



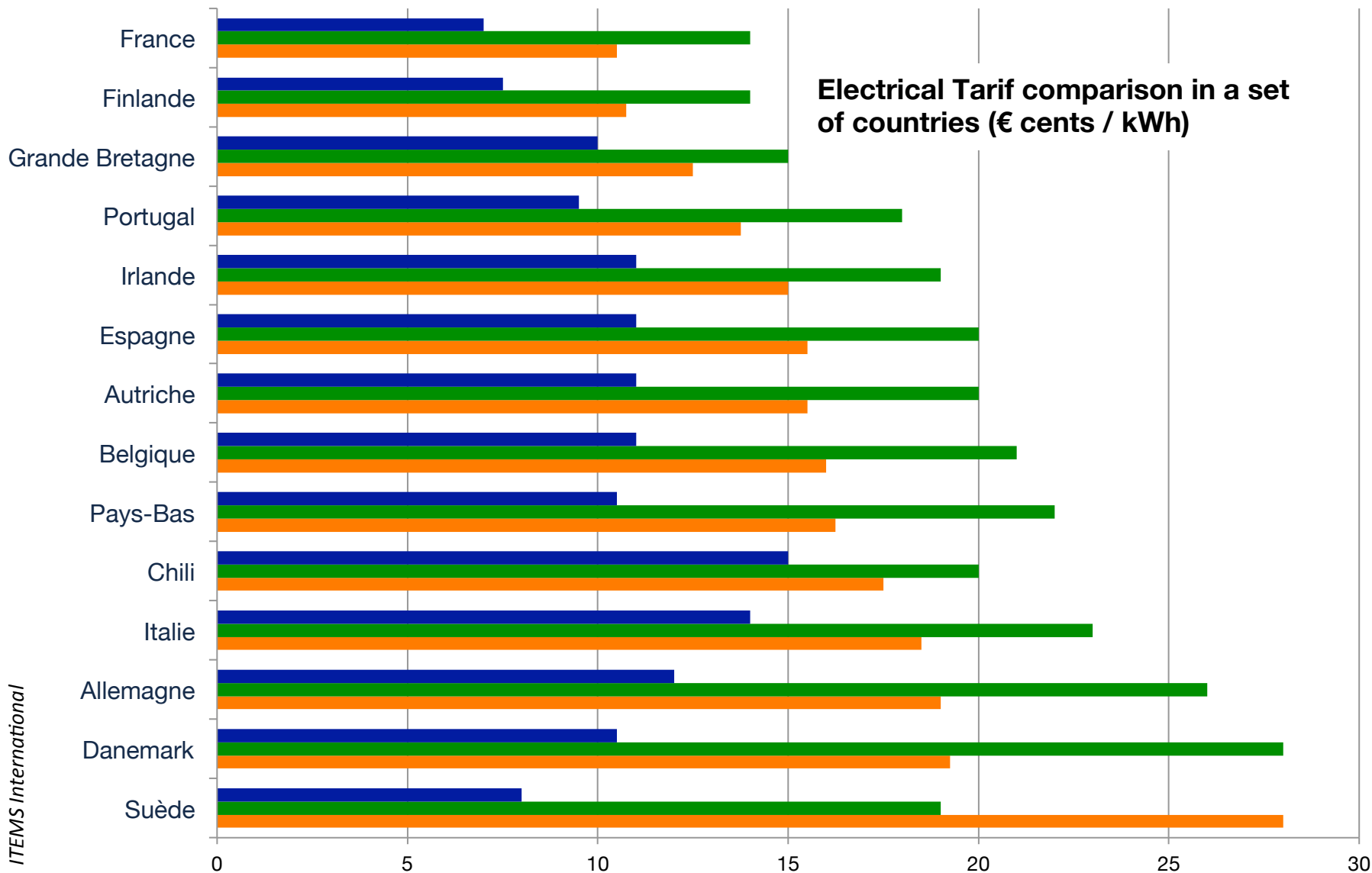
Smart Grids in France and Europe Sept 27th, 2013



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One Europe: 27 countries

Electrical Tarif comparison in a set of countries (€ cents / kWh)



A need of Innovation



The European Union climate and energy package (2008)

The 3x20 targets

1

To reduce emissions of greenhouse gases by 20% by 2020.

2

To increase energy efficiency to save 20% of EU energy consumption by 2020.

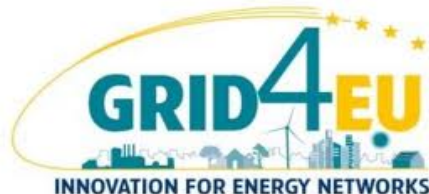
3

To reach 20% of renewable energy in the total energy consumption in the EU by 2020.

Smart grids innovation to participate to European energy and climate strategy



**approx 400 M€ EC funding
for grids projects over the
years 2007-2013**





Uppsala, Sweden:
integration of AMM
technology.

54 \$M



NICEGRID, France: Integration
of solar power generation and
electricity storage capacities at
the MV/LV level.

Rekken, Germany:
integration of DER in
the MV network.

Vrchlabi, Czech Republic:
MV/LV grid automation
of failure management.



Castellon, Spain: Roll-out of
100 000 Smart Meters with
demand response features.

Forli-Cesena, Italy: Active
Control and Demand Response
of DER at the MV/HV level.



Horizon 2020, a new integrated program dedicated to innovation (2014-2020)



THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

Priorities

Budget (en M)

Health, demographic change and wellbeing

8 033

Food security, sustainable agriculture, marine and maritime research & the bioeconomy

4 152

Secure, clean and efficient energy*

5 782

Smart, green and integrated transport

6 802

Climate action, resource efficiency and raw materials

3 160

Inclusive, innovative and secure societies

3 819

Smartgrids France fosters smartgrids R&I

10 research clusters have decided to join forces

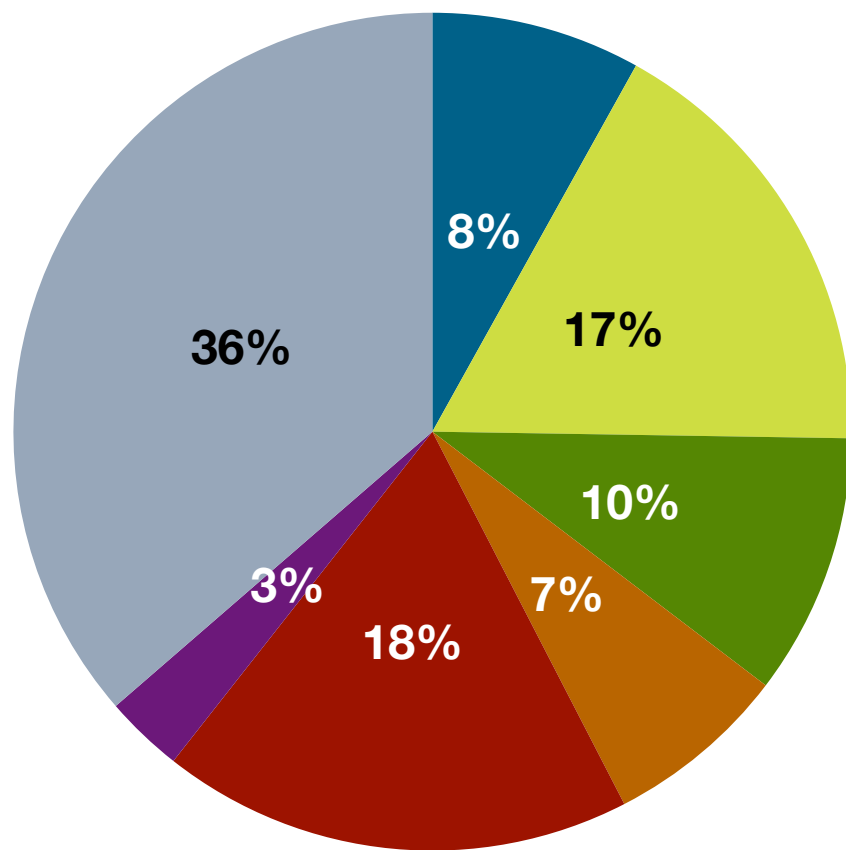


Member of



Over 200 funded and planned smart grids projects in France

More than € 1,2 billion invested in smart grid projects by the business and research clusters



- Industrial and tertiary energy efficiency
- Domestic energy efficiency
- Management of supply and demand
- Adjustable transport and distribution
- Connection and integration of renewable energy sources
- Conventional production
- storage system

ADEME



Agence de l'Environnement
et de la Maîtrise de l'Énergie

Standardization: Touchy but good international collaboration between Europe and US

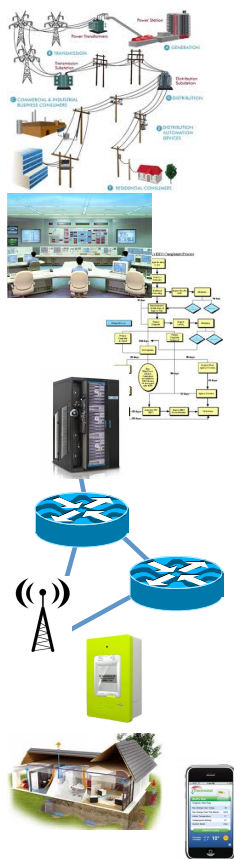
Overview of Smart Grid standardisation bodies

Electric Sector
 Generation, Transmission, Aggregation, Distribution, Supply

Services
 Technical management
 Data management
 Customers management

Network
 Connections
 Routing
 Data flow management

Residential
 Local network (HAN)
 Equipments
 Devices



Directive 98/34/EC*



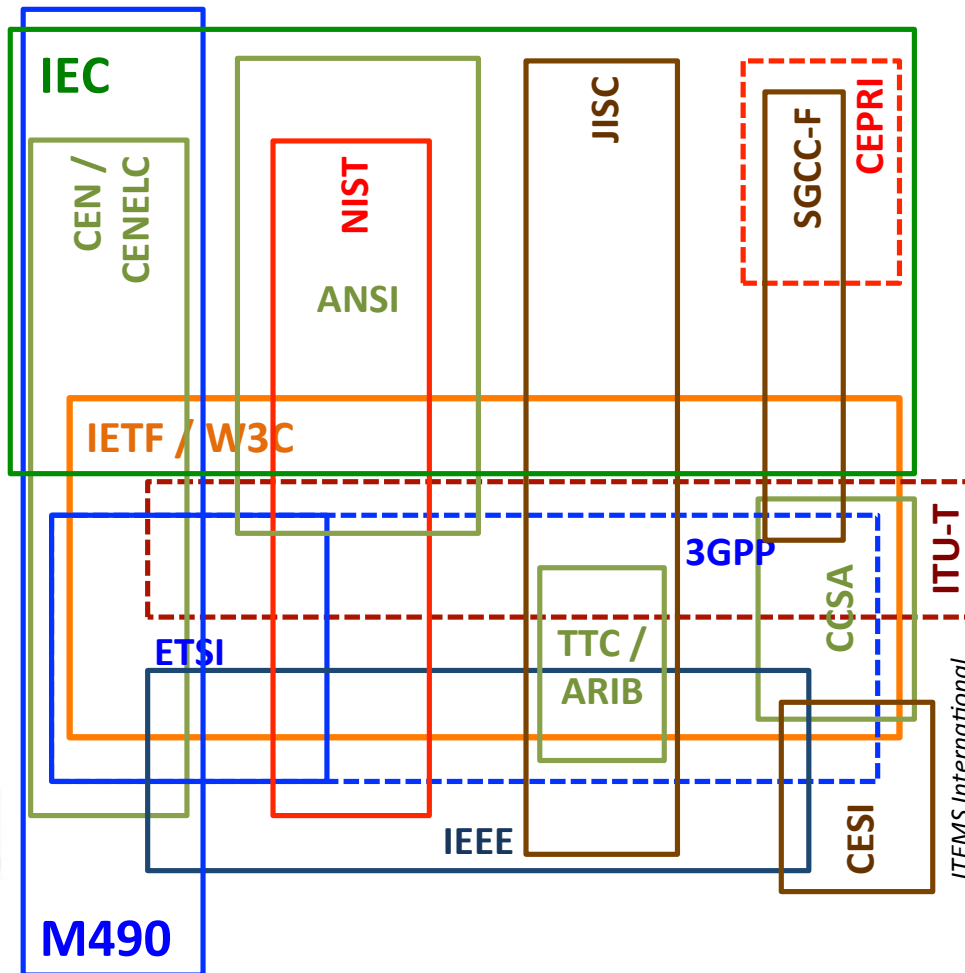
NIST



METI/MIC



SAC



Smart Grids Roll Out



Investments in Infrastructures

SMART METERS

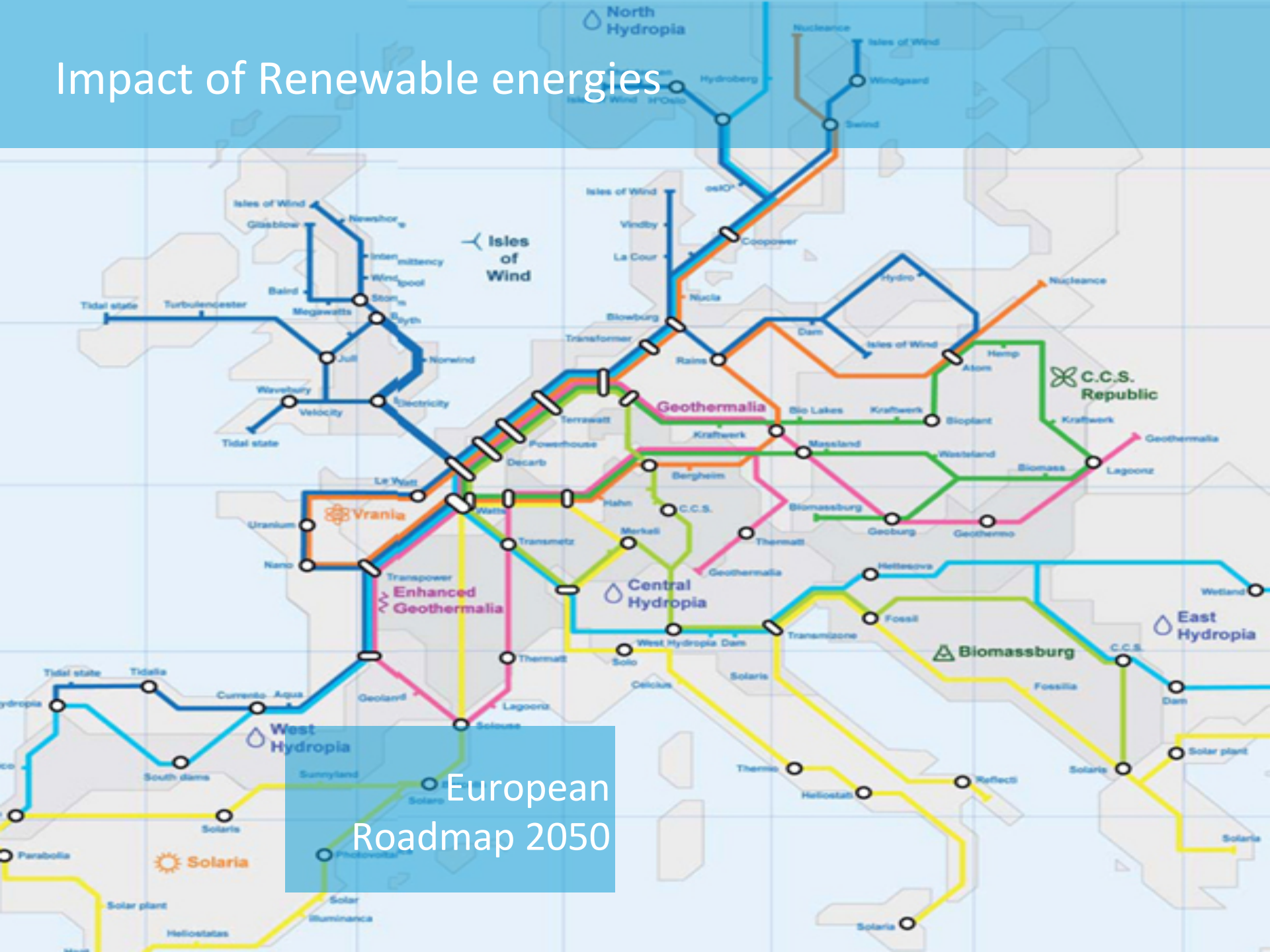


50 b € until 2020 to
achieve 250 millions
smart meters

GRID INFRASTRUCTURE EQUIPMENTS

480 b € until 2030
following EC
estimations

Impact of Renewable energies



Smart meters roll-out in Europe



Sweden - (2003-2009)
5,3 M smart meters
~ 1.5 b €

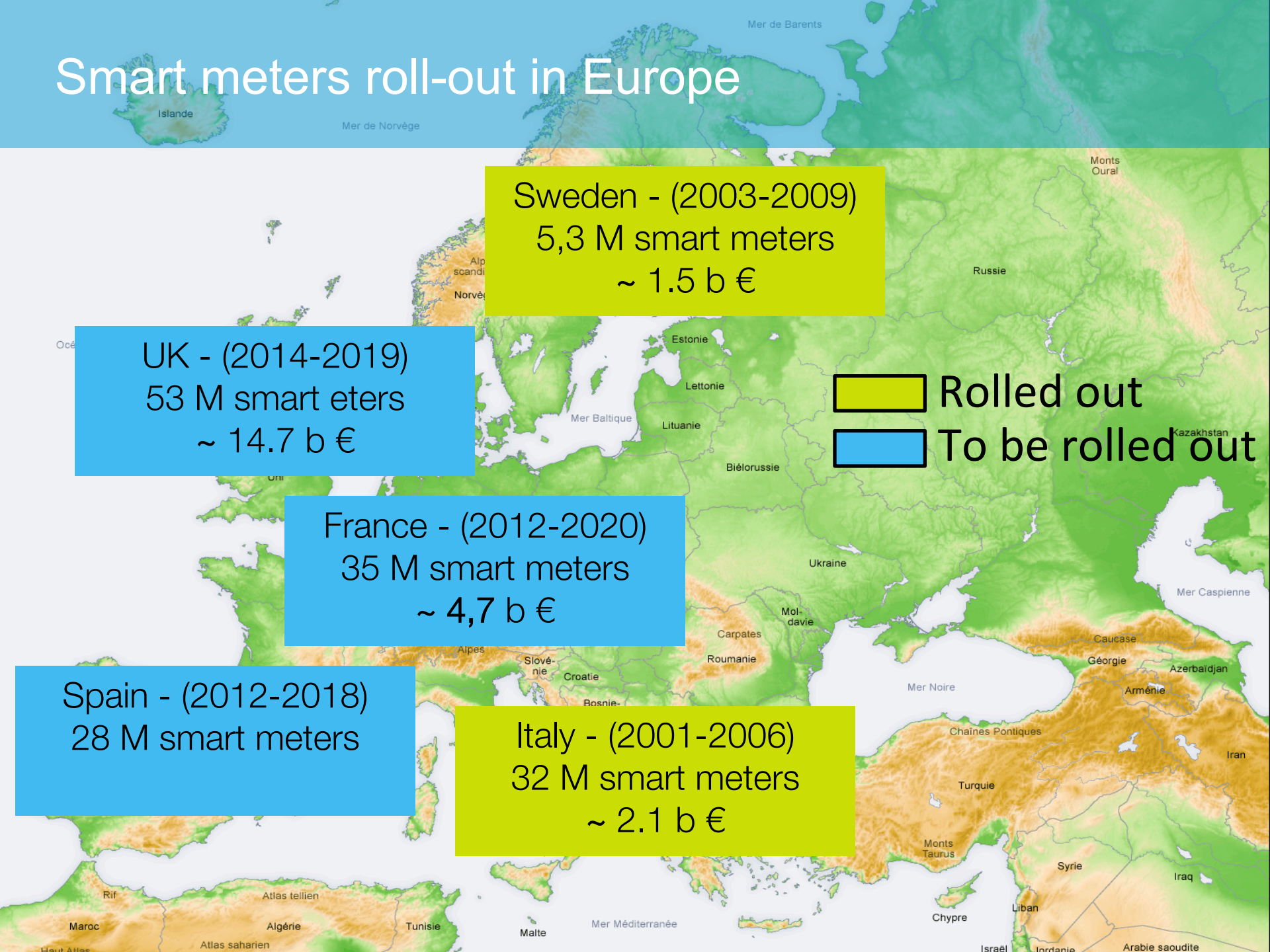
UK - (2014-2019)
53 M smart meters
~ 14.7 b €

France - (2012-2020)
35 M smart meters
~ 4,7 b €

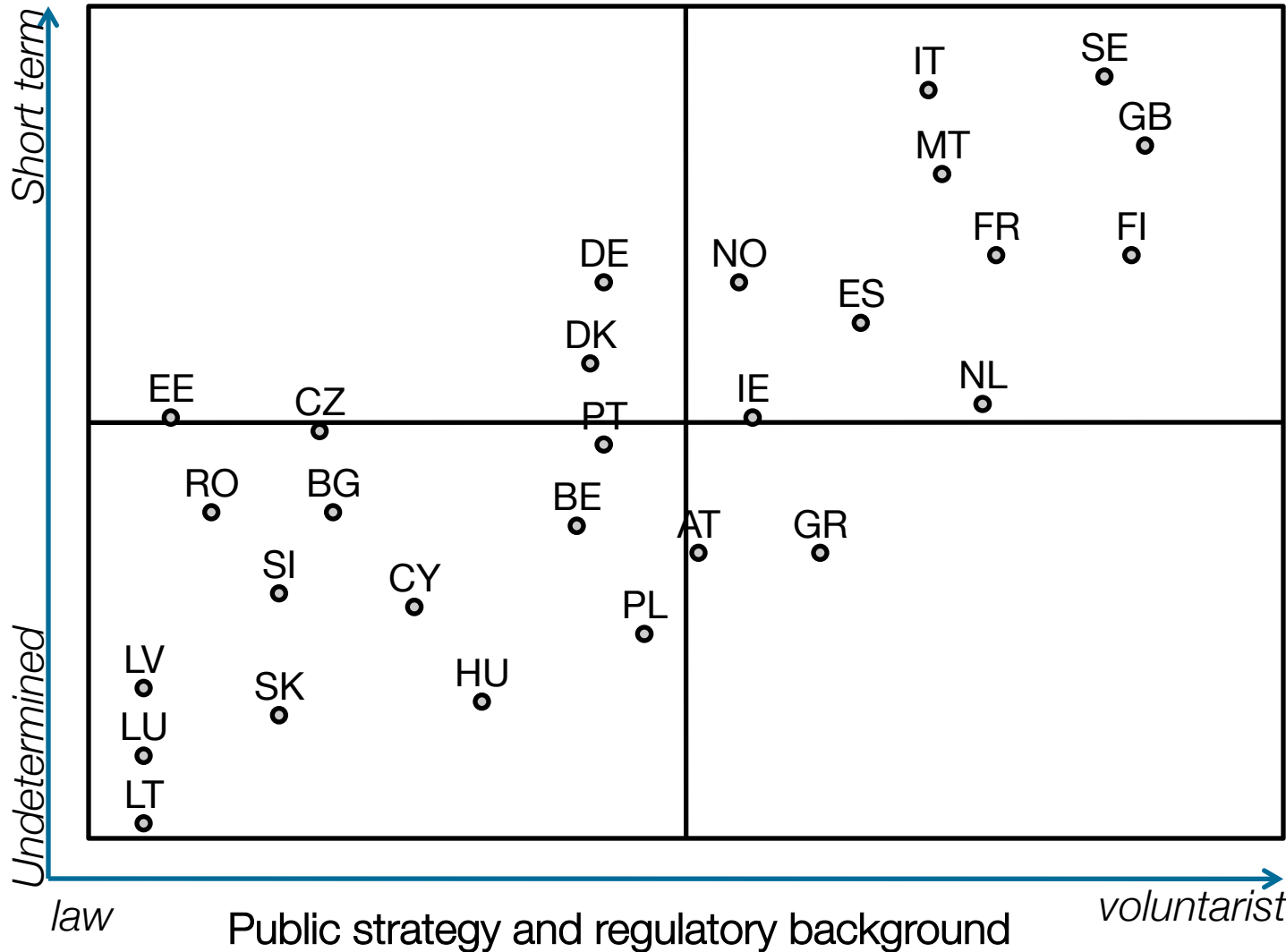
Spain - (2012-2018)
28 M smart meters

Italy - (2001-2006)
32 M smart meters
~ 2.1 b €

 Rolled out
 To be rolled out



Smart meters roll-out in Europe: public policies and market players



Sources :
European
Smart
Metering
Landscap
Report,
Intelligent
Energy
Europe

Massive Investments planned in France to modernize the grid

Monitoring and active control equipments, software solutions



“1.5 b € /y until 2016”



“5.5 b € / y for 10 years”

Major Players in Smart Grids Industry

ALSTOM

Schneider
Electric

SIEMENS

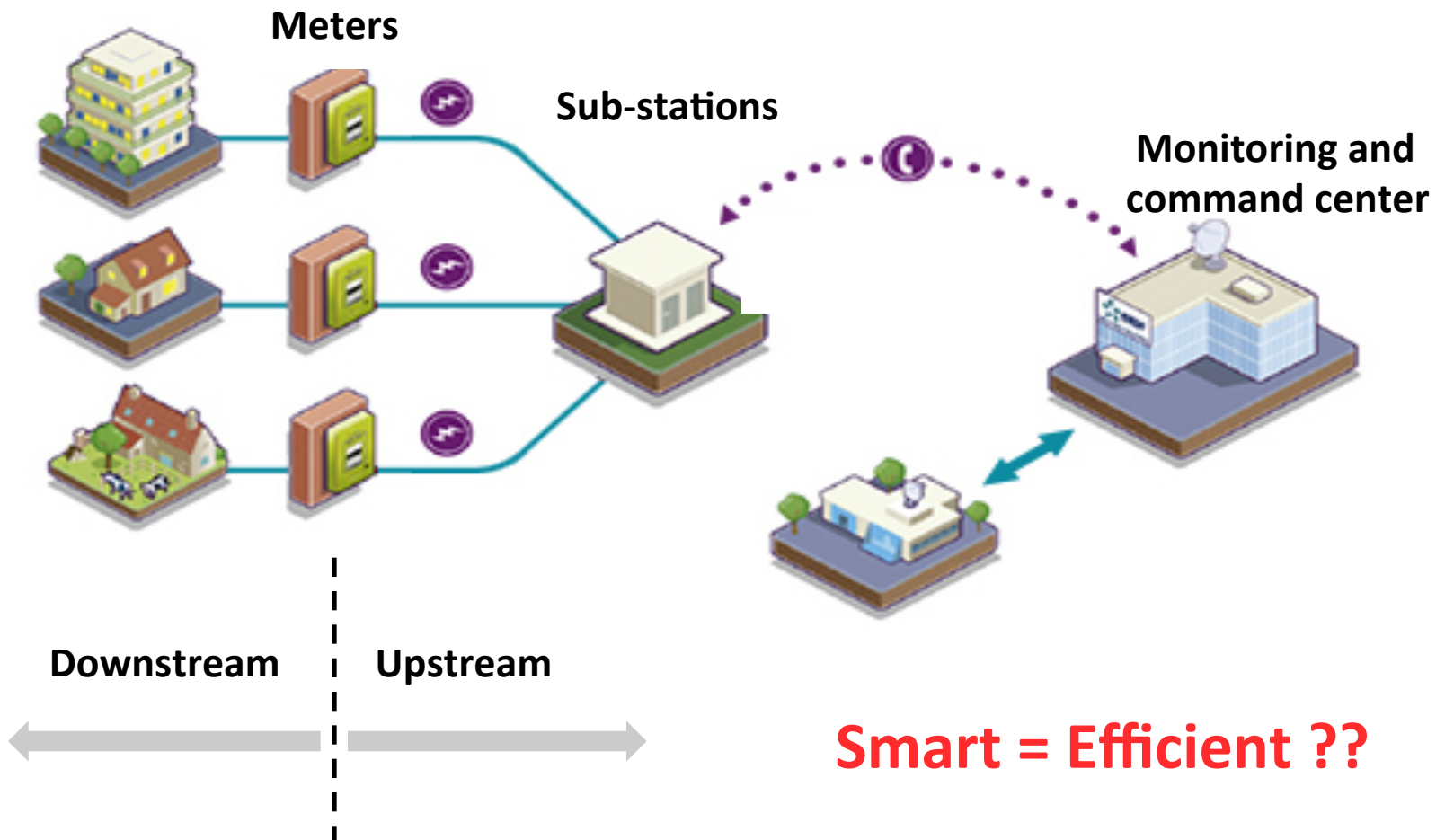
ABB

Energy efficiency & Smart Grids



Ambiguous definition of smart grid

What is smart grid and what is not?



Many energy efficiency project in Europe

Percentage of projects including Smart home / smart customer application (JRC)

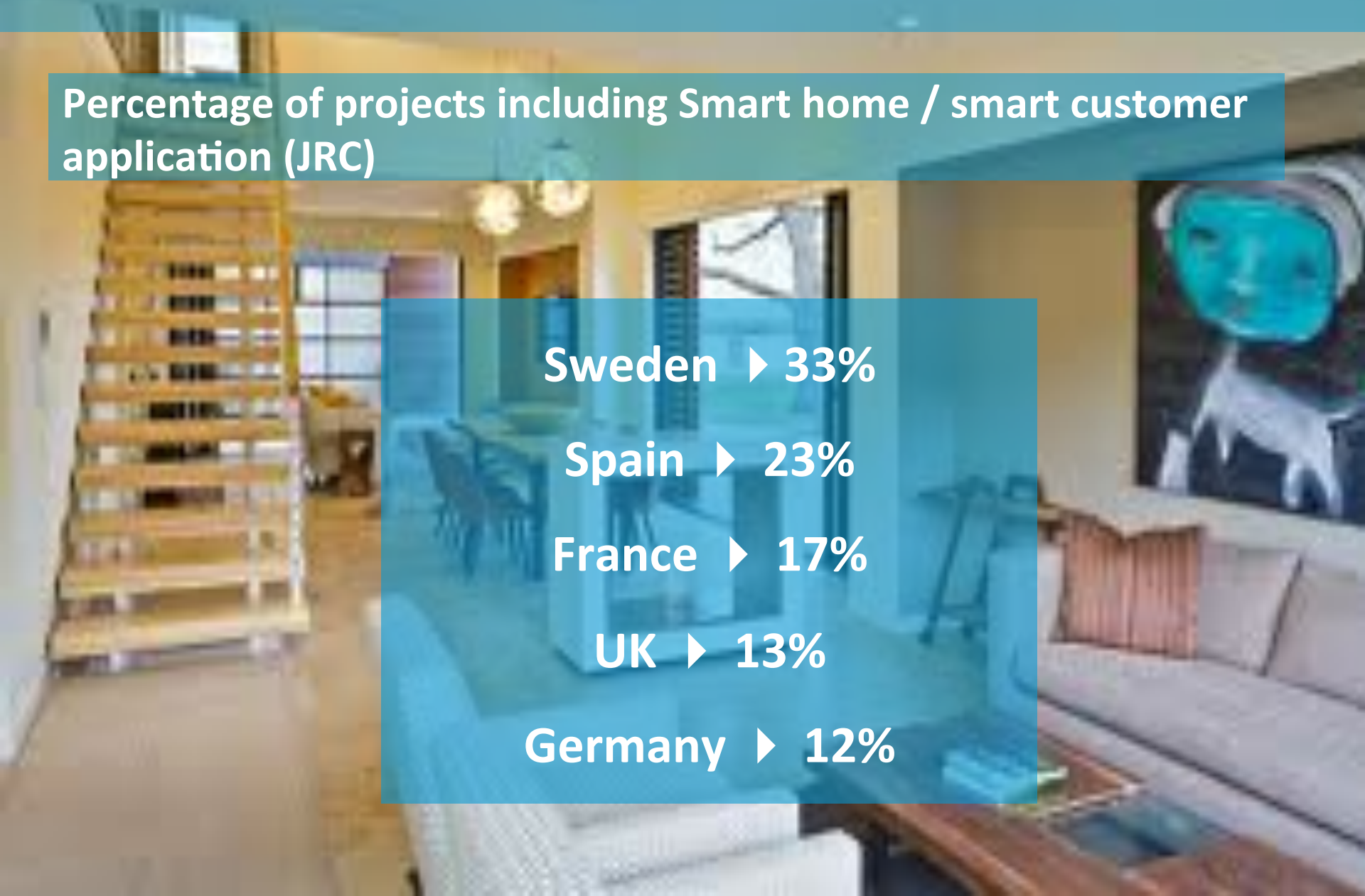
Sweden ▶ 33%

Spain ▶ 23%

France ▶ 17%

UK ▶ 13%

Germany ▶ 12%



Thank you

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