoU) signed with PLN (Indonesia)
- Letter of Intent (LoI) signed with the Nanyang Technological University
- Memorandum of Understanding (MoU) signed with ISGF (India)







ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# Thank you for your attention !



[contact@thinksmartgrids.fr](mailto:contact@thinksmartgrids.fr)

+33 1 42 06 52 50

[www.thinksmartgrids.fr](http://www.thinksmartgrids.fr)

# Think SmartGrids R&D Priorities

Prepared by the **Scientific Council**

presented by Nouredine Hadjsaid (G2ELab, Grenoble INP/Univ. Grenoble Alpes ) and Pierre Mallet (Enedis)

ETIP SNET - Think SmartGrids Webinar

March, 22<sup>nd</sup>, 2018



- **Objective :**
  - Defining R&D priorities
  - Not targeting completeness
- **Method: several roadmaps have been analyzed and synthesized**
  - ANCRE : R&D energy grids and storage
  - Ademe SmartGrids
  - EU - ETIP
  - Enedis
  - RTE
  - EEGI
- **R&D axes**

➤ **contributors:**

- Nouredine Hadjsaid, Chair of the Scientific Council (G2Elab/Grenoble INP)
- Raphaël Caire (Grenoble-INP)
- Frank Charlouty (BearingPoint)
- Olivier Devaux (EDF R&D)
- Patrice Geoffron (Univ. Paris Dauphine)
- Sébastien Henry (RTE)
- Yannick Jacquemart (RTE)
- Bernard Mahiou (Capénergie/interpoles))
- Pierre Mallet (Enedis)
- Didier Mayer (Mines ParisTech)
- Nicole Mermilliod (CEA)
- Julien Pelco (com internationale/GE)
- Marion Perrin (CEA-INES)
- Marc Petit (CentraleSupélec)

•



ETIP SNET PLAN.  
INNOVATE.  
ENGAGE.

# Major stakes at the heart of R&D priorities of the FR SG branch



**Energy  
transition**



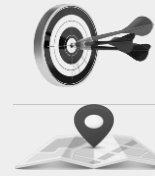
**Digital  
revolution**



**Consumers  
expectations and  
societal stakes**



**Climate change**



**Efficiency and  
competitiveness**



**Local** vision  
of energy stakes



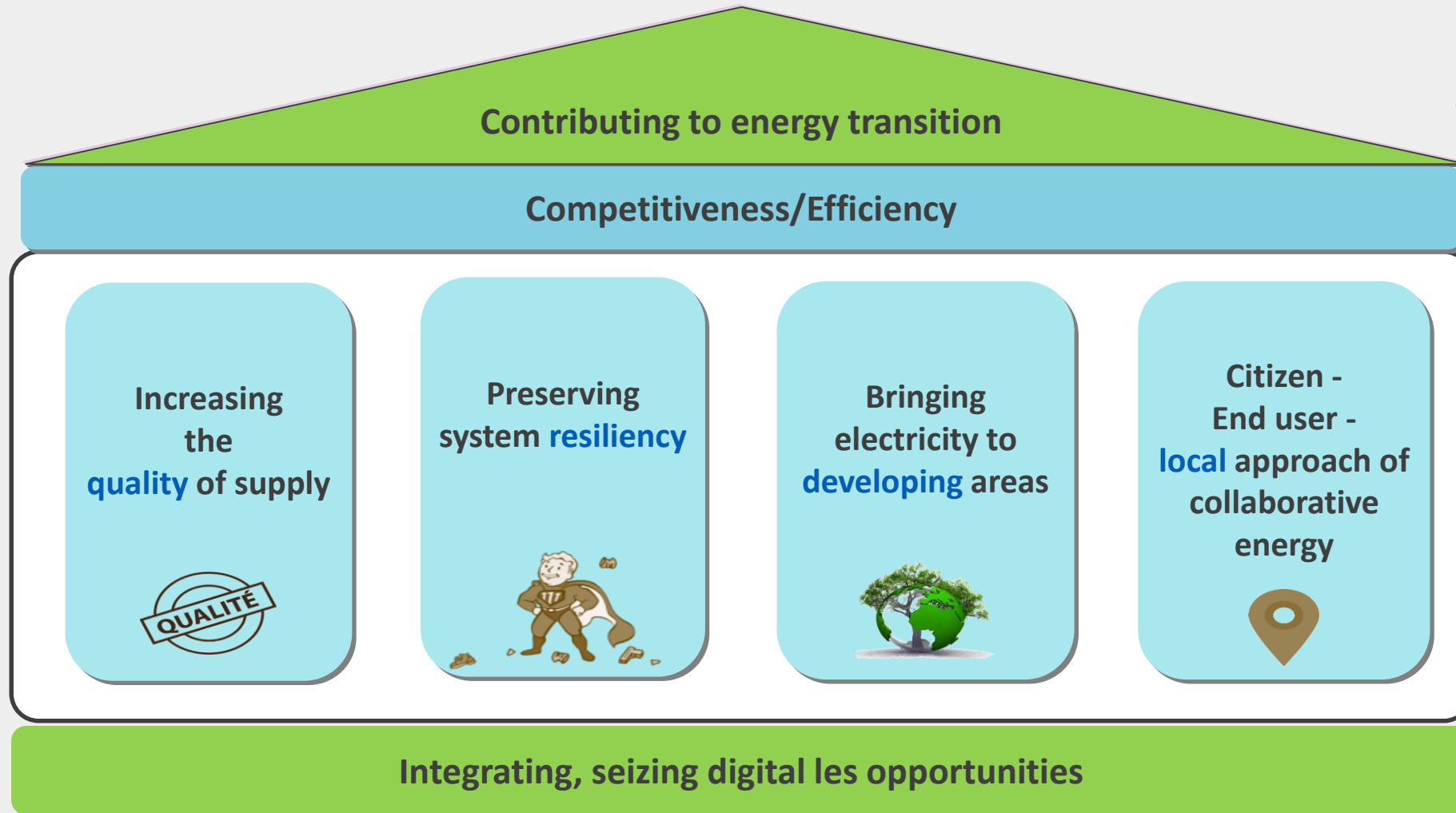
Consum'actors  
**collaborative** economy



**Market**



## 7 R&D axes including 3 transversal ones (Synthesis)





- **Axe 1 – Contributing to the energy transition (transverse axis)**
  - Adapting **regulatory** instruments, new business models, CBA for actors and communities
  - New strategies for **planning and operating power systems** (RES, storage, electric mobility, multi-energy, ...)
- **Axe 2 – Improving competitiveness and efficiency (transverse axis)**
  - Integrating **environmental performance** in the system design, together with technical and economical requirements
  - Using the infrastructures **close to their limits** (technical solutions, market design...)
- **Axe 3 – Increasing the quality of supply**
  - **Diagnostic** of components and **predictive maintenance** (data analytics, monitoring and IoT, drones and AI, .. )
  - Grid **Automation** (« self-healing », IoT, distributed intelligence - central vs. local- , « system of systems » approach,...)
  - **Operations** efficiency (virtual reality and augmented reality for training and support for operators, support for operators' interventions, AI for knowledge management, ...)
- **Axe 4 – Preserving system resiliency**
  - Impact of **climate change** on equipment specifications
  - New dynamic paradigm: system operation with **Power Electronics** and few, even no, rotating machines



- **Axe 5 – Bringing electricity – innovative solutions for developing countries**
  - Designing business models **adapted** to the local sociological, technical and economical **context**
  - Local grids of « **microgrids** » type while integrating RES at large scale as a step towards interconnection
- **Axe 6 – Integrating, seizing digital opportunities (transverse axis)**
  - **IS architecture planning** of smartgrids, **telecom** solutions and **data processing** for the management of power systems and associated new services
  - **Cyber-security** of a critical system geographically distributed and with numerous interfaces
- **Axe 7 – Citizen / end user/ local approach / collaborative energy**
  - **Sociology** of new behaviors, effectiveness of incentive tools, solidarity issues
  - **Value creation** mechanisms (within CBA approaches) while integrating environmental dimensions and **allocation** modes of this value among stakeholders
  - **Regulatory** tools and system cost allocation modes with **empowerment** (autonomy)



ETIP SNET

PLAN.  
INNOVATE.  
ENGAGE.

# Contacts

---

**Pr. Nouredine HADJSAID**

[Nouredine.Hadjsaid@g2elab.grenoble-inp.fr](mailto:Nouredine.Hadjsaid@g2elab.grenoble-inp.fr)

**Pierre MALLET**

[Pierre.Mallet@enedis.fr](mailto:Pierre.Mallet@enedis.fr)

PLAN.  
INNOVATE.  
ENGAGE.



**Thank you for attending ETIP  
SNET's 2nd National Webinar!**

More information on the next national webinars: [www.etip-snet.eu/](http://www.etip-snet.eu/)