



Smart Consumer - Smart Customer – Smart Citizen
3rd ADB meeting + Final Conference
23 + 24 September 2015
Neue Mälzerei, Berlin, Germany

www.s3c-project.eu



S3C

Smart Consumer, Smart Customer, Smart Citizen : The Digital 3C Transformation

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President of ESMIG
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1

**Energy Value
Chain & 3C**

2

**Digital
Energy**

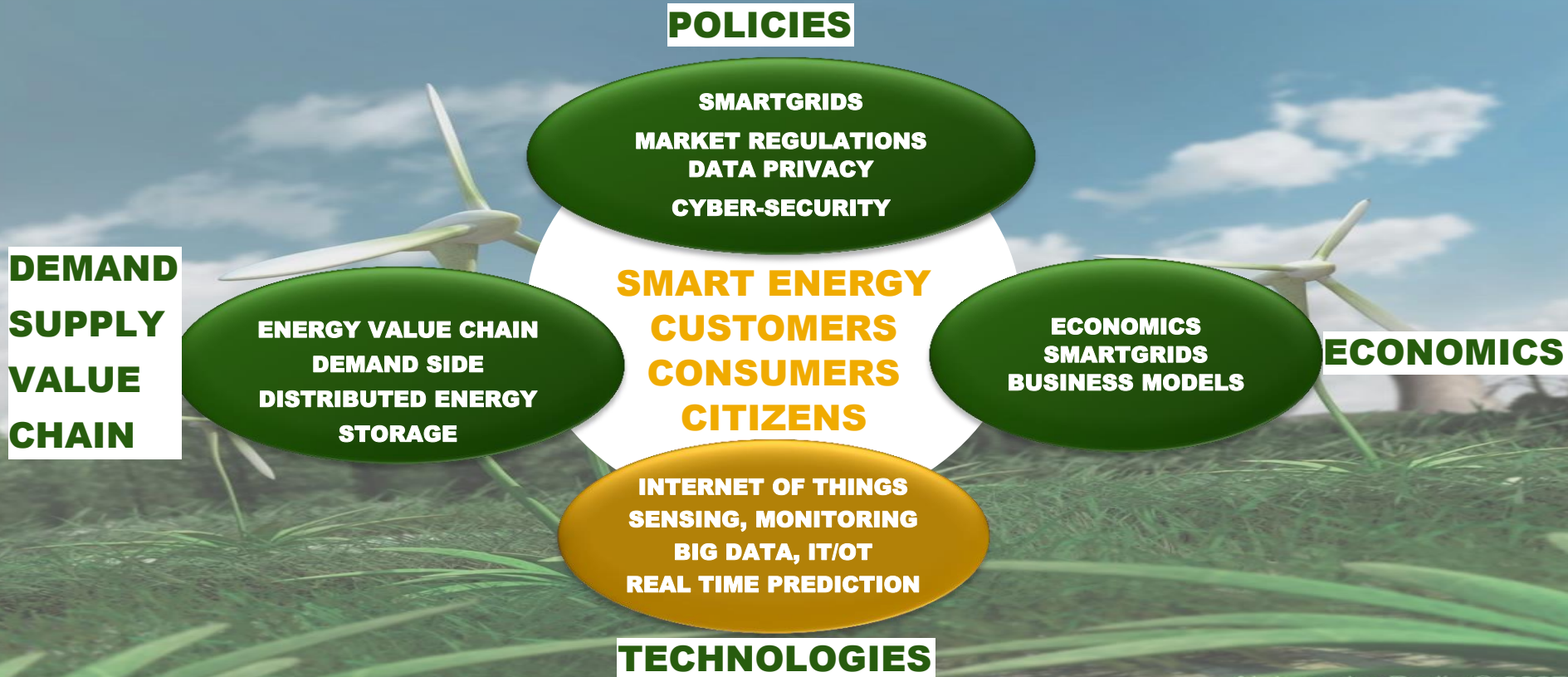
3

**3C Intelligence
Examples**

4

**What will
Change ?**

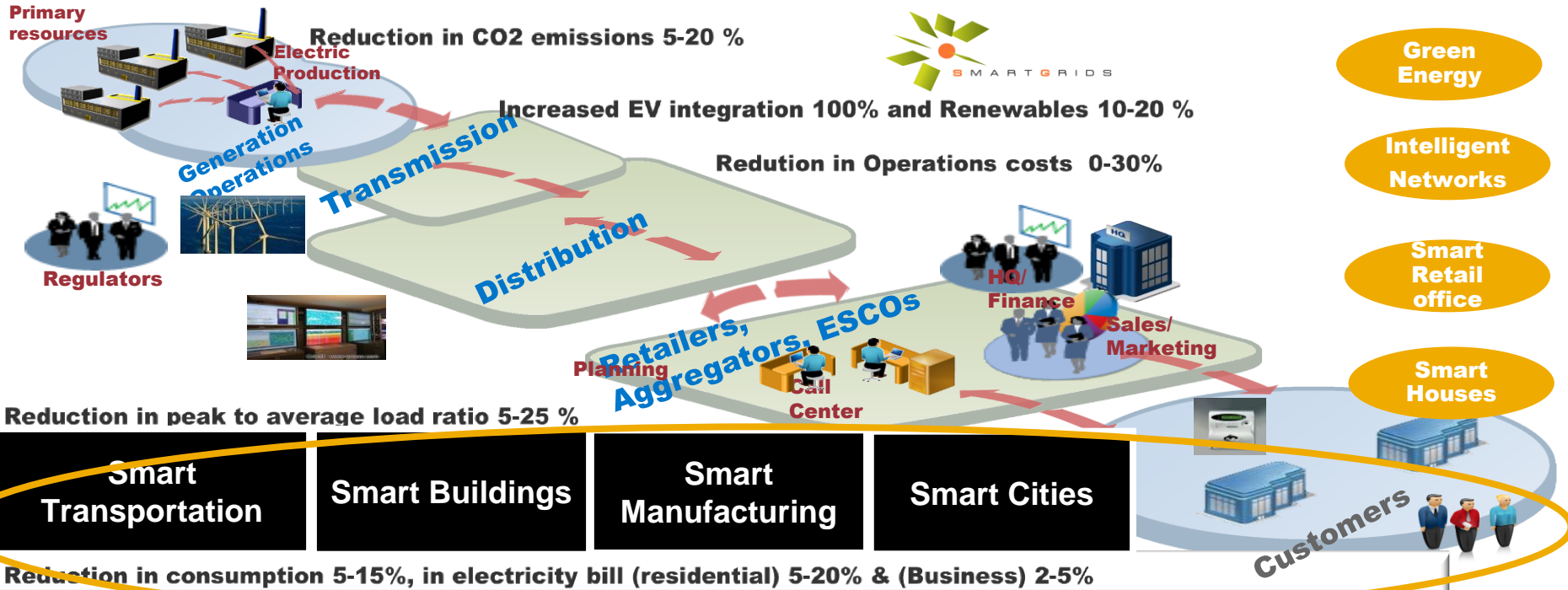
Consumers, Customers and Citizens at the center of the disruptive Energy transformation ?



The Smart Energy Value Chain : Example of Value Benchmarks and What's in for Customers, Consumers and Citizens (3C)

KEY MESSAGE

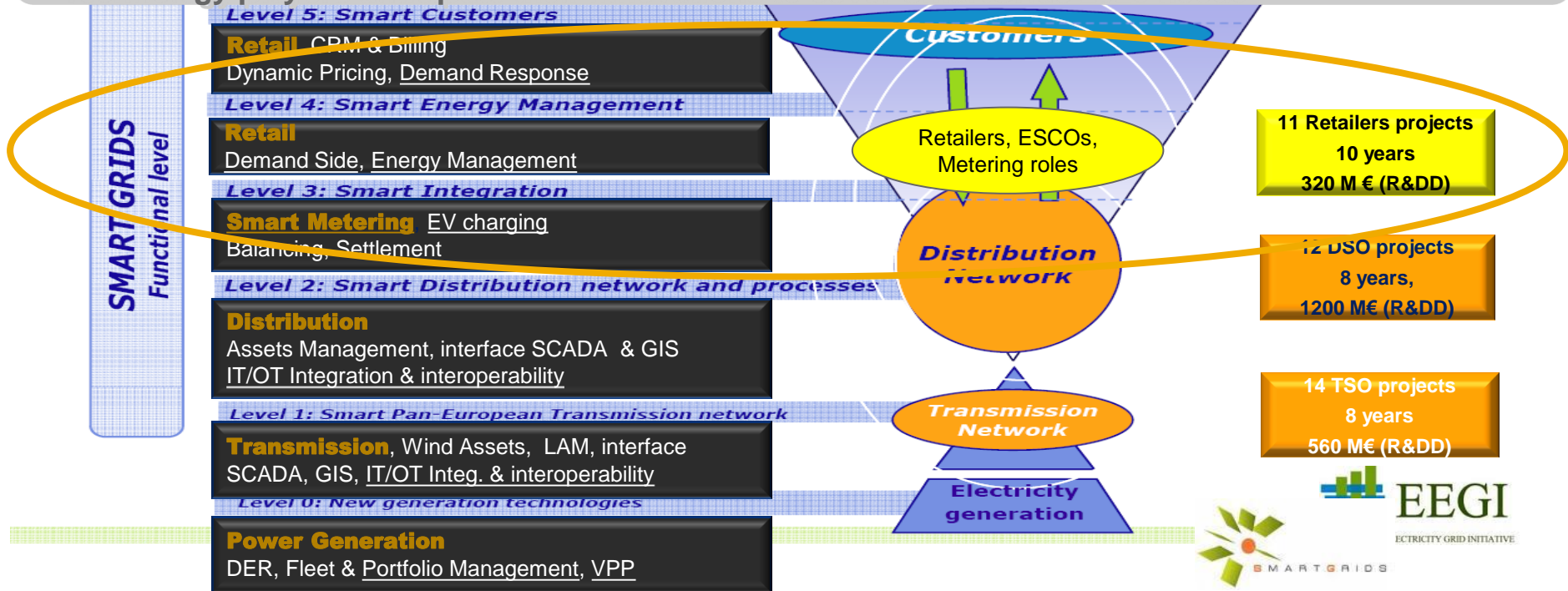
- SmartGrids = Optimal Energy Supply Chain + Energy Efficiency



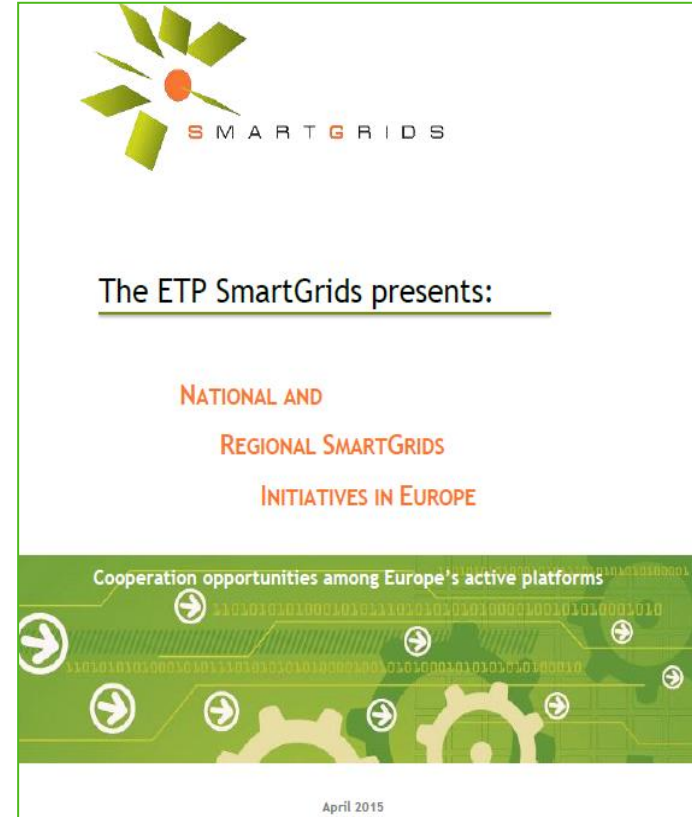
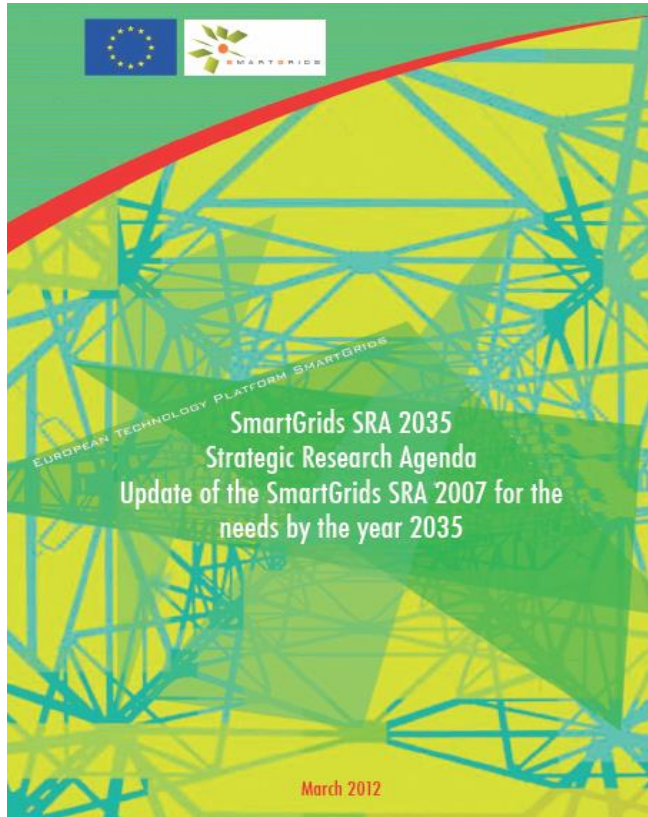
SmartGrids and ICT Solutions needed to cover requirements 2020+ for Customers, Retailers, DSOs, TSOs and Power Generation

KEY MESSAGE

- 2 b€+ R&DD estimated large scale 37 projects for TSOs, DSOs & Retailers
- Technology players anticipate their innovations to cover SmartGrids 2020 needs



ETP SmartGrids : SRA 2035 and NTPs SmartGrids



ETP SmartGrids Retail white paper



Energy Retailers' Perspective on the Deployment of Smart Grids in Europe

The Smart Grid is only a platform for a Smart Energy Ecosystem, in which Customers play the first violin.

Reflections on a complex Multi-Party energy issue.

Disclaimer:
 This document should not be used for any other purpose except to help to determine a common position among individual experts in the European energy markets.

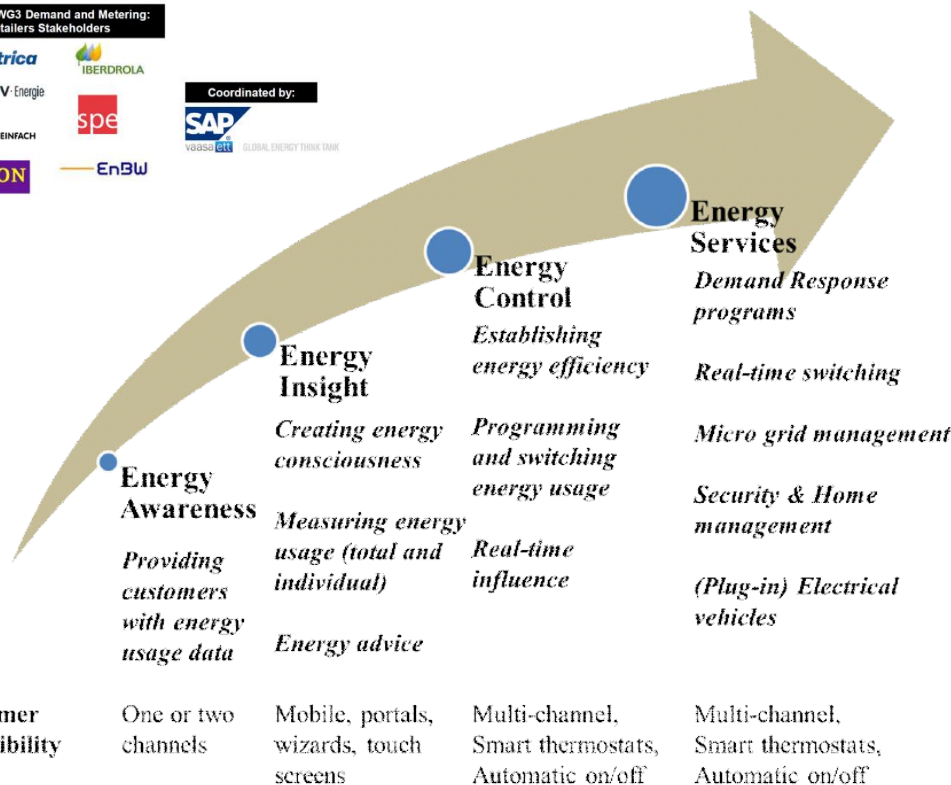
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ETP SmartGrids WG3 Demand and Metering:
 Energy Retailers Stakeholders



Coordinated by:



17 Smart Metering Use Cases defined by ESMIG



		Grid operator	Meter Administrator	Meter Operator	Meter Data Collector	Meter Data Responsible	Metering Point Administrator	Billing Agent	Consumer	Balance Supplier
1	Obtain Meter Reading Data				X	X		X		X
2	Install, Configure and Maintain the Metering System		X	X		X	X			
3	Support Prepayment Functionality					X		X	X	X
4	Manage Power Quality Data	X							X	
5	Manage Outage Data	X				X				
6	Facilitate Demand Response Actions							X	X	X
7	Facilitate Distributed Energy Resources (DER) for Network Operation	X								X
8	Manage the Network using Metering System Data	X								
9	Manage Interference to Metering System			X			X			
10	Manage Tariff Settings on the Metering System				X	X			X	X
11	Enable and Disable the Energy Supply							X	X	X
12	Interact with Devices at the Premise	X							X	
13	Manage Efficiency Measures at the Premise using Metering System Data	X			X	X			X	X
14	Display Messages				X	X			X	X
15	Customer Move-in/Move-out		X	X	X	X	X		X	X
16	Supplier Change		X	X	X	X	X		X	X
17	Demand Side Management	X								

ESMIG: studies and reports delivered



Innovative Use Cases, Architecture and opportunities for the future European Smart Metering Business Systems

Version 2.0 - October 2011

**European Business Systems
Integration and Interoperability
(EBSII) working group**

PART I

Boulevard A. Reyers 80, 1030 Brussels, Belgium
Phone: +32 2 706 82 57 Email: secretariat@esmig.eu - www.esmig.eu



Innovative Use Cases, Architecture and opportunities for the future European Smart Metering Business Systems

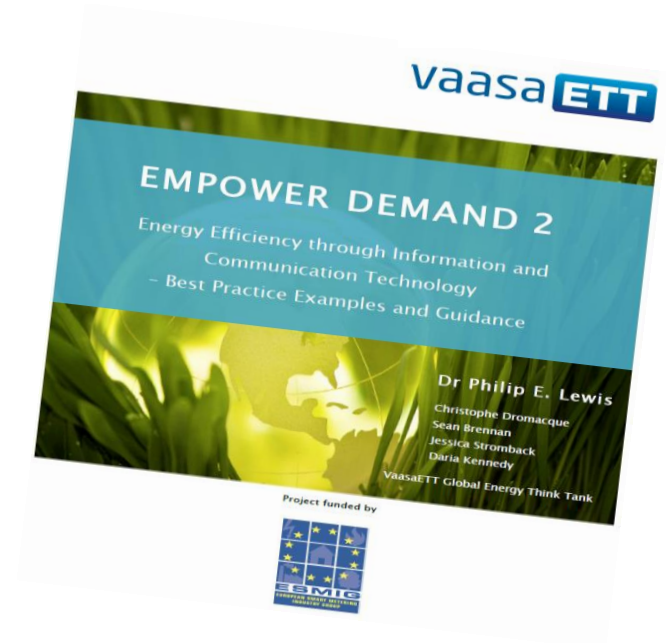
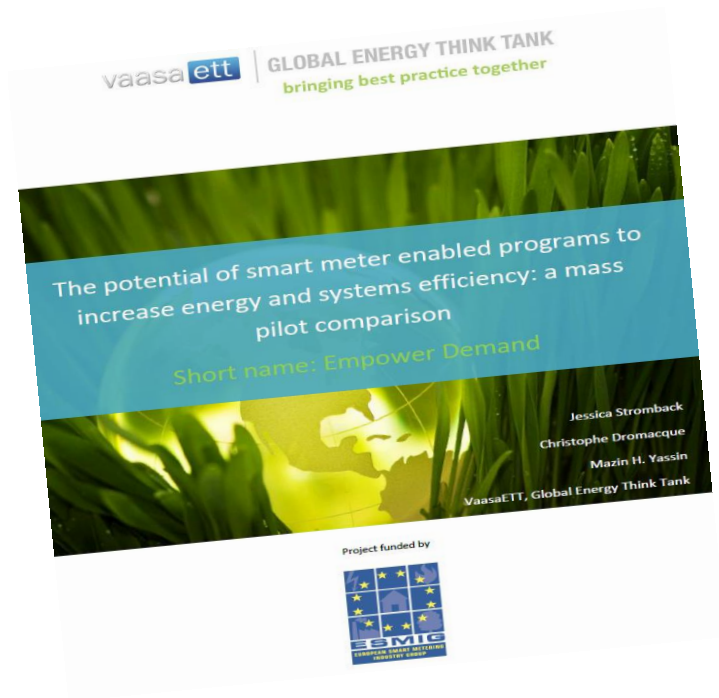
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ESMIG: studies and reports delivered



New European website for SmartGrids and Smart metering engagement of Consumers in Europe



METERING & SMART ENERGY INTERNATIONAL

THE REVENUE ASSURANCE COMPANY

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Smart grid consumer engagement: new European website aims to win hearts

Posted by: Rose Bundock June 18, 2015 Leave a Comment

The European Distribution System Operators for Smart Grids (EDSO) and the European Smart Metering and Management Industry Group (ESMIG) this week launched a consumer-focused website for smart grids and smart metering.



Smart grid consumer engagement: European distribution companies are seeking to engage the public with advanced metering ahead of national rollouts

The site aims to deliver accessible explanations and materials targeted at consumers as well as local authorities, utilities and national information campaigns.

Launched during European Sustainable Energy Week in Brussels, www.my-smart-energy.eu is a pan-European portal.

Sign up Login

Sign up for our Email Newsletter

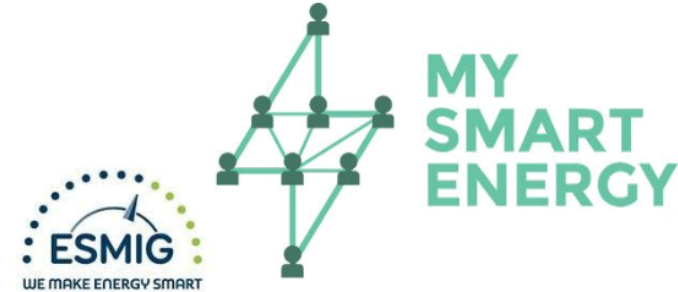
Submit



Making the Smart Grid Real

Metering TV

Press release



Brussels, June 17 2015 – Europe's consumers are increasingly presented with the opportunity to play an active role in a more sustainable energy system where efficiency, decarbonisation and renewable energy are central drivers. In the short-term, they will be confronted with technological changes necessary to adapt to this new energy paradigm. Before we can expect households to engage in the energy transition, becoming active energy players, stakeholders have a responsibility to help them understand: what is happening in their energy system, why it is happening, and which are the benefits for them and society.

Today marks the launch of My Smart Energy (www.my-smart-energy.eu), a new pan-European portal designed as a first step towards providing everyday household consumers in Europe with easy to understand information addressing these questions, from their perspective.

DISCOVER

SMART METERS & SMART GRIDS

WHAT CAN THEY DO FOR
ORDINARY ENERGY CONSUMERS LIKE ME?



Reliable energy when
you need it the most



Manage your energy
consumption and bills



Make a more sustainable
future environment



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**What will
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5 Technology Trends that are changing the world

01

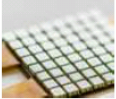
HYPER-CONNECTIVITY



Every consumer and every machine is connected, disrupting all the established rules around business channels. Connectivity drives the movement of goods, services, people, knowledge and wealth.

02

SUPER COMPUTING



The limits of 20th century computing power are gone. Networking and in-memory computing allow for the creation of infinite new business opportunities.

03

CLOUD COMPUTING



Technology adoption and business innovation now move at a lightning speed. Technology infrastructure is now rented to eliminate barriers to entry. B2B transactions are moving to new cloud based collaboration platforms, where millions of businesses and users are connected in a matter of days.

04

SMARTER WORLD



Sensors, robotics, 3D printing and artificial intelligence are the new normal. The new Outcome-Based Economy replaces products and services with results. Business will monitor products remotely for continuous improvement, the basis of the "Circular economy" concept⁶.

05

CYBER SECURITY



Bad actors have expansive new capabilities to attack, undermine and disrupt. But, trust remains the ultimate currency, giving security-focused businesses a significant advantage in brand reputation.



2.8B Internet Users Worldwide



30 trillion smart objects will be linked in the Internet of Things by 2020



1 Petabytes of data will be generated in 10 years from **22.8 trillion smart meter readings** of a large Utility serving 40 Mio customers



50% faster load forecasting (from 5 weeks to 4 hours) **1800X faster analytics and reporting** **80% reduction in energy costs**

TOMORROW'S SOLUTION



Cyber-security deals with securing data, interactions, identities, and collaboration with business partners



Projected spending on **cloud computing** infrastructure and platforms will grow at a **30% CAGR** from 2013 through 2018



In the next 5 years, revenues from the sales of **connected home** systems will **increase from \$1.9 billion to \$3.8 billion**

In 2014, **61% of North American Utilities** believed that by 2025 a **major cyber attack** will have caused widespread harm to a nations security and capacity to defend itself and its people

The Energy Digital Transformation is a reality

Tokyo Electricity Company (TEPCO), one of the worlds largest Utility Companies expects to deploy Mio 27 residential smart meters within its service territory by 2020

CenterPoint Energy implements a Predictive Maintenance solution that supports strategy of integrating information technology (IT) with operational technology (OT). **Alliander** implements a predictive load management solution using Smart metering and Real Time Big Data.

Google's Nest is a line of programmable, self-learning, sensordriven, Wi-Fi-enabled, connected smart products that promise energy efficiency, comfort, and security of people in their homes

Tesla makes solar energy available in the night with their power walls made with car battery Technology

Samsung says that 90 percent of its products -- which range from smartphones to refrigerators --would be able to connect to the Web by 2017

Wind Power Technology is currently the fastest growing source of electricity production in the world

Storage world energy market is estimated at 50 billion \$ by 2020



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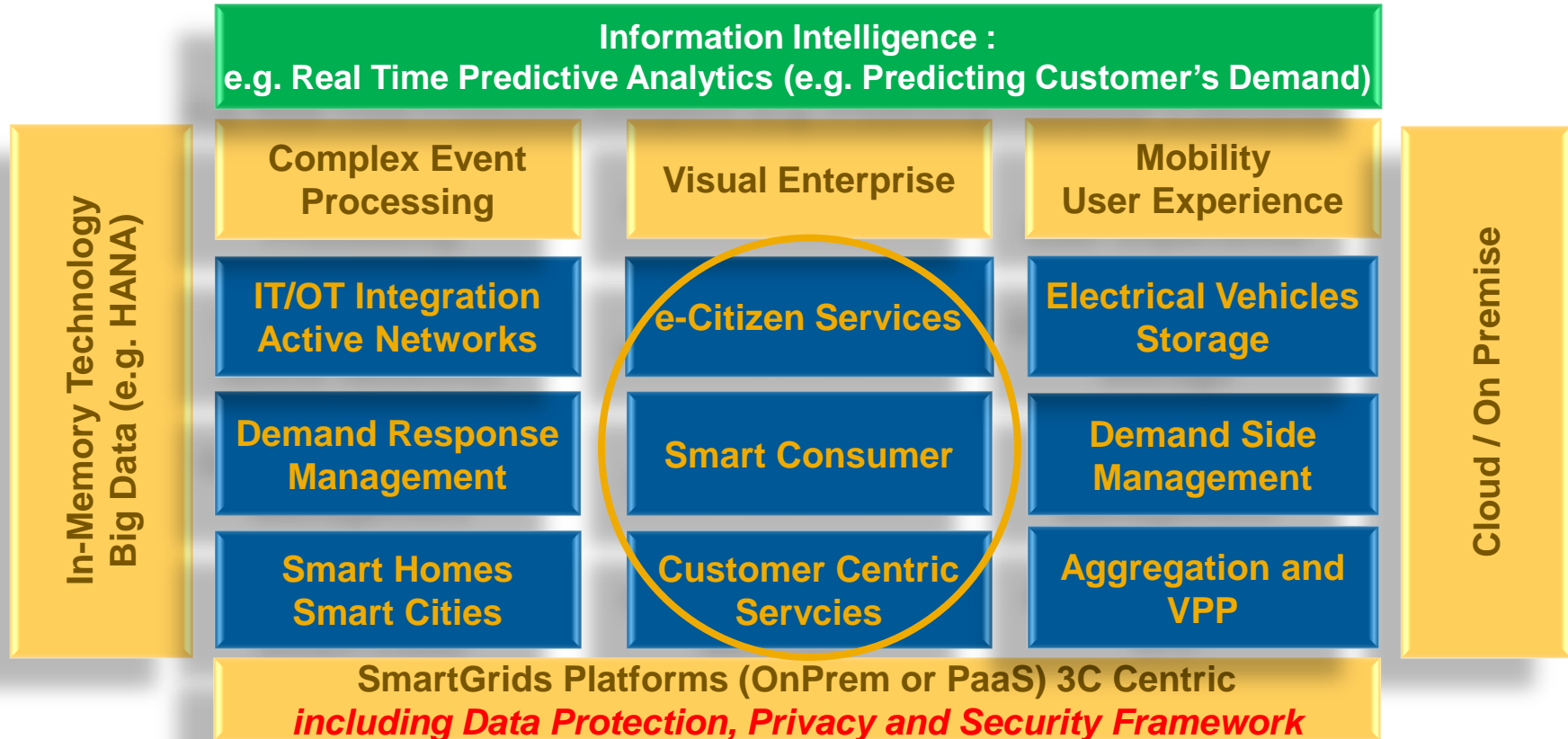
**3C Intelligence
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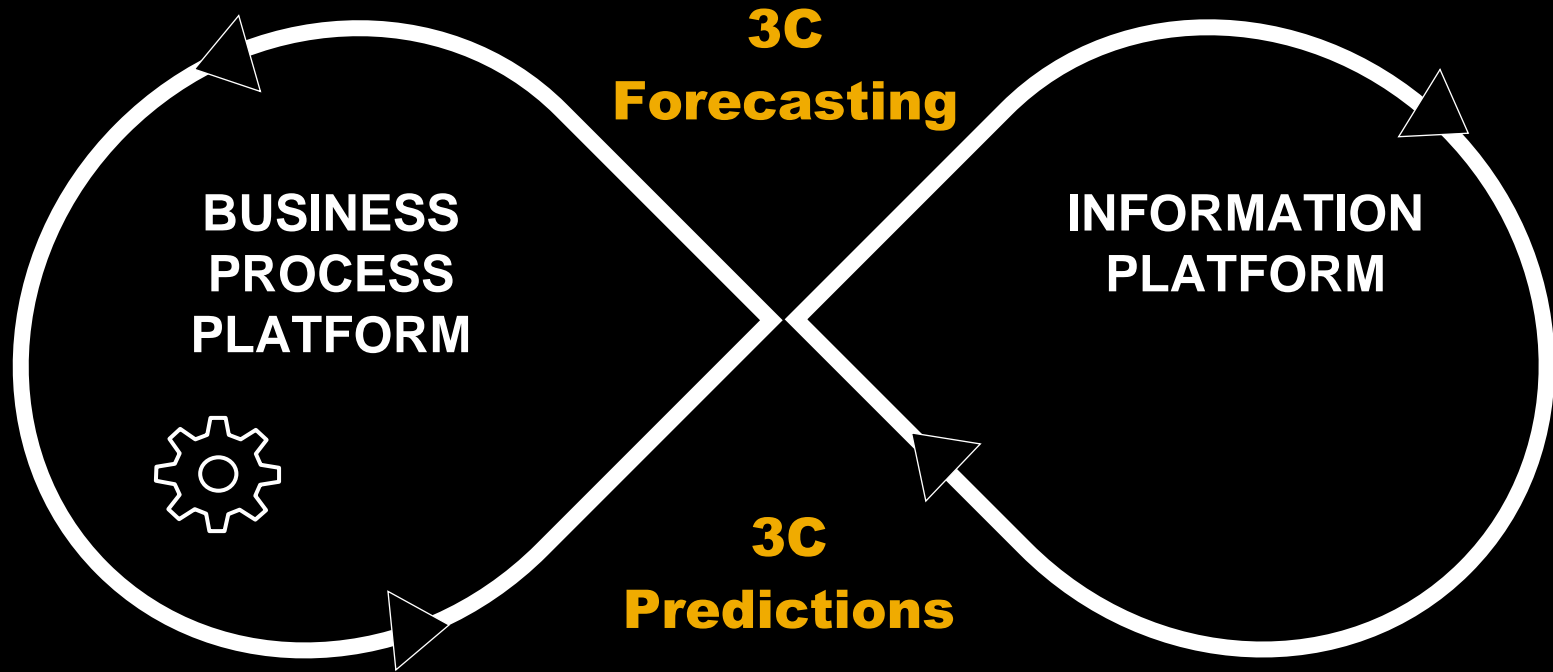
**What will
Change ?**

Digital Energy Transformation towards 3C Centric : **Business Processes** + **Information** + **Technology**

INTERNET OF THINGS
SENSING, MONITORING
BIG DATA, IT/OT
REAL TIME PREDICTION
TECHNOLOGIES

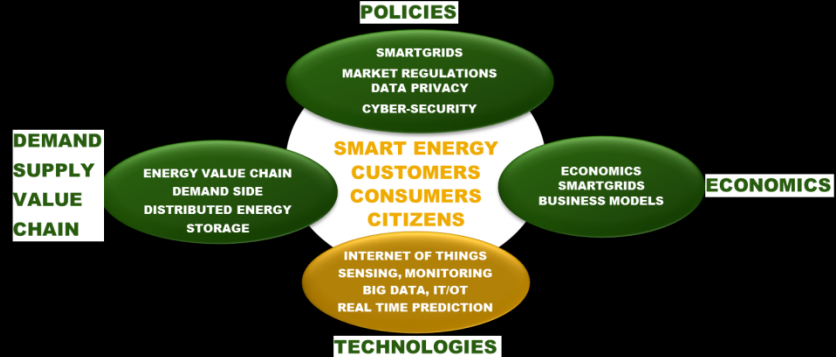
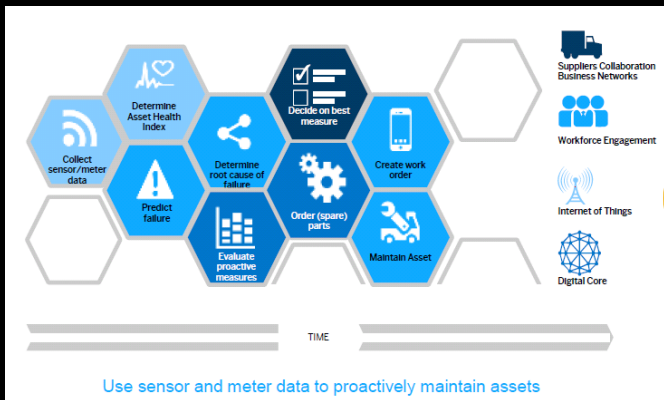


Integrating Processes, Information and Technology to enable new 3C forecasting and



Powered by Big Data in-Memory Technology Platform (e.g. SAP HANA)
and by a Secured Data Protection and Communication Framework

Digital generates new Scenarios like real time Customer load forecasting and many other real time 3C predictive analytics

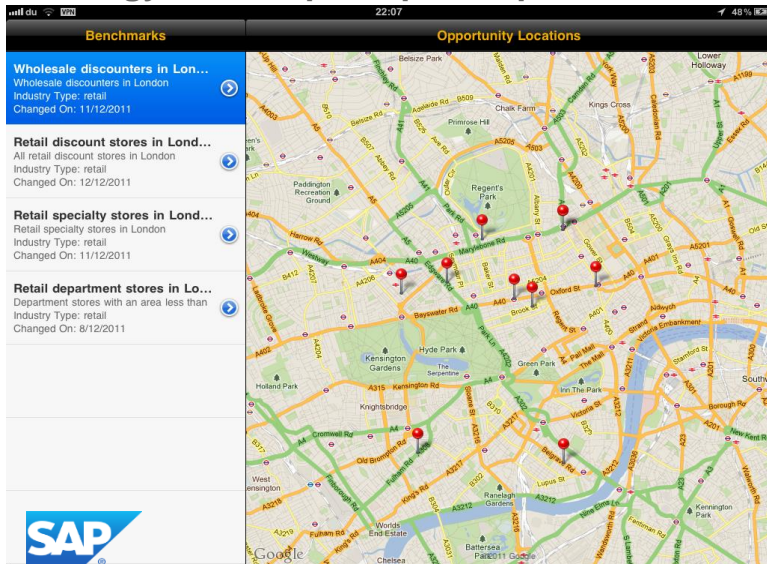


We are capable to Benchmark the Energy Efficiency of Stores, Divisions or Plants for Commercial & Industrial Customers anytime

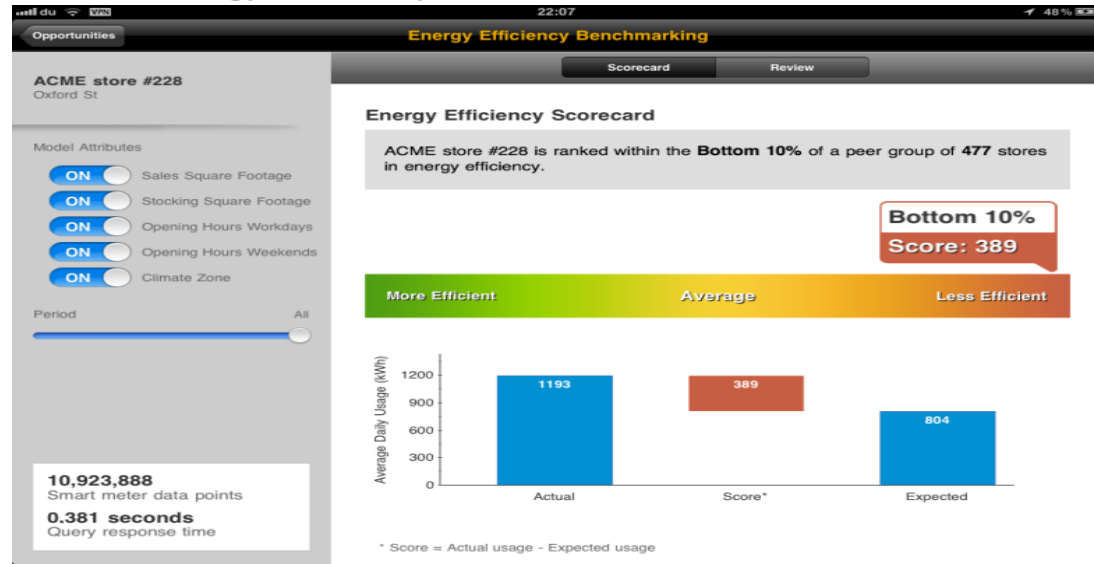
KEY MESSAGE

- C&I customers : Retailer with 477 stores
- Store # 228 scores 389 in bottom 10% Energy Efficiency
- 11 Million meter data points read in 0.4 seconds (HANA in-memory technology)

Energy consumption profile per customer



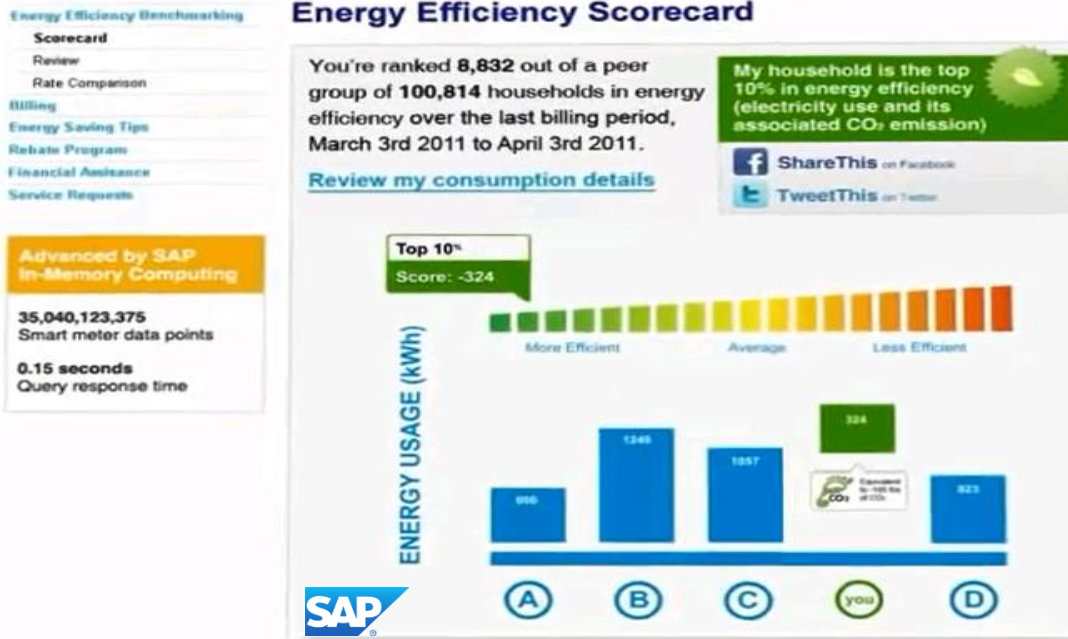
Energy efficiency benchmarks for C&I customers



Now Technology can Benchmark the Energy Efficiency of Residential Customers anytime

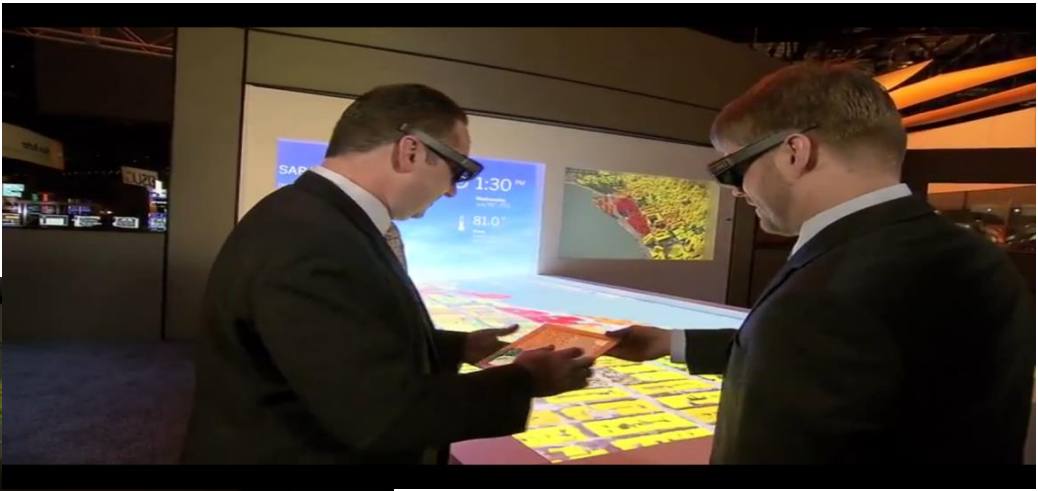
KEY MESSAGE

- Ranking of Residential customers in Energy Efficiency over the last billing period
- Example of a Household ranked 8,832 out of a peer group of 100,814 households



Measuring (1s) Energy Consumption “intensity” anytime using 2 years of Big Data measurement (1 B records)

SAPPHIRE NOW from Orlando: Jonathan Becher SAP CMO and Stefan Kruger from SAP - SAP HANA Showcase



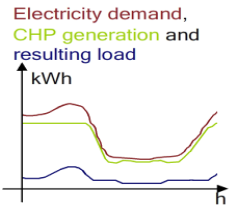
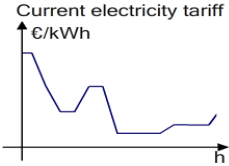
SmartHouse for SmartGrids

KEY MESSAGE

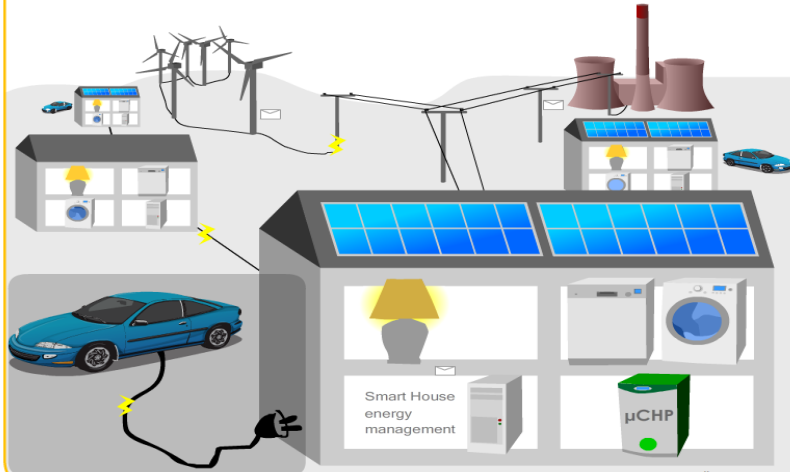
- The project SmartHouse/SmartGrid is about Smart Houses interacting with Smart Grids to achieve next generation energy efficiency and sustainability



SmartHouse/SmartGrid



The battery of an electric vehicle can be used for restoring stability in the island and the higher-level grid.



Car vector graphic by Omer Uzun



<http://www.smarthouse-smartgrid.eu/>

Like an «Apple Store» running on a HANA Cloud Platform (HCP) for Energy Services pan-European : H2020 project «**FLEXICIENCY**»



H2020 project led by ENEL
18 Companies contributing

ENR HCP “**FLEXICIENCY**”
Electricity pan-European
Marketplace for Distribution &
Retail :

Kind of “Apple Store” for Energy
Demand Services

Potential of 10 000 Utilities on the
same Public Marketplace



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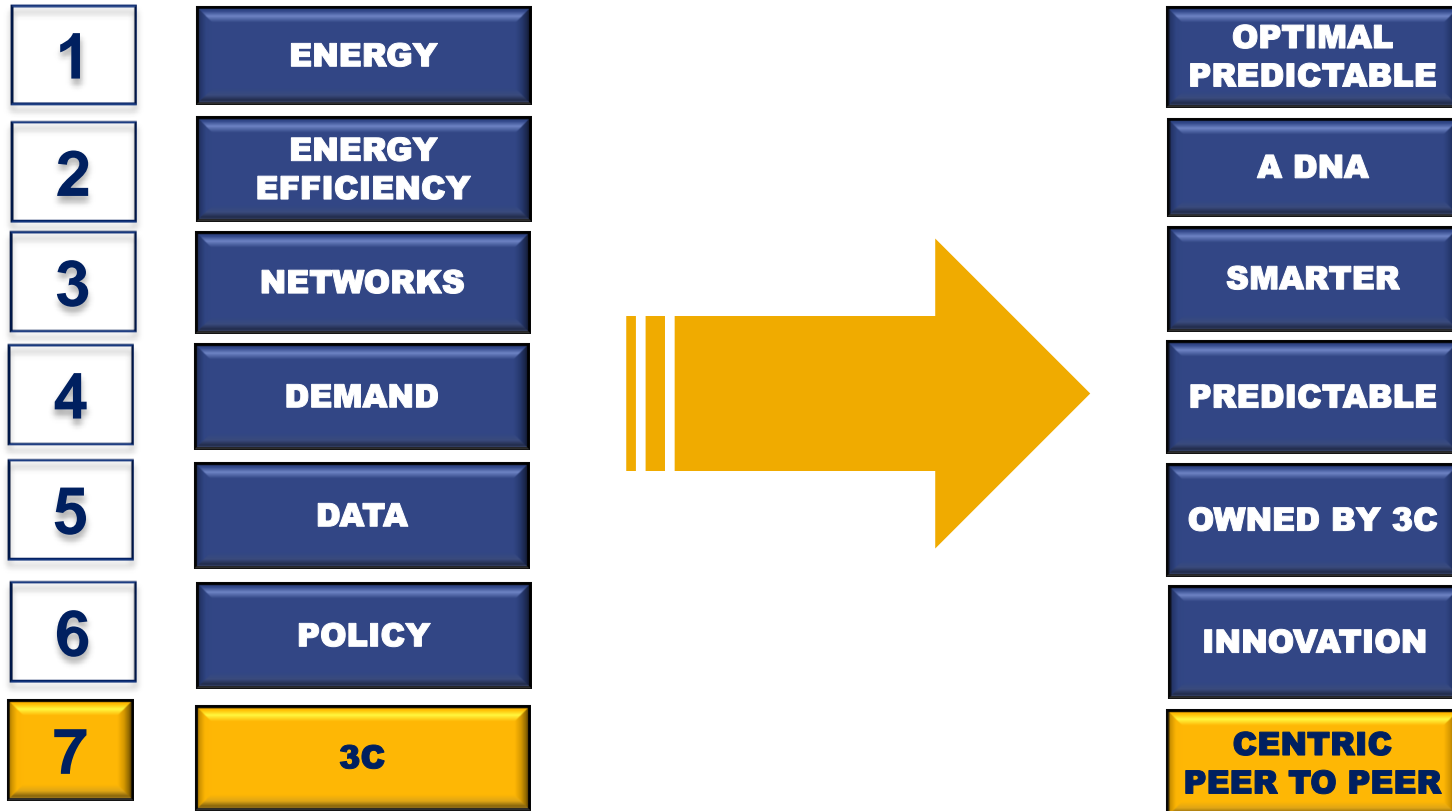
**3C Intelligence
Examples**

4

**What will
Change ?**

What will change with Energy and 3C ?

3C Empowered and Value Chain Reversed



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