Ajuntament de Castelldefels

BioEconomic

IREC
Institut de Recerca en Energia de Catalunya
Catalonia Institute for Energy Research

Green cities: visió i finançament europeu

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MOBILITAT VERDA
PER UNA MOBILITAT SOSTENIBLE I LLEUGERA

Economia SOSTENIBLE (SG)

Entorn MEDI AMBIENT

HABITAR Qualitat vida

Participació GOVERN

BENEFICIS i US DEL TERRITORI

Produir SALUT

EDUCAR

Permetre MOVIMENT

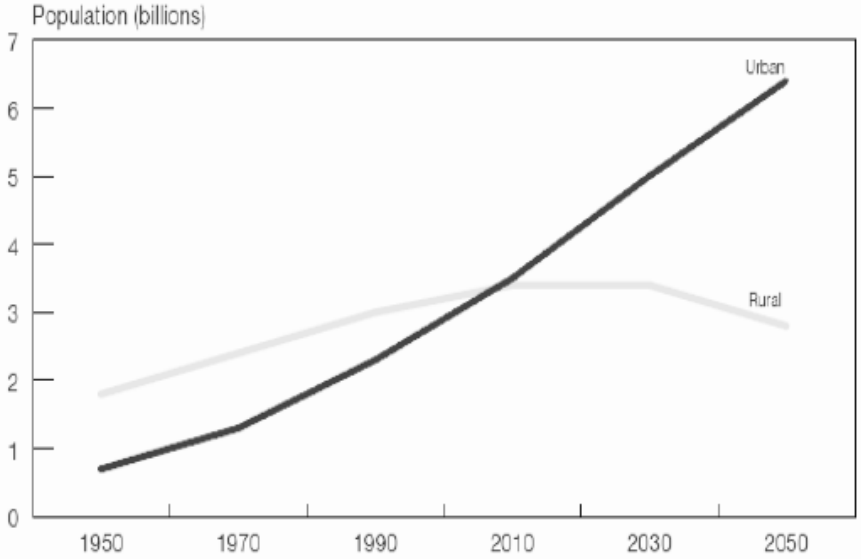
Crear SOCIABILITAT

VERD A LA CIUTAT

Ciutats com aglutinadores de la població

La meitat de la població viu en ciutats, i d'aquí a dues dècades, gairebé el 60% de la població viurà en zones urbanes. El creixement urbà és més ràpid a països en desenvolupament. On les ciutats guanyen un promig de 5 milions d'habitants cada mes[1]

Figure 3.1 – Global urban and rural population trends and UN projections



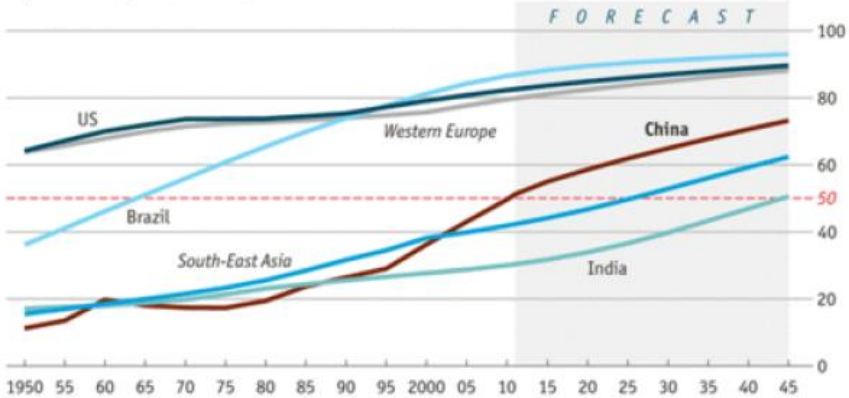
PricewaterhouseCoopers UK Economic Outlook November 2009

10 %
Població mundial en 10 ciutats

15 %
Població mundial en les seves àrees metropolitanes

5 M
De persones es traslladen cada mes a les ciutats

Population living in urban areas, % of total



CEIC; UN Population Division; The Economist

(1) UN report: World's biggest cities merging into 'mega-regions'

al 2007
per primera vegada hi ha més gent a les ciutats que al camp

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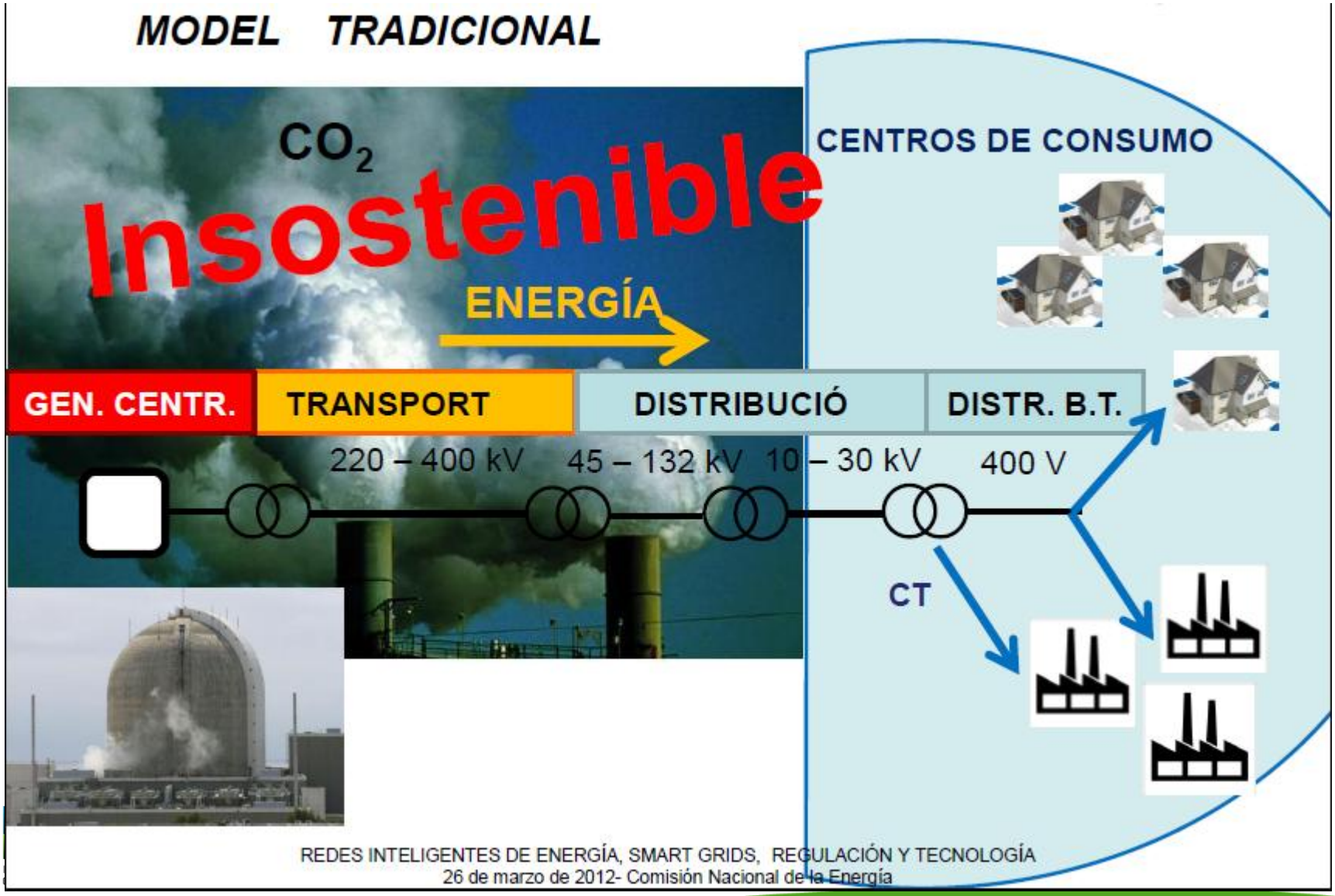
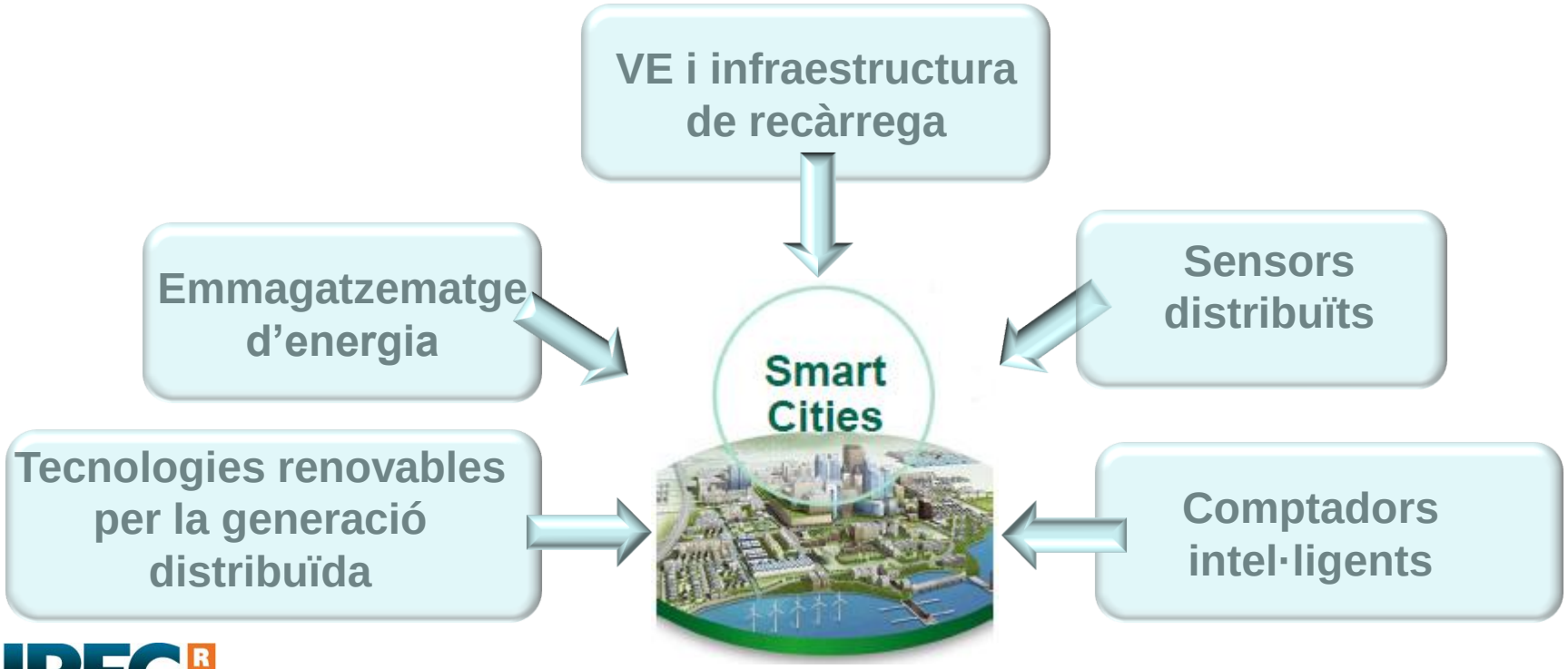
Grans nuclis de població amb gran demanda E.



Que podem esperar de les Smart Grids?

"Les Smart Grids són el nucli que fa possible la integració de diferent tecnologies en el concepte de Smart City"



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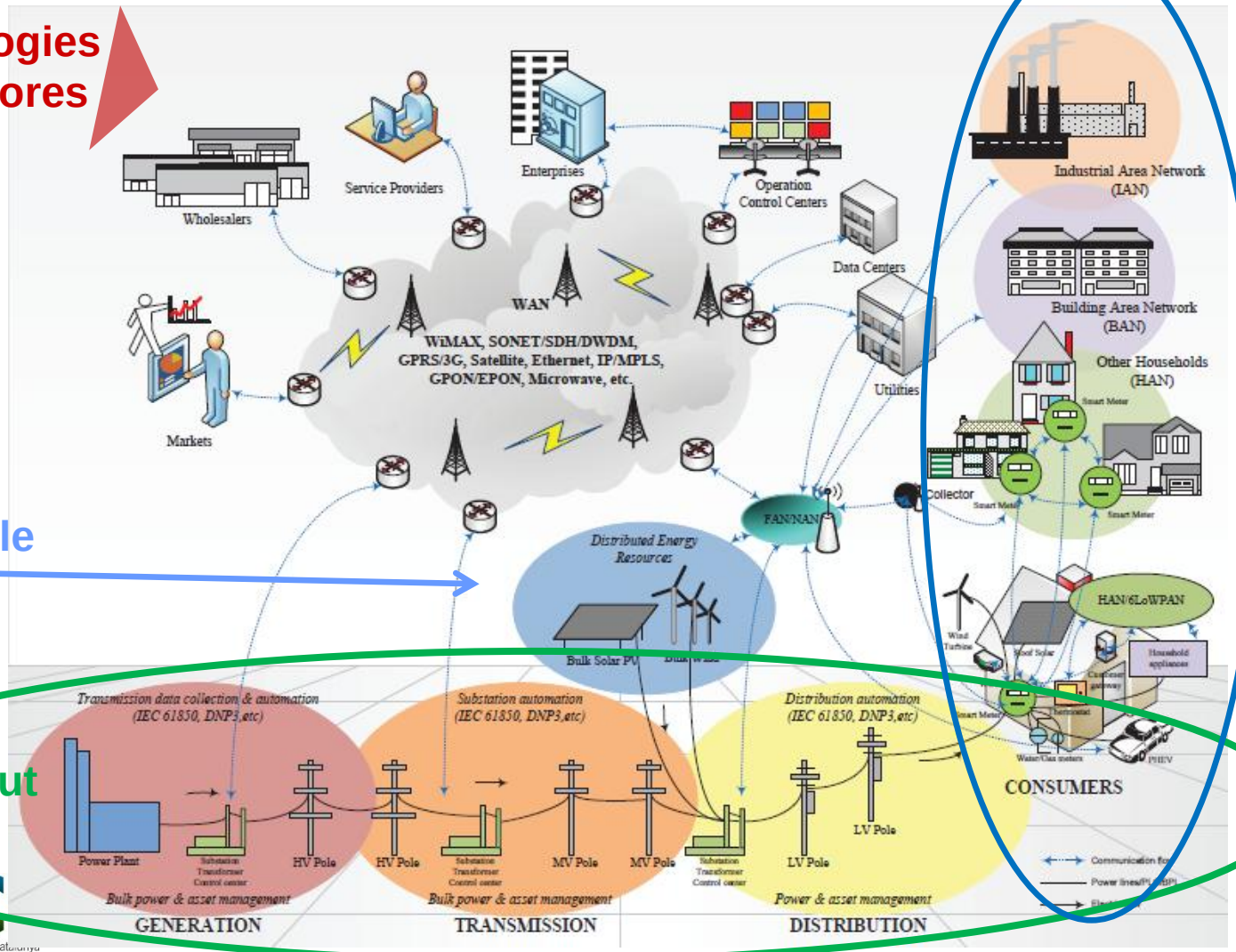
Recorregut Energètic cap a la Ciutat sostenible

Trecnologies facilitadores

Energia sostenible

Recorregut llarg

Generació propera al consum



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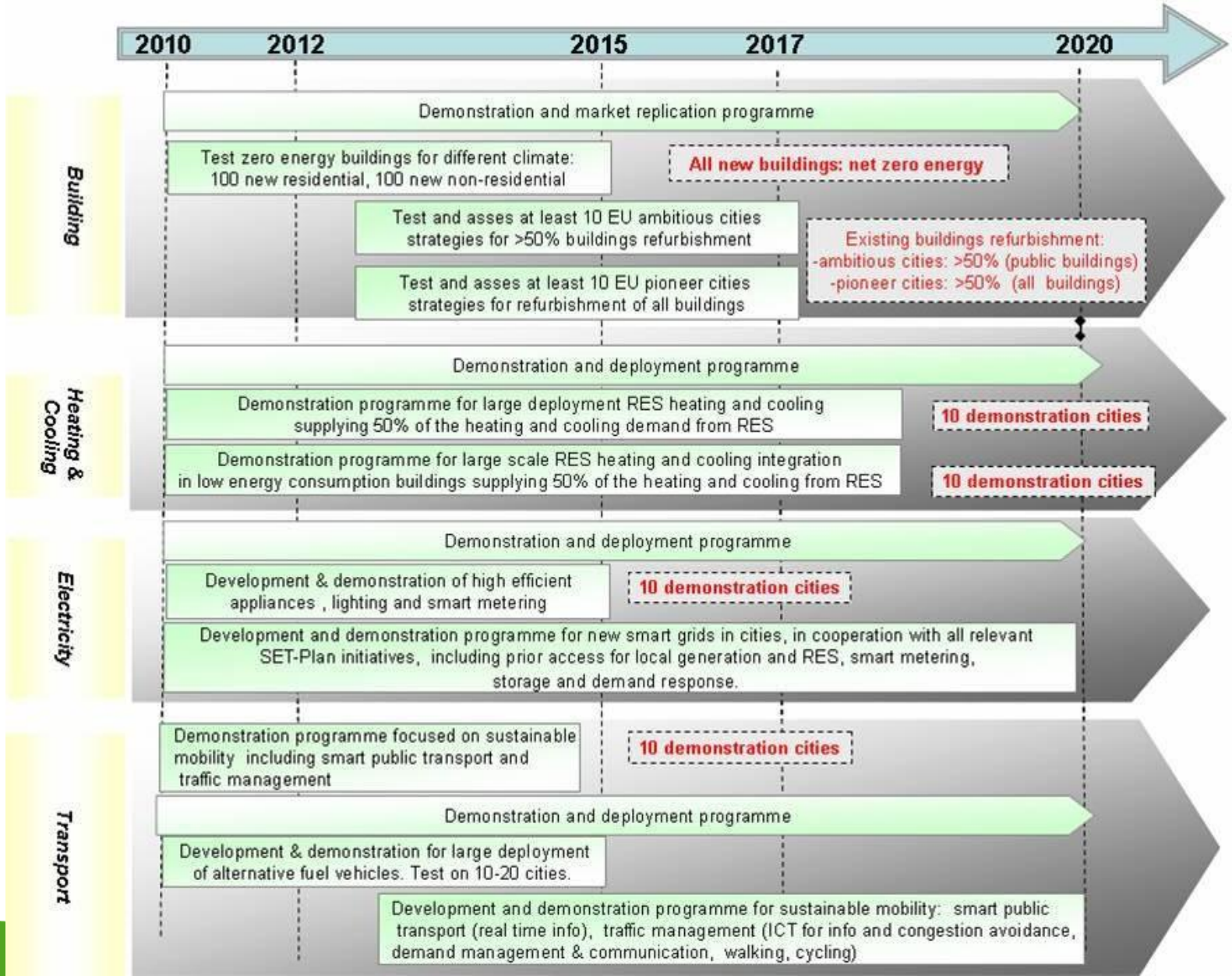
Expectatives de cara al 2035+

- Reducció de les emissions de gas hivernacle per sobre el 80% en el sector de l'energia el 2050
- Reduir la demanda energètica en un 41% pel 2050 cen comparació al 2006
- La proporció de RES aconsegueix com a mínim el 55% del consum final pel 2050
- La proporció de RES en el consum de l'energia aconsegueix entre el 64% i el 97%
- L'electricitat podria abastir en torn el 65% de la demanda energètica per passatger de vehicle en vehicle lleuger

Iniciativa Europea en Smart Cities



Topics FP7 – TIC relacionats amb Smart Cities

Objective ICT-2013.6.1 Smart Energy Grids

This objective explores the potential of bringing together stakeholders from both the energy utilities and the telecom sector to develop common approaches for future digital networks and smart energy services infrastructure for electricity distribution. The focus is on data manageme
with end
(Distributi

Targeted

Intelligent
that will
controlled

Key resea

a) Sh
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b) In
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in

c) IC
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Objective GC-ICT-2013.6.6 Electro-mobility

The European Green Car Initiative (EGCI) is part of the European Economic Recovery Plan launched in November 2008 to respond
Partnership (PPP) aims at demand-side
sustainable forms of road transport. The
the cost- and energy-efficiency of the fu
application of advanced ICT. Objective
Environment, Energy and Transport are co

This objective addresses fully electric veh
that provide significant driving range o
having an on-board electrical generator
light-weight passenger and duty vehicle
advance the research, development and in
for its infrastructure integration.

Target outcomes:

a) Advanced System Architecture for

New or expanded functionality of existi
leading to radical cost reduction, reduced
higher energy efficiency.

Funding schemes

STREPs

Indicative budget distribution

EUR 20 million

Call

FP7-ICT-2013-10

Objective ICT-2013.6.3 ICT for water resources management

ICT offers an untapped potential to improve the management of water resources by integrating real-time knowledge about water consumption at domestic, corporate and city level, and by enabling subsequently the implementation of efficient resource and demand management strategies and pricing schemes. This objective brings together the ICT and water stakeholders in joint research, in order to document the ICT potential via lessons learned from real-life testing and demonstration experiments.

Targeted outcomes:

The aim is to pilot and demonstrate innovative ICT systems and services for efficient water use and reuse, in order to improve household, business and societal awareness, to induce changes in consumer behavior and to enable the introduction of innovative resource and demand management schemes and adaptive pricing incentives.

Key research challenges to be addressed include:

a) Providing quantifiable evidence of the potential of ICT to contribute to efficient water resources management by increasing household, business and industry awareness regarding water use, triggering the adoption of new demand management and pricing schemes, and contributing to meeting EU resource efficiency targets in a digital society.

Topics FP7 – TIC relacionats amb Smart Cities

Objective EEB-ICT-2013.6.4 Optimising Energy Systems in Smart Cities

Cities are increasingly recognized for their ability to play a catalytic role in addressing climate and energy challenges using technologically innovative approaches. This can be achieved by creating new partnerships connecting city leaders and stakeholders to secure practical commitments for implementing green digital agendas.

Projects supported under this objective shall contribute to the Energy-Efficient Buildings Public-Private-Partnership launched in 2008 as part of the European Economic Recovery Plan. This objective is part of the Smart Cities initiative between Theme 5 (Energy) and Theme 7 (Transport). In particular it is complementary to the topic "Demonstration of Optimised electricity and heating/cooling systems". Here the focus is on software systems for new business models and user engagement whereas in Theme 5 the focus is the physical integration (including power electronics devices).

Target Outcomes

a) Decision-support systems and/or management and control systems for energy-efficient neighbourhoods. These systems shall consider de-centralised renewable energy production, connection with the smart electricity grid and integration with smart district heating and cooling grids through CHP (Combined Heat and Power) and other renewable energy sources. They shall optimise the use of energy in city areas with different types of demand to enable local balancing, demand response services, variable tariffs and easy change of supplier.

Proposals should cover (i) technical developments, mainly adaptation and integration of existing ICT, (ii) a substantial validation phase in real-life environments in at least two cites and (iii) a precise evaluation phase where proposals shall record evidence of energy savings, total cost of operation, scalability of the solutions, user's acceptance, benefits that accrue, and extract lessons for those planning to deploy and finance such systems.

Exemple prj. Innpronta

ENE 03

Innpronta CIUDAD2020

CIUDAD2020 es un proyecto Innpronta que pretende lograr un **avance en las áreas de eficiencia energética, Internet del futuro, Internet de las cosas, comportamiento humano, sostenibilidad medioambiental y movilidad y transporte**, con el objetivo de diseñar la ciudad del futuro, sostenible, inteligente y eficiente.

Por ello, CIUDAD2020 concibe, diseña e implementa un nuevo paradigma de ciudad sostenible y eficiente sustentada sobre tres ejes fundamentales:

1. Energía
2. Transporte
3. Control medioambiental

> *CIUDAD2020 logrará los objetivos 20-20-20: Reducción de un 20% de emisiones, producción de un 20% de energía renovable y mejora de un 20% de la eficiencia energética*

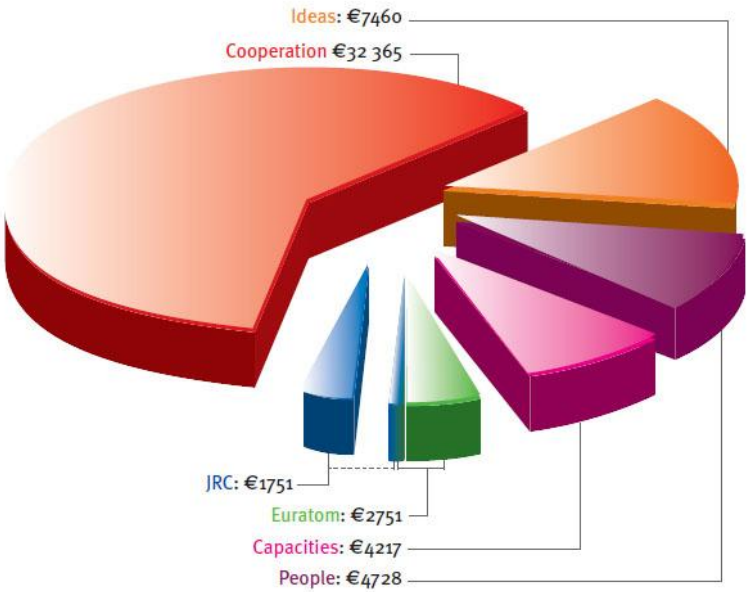
Para ello, se postula al Internet del Futuro como el elemento habilitador básico capaz de estimular las sinergias entre los ejes antes citados así como la interacción con los ciudadanos haciendo que CIUDAD2020 se convierta en un mo referencia hacia el que toda ciudad deba evolucionar si se quiere alcanzar los cánones de calidad de vida, efici sostenibilidad que deben imperar en las urbes del siglo XXI. A tal fin, se ha conformado un consorcio de empresas con gran experiencia a nivel nacional e internacional que asegura la proyección de los resultados obtenidos du ejecución de la propuesta.

Participantes

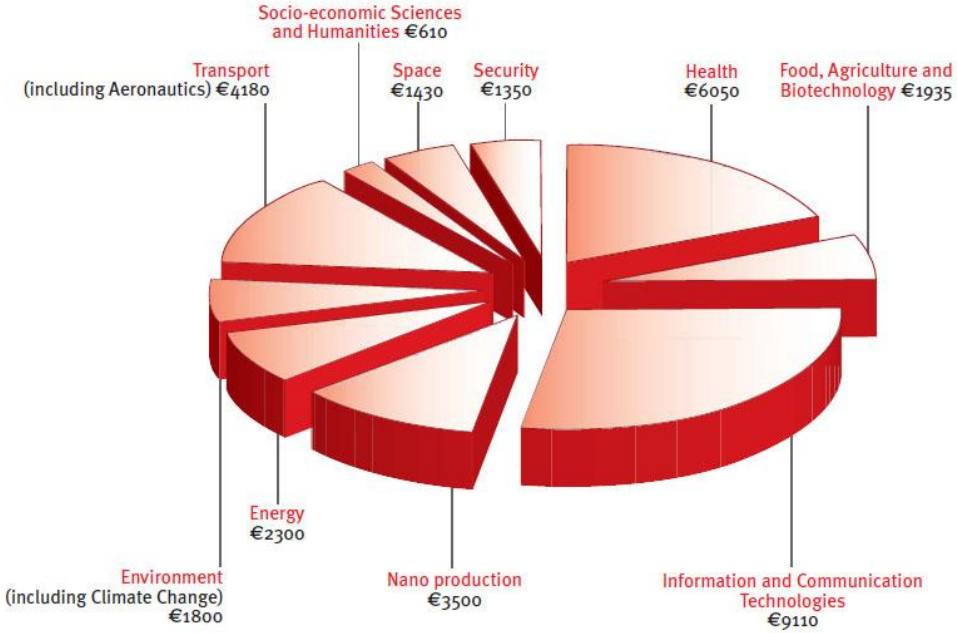
Organismos de Investigación

Finançament en R+D EU: FP7 i Horizon 2020

The indicative breakdown (€ million) of FP7



The Cooperation Programme breakdown (€ million)



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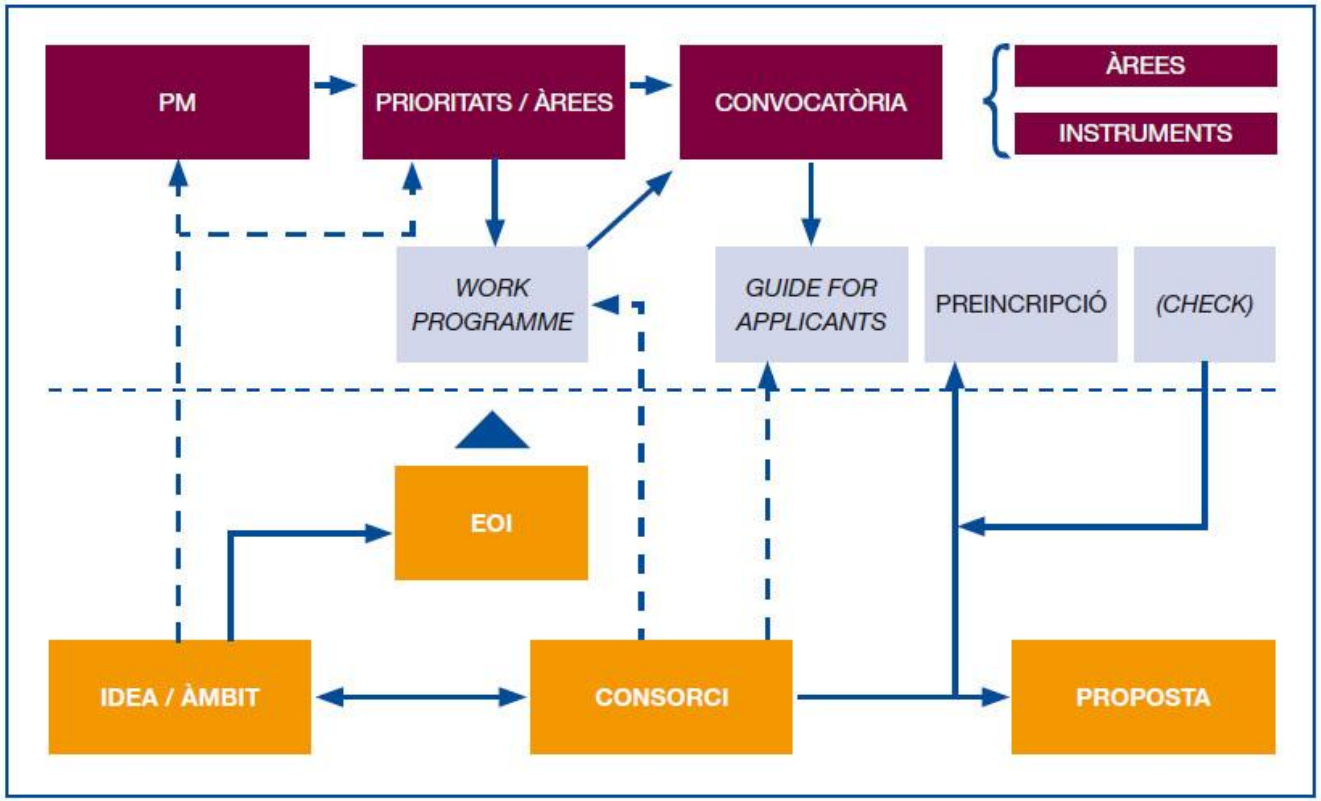
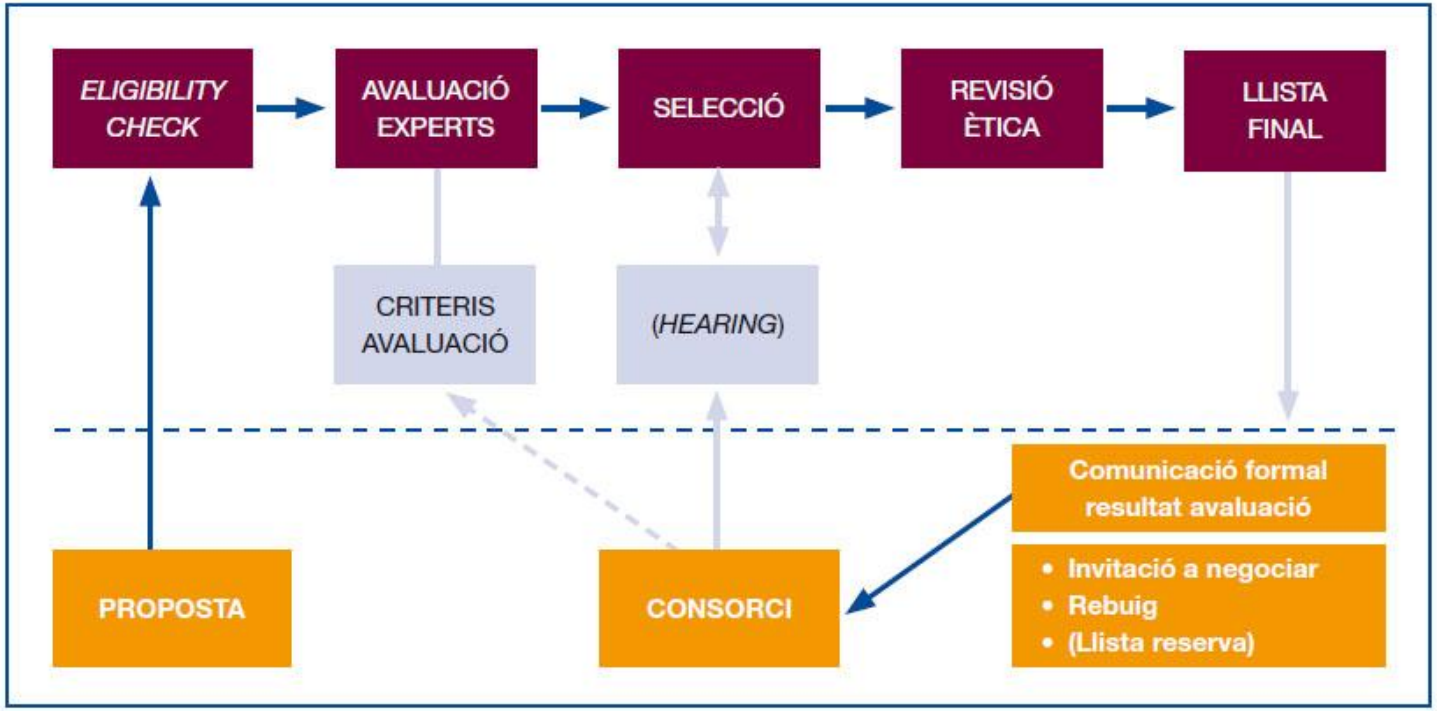
Preparació de propostes

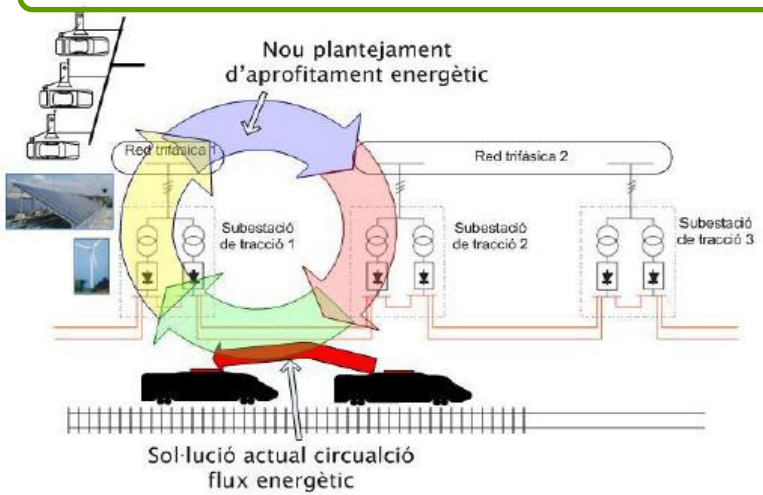


Avaluació de propostes

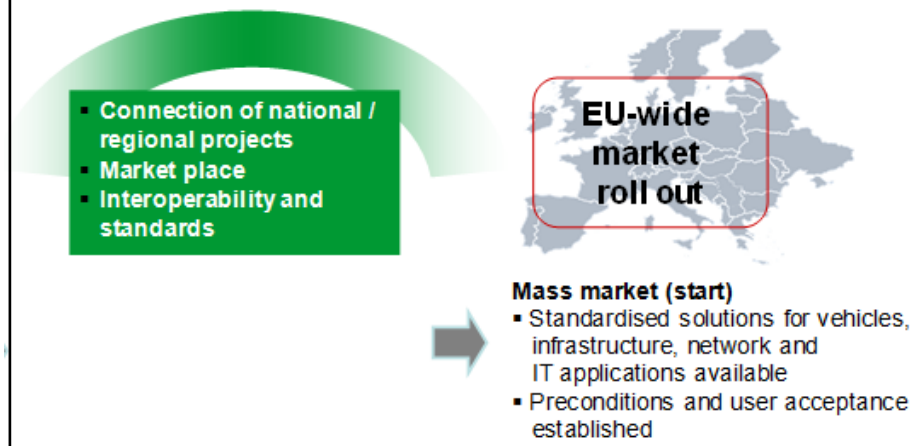


Alguns projectes IREC sobre Smart-City

Charge & Ride (Nuclis cooperatius)



Green E-motin: (FP7 – mobilitat elèctrica)



BeeZi ('FP7' – Consorci Zona Franca)

SMART CITY LIVING LAB (Endesa)

Moltes gràcies!

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