



SmartPV

Smart net metering for promotion
and cost-efficient grid-integration
of PV technology in Cyprus

www.smartpvproject.eu

Partners:



University of Cyprus
PV Technology



Αρχή Ηλεκτρισμού Κύπρου
Electricity Authority of Cyprus



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<http://www.smartpvproject.eu/>

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PROJECT LOCATION: Cyprus

BUDGET INFO:

Total amount: 1,219,838 Euros

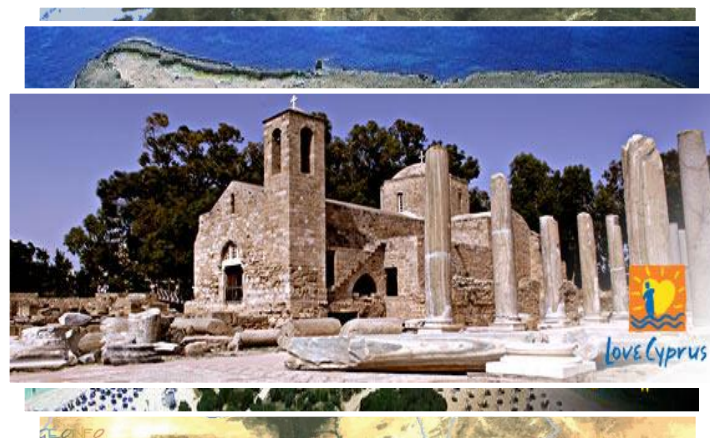
% EC Co-funding: 50 %

DURATION: 01/07/2013 – 01/03/2017

PROJECT'S IMPLEMENTORS:

Coordinating Beneficiary: PV Technology, University of Cyprus

Associated Beneficiary(ies):



Αρχή Ηλεκτρισμού Κύπρου
Electricity Authority of Cyprus



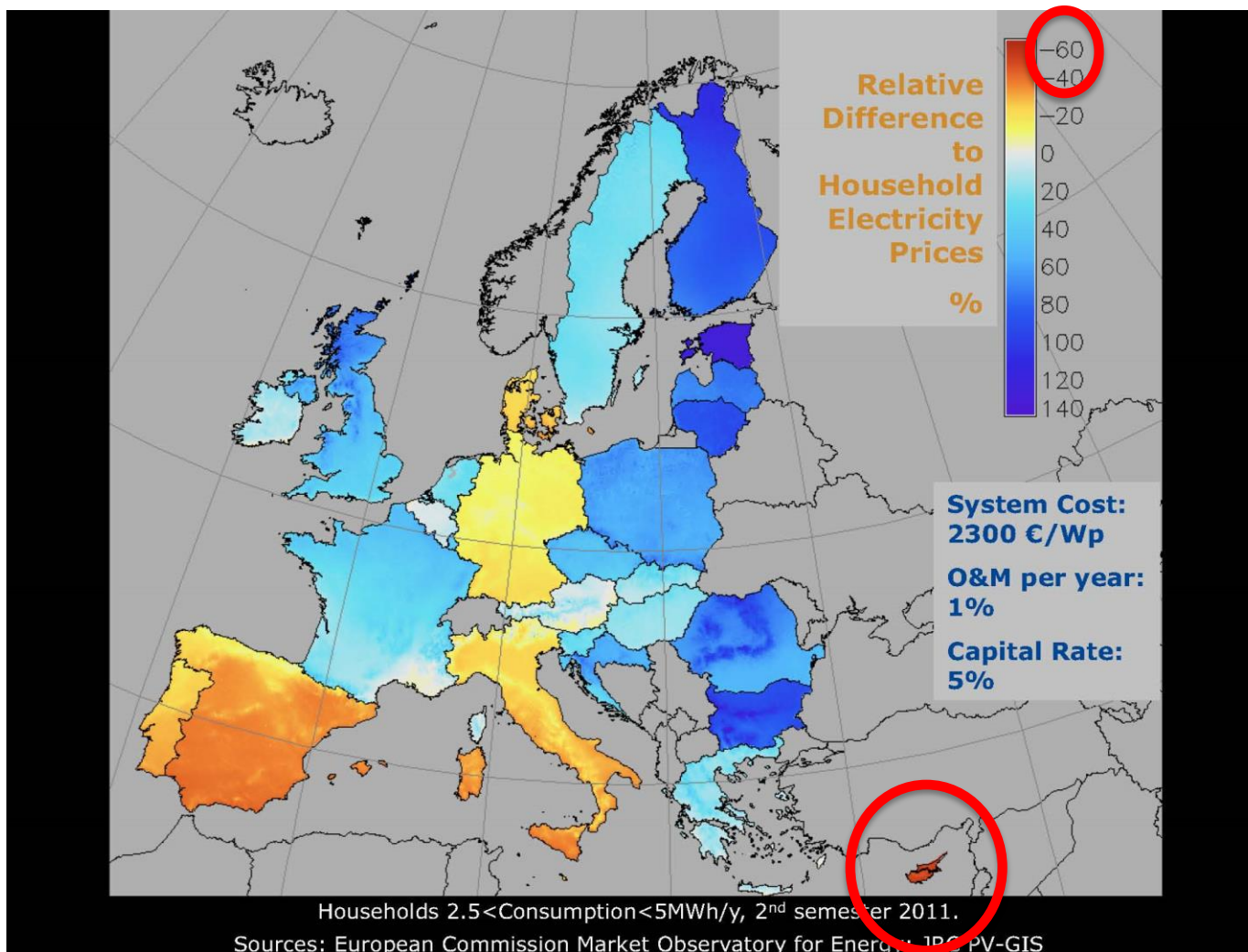
ρυθμιστική αρχή
ενέργειας κύπρου
cyprus energy
regulatory authority



ΤΜΗΜΑ
ΠΕΡΙΒΑΛΛΟΝΤΟΣ

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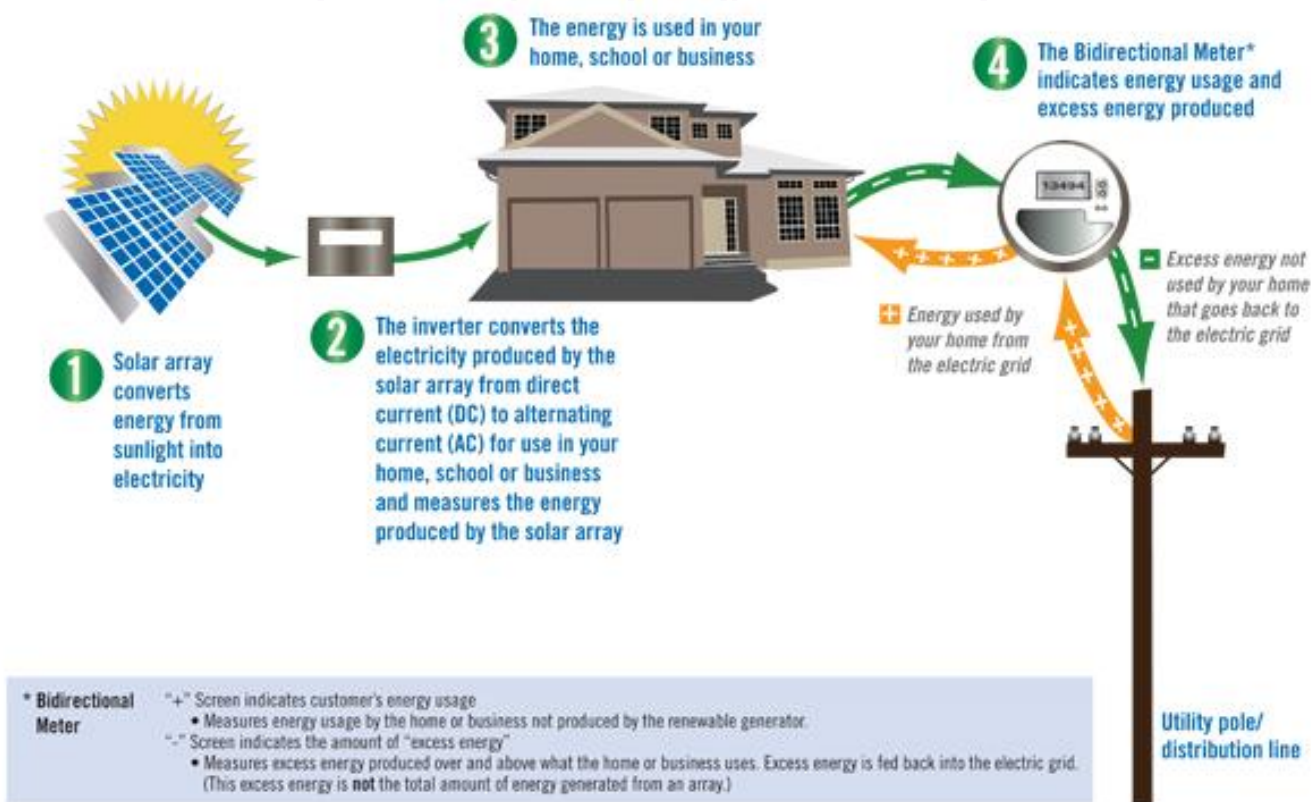
BACKGROUND



BACKGROUND

Calculation of the NET energy usage of a household using a bidirectional meter

→ (consumption) – (production)

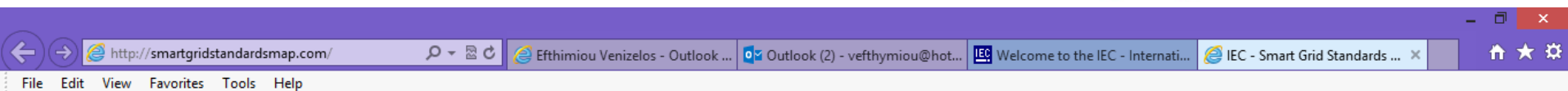




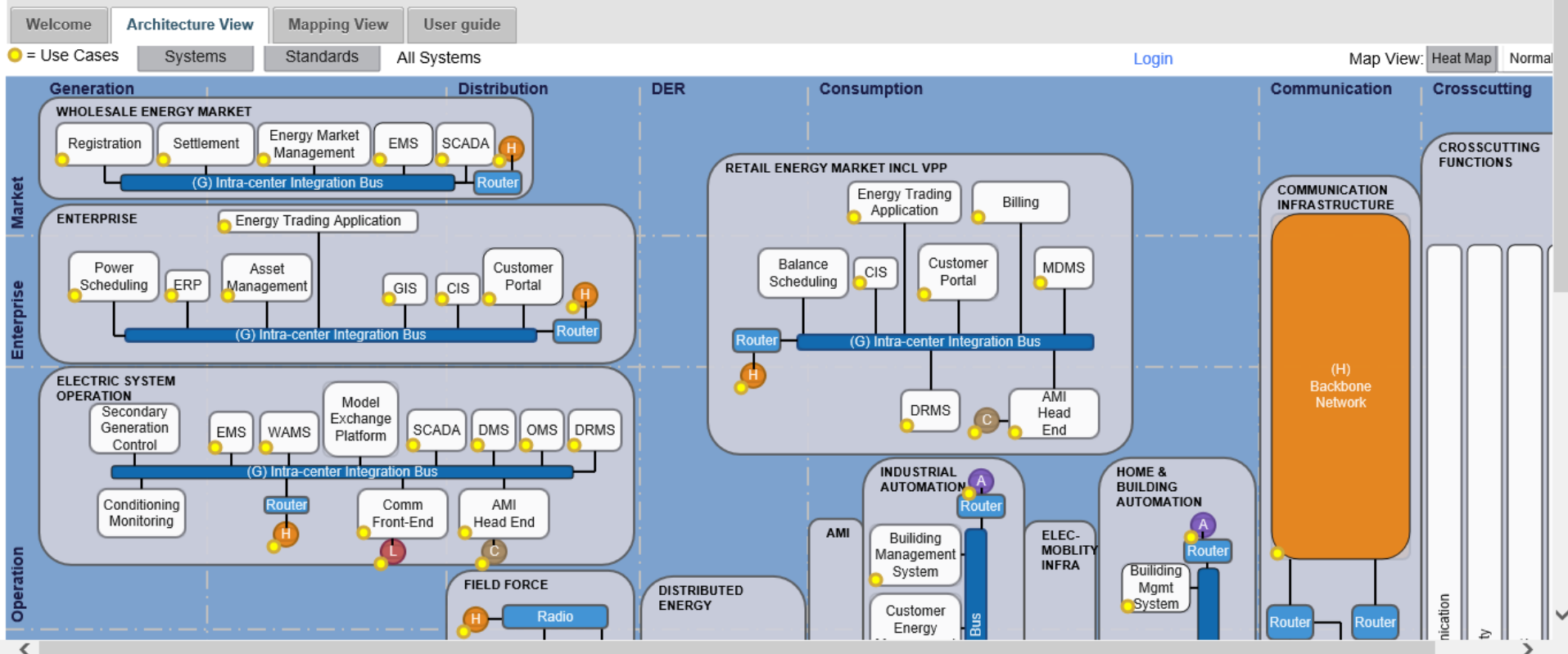
AIMS

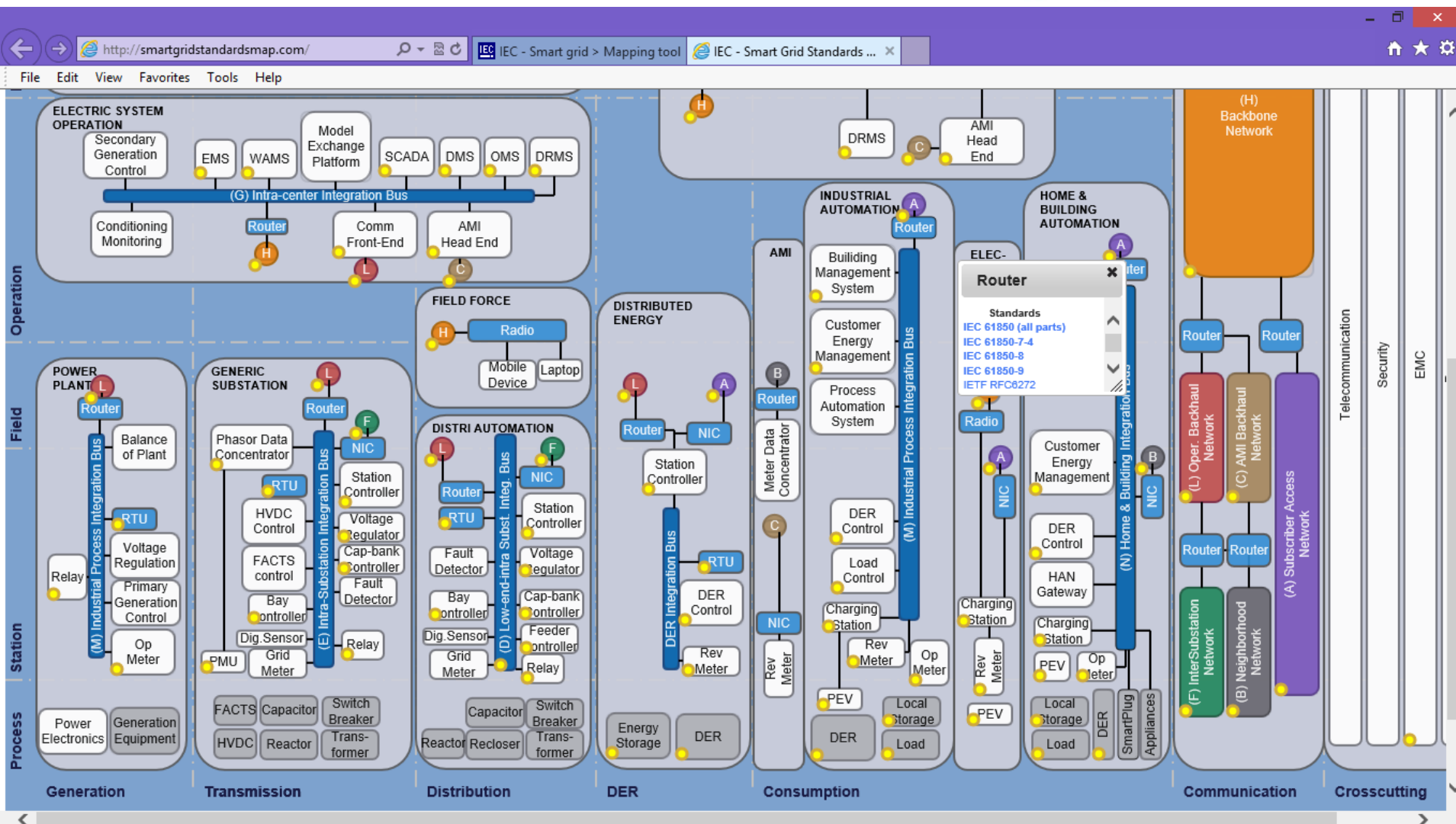


- To develop & validate a cost-optimum scheme for higher RES penetration in the energy mix of Cyprus.
- To give market-driven net metering options to consumers who become producers (prosumers) thus alleviating any “need” for costly Feed-in-tariff (FIT) schemes to be in place.
- Stakeholder involvement and active consumer participation in the national energy generation.
- Facilitate implementation and have a real contribution to environment policies adopted in Cyprus as set by the EU.
- Facilitate the development of metering schemes & policies in other EU countries.
- A hub of expertise from which know-how will be transferred from grid-parity South to the North for widespread PV implementation.



SMART GRID STANDARDS MAPPING TOOL INTERNATIONAL ELECTROTECHNICAL COMMISSION







OPEN meter

Open Public Extended Network metering



Itron



Landis
Gyr+



RWE The energy to lead

ADD



endesa

netbeheer  **nederland**
energie in beweging



- | | |
|--|--|
| <ul style="list-style-type: none"> • Smart Meter Manufacturers • Telecommunications industry • Silicon design & manufacturing | <ul style="list-style-type: none"> • Meter operators • Network operators • DSO associations |
|--|--|



- | | |
|---|--|
| <ul style="list-style-type: none"> • R&D labs • Testing & quality assurance • Academia | <ul style="list-style-type: none"> • Normalization • Standardization |
|---|--|



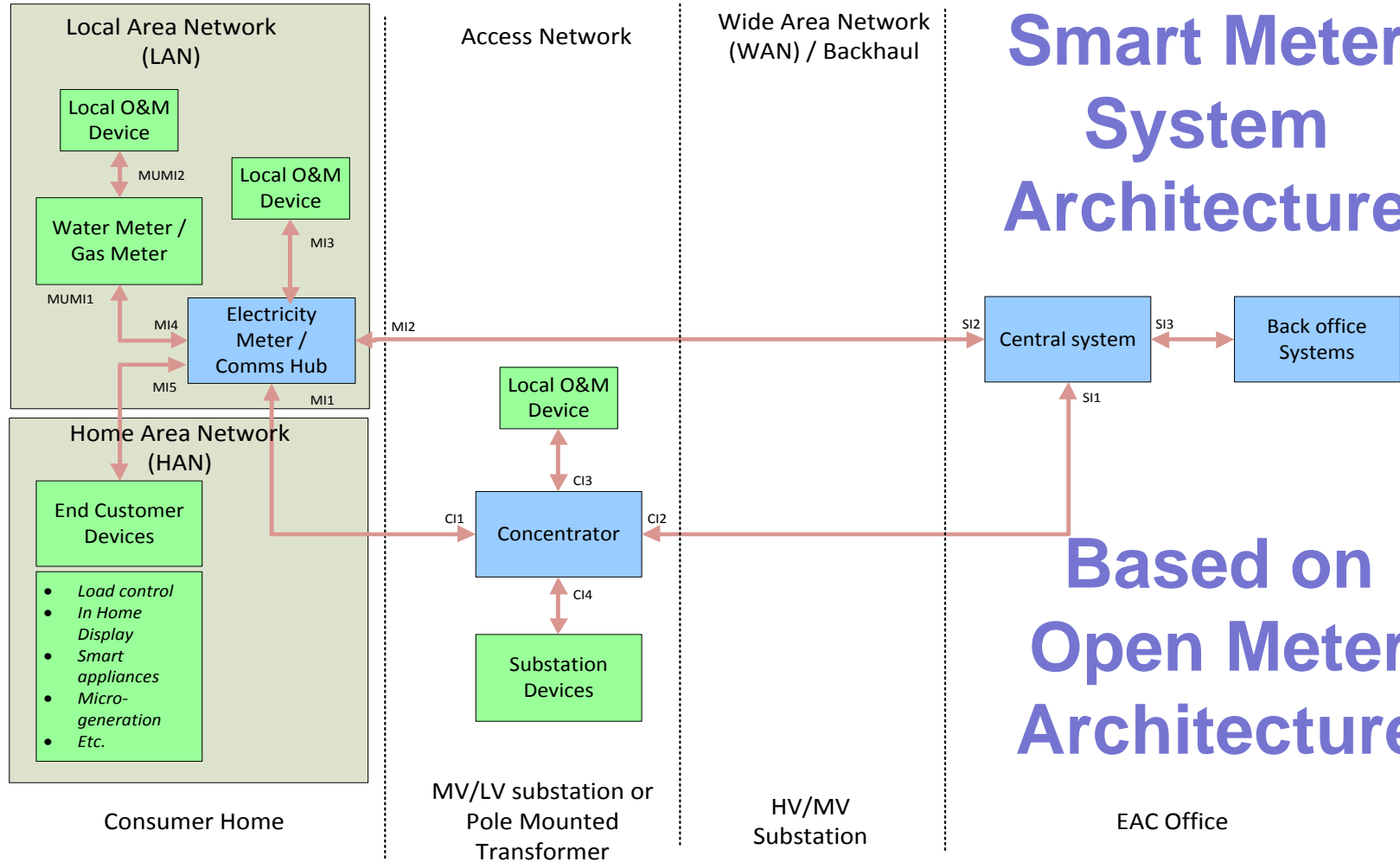
A well balanced consortium of 19 partners

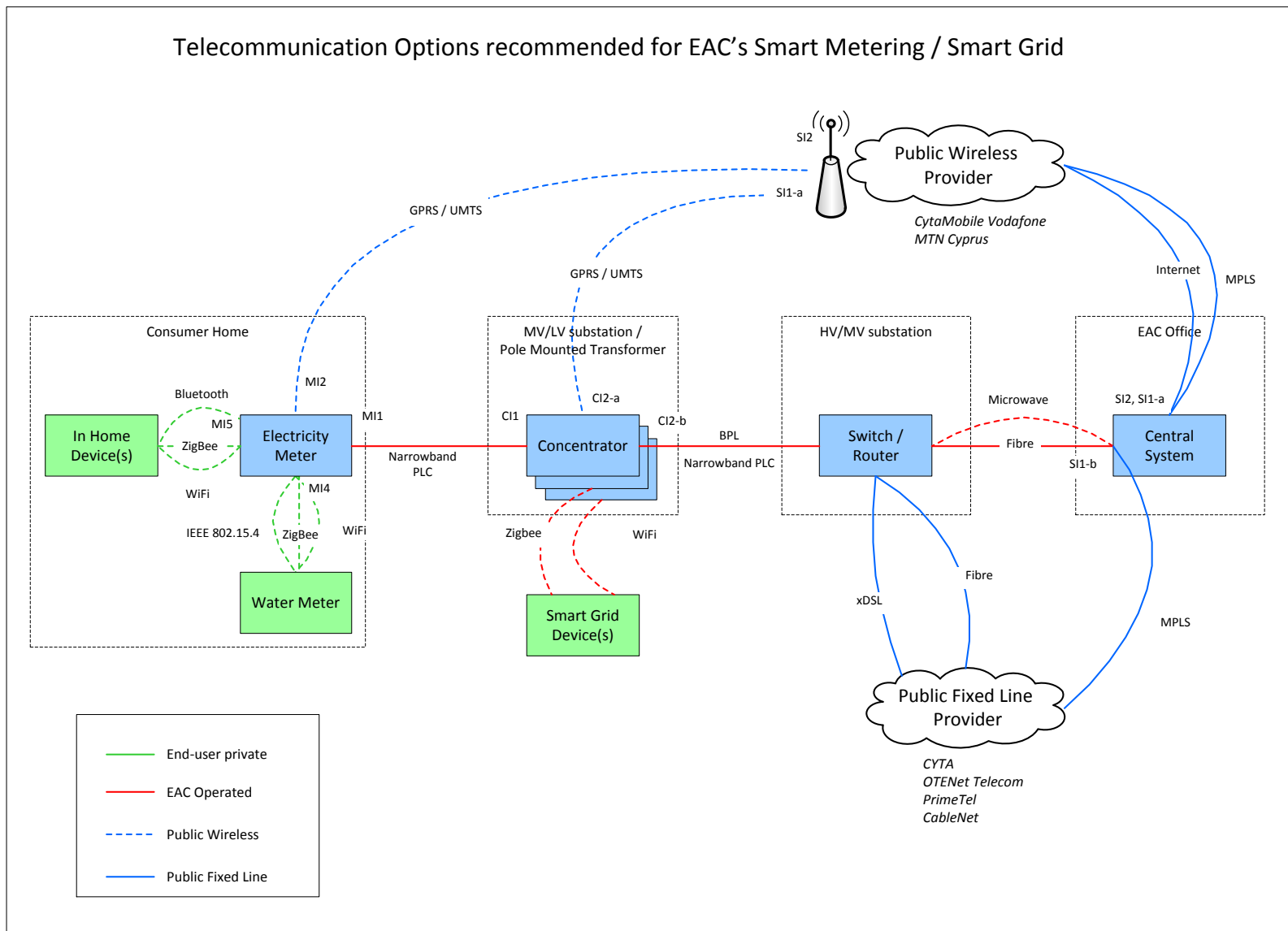


Smart Metering System Architecture based on OPEN Meter Architecture

Smart Meter System Architecture

Based on Open Meter Architecture





CONSUMER

- a) Provide readings directly to the consumer and/or any 3rd party
- b) Update readings frequently enough to use energy saving schemes

METERING OPERATOR

- c) Allow remote reading by the operator
- d) Provide 2-way communication for maintenance and control
- e) Allow frequent enough readings for networking planning

COMMERCIAL ASPECTS OF SUPPLY

- f) Support advanced tariff system
- g) Remote ON/OFF control supply and/or flow or power limitation

SECURITY - DATA PROTECTION

- h) Provide secure data communications
- i) Fraud prevention and detection

M/441

DISTRIBUTED GENERATION

- j) Provide import/export and reactive metering

Interoperability is still a problem

- Through open tenders we could not find competitive bids meeting EU mandatory requirements.
- No harmonized glossary between back office and field applications.
- Communication protocols and technologies are heavily linked to products
- DSM is attractive but still searching for plug and play connectivity and market regulation

The EC put high expectations ...

- Cost benefit analysis for SM was due for September of 2012 to mandate SM roll out.
- This was too optimistic since the necessary standards were not available to assist and facilitate investment decisions.
- Issues related to interoperability, EMC, common glossary, data flow security and ICT connectivity are hindering the fast penetration of SM and SG.
- Technology is too fragmented to attract investment decisions.

Quality at point of common coupling

- Adequate ancillary services as a prerequisite for optimal connectivity that will safeguard quality of supply.
- SG should be fully functional with distributed control that can facilitate active and reactive quality control.
- To be demanding for quality at the point of connection of the DER is an identified need for optimal penetration.
- Spending a relatively small amount for the quality at the point of connection will pay back in the overall cost of the system since penetration levels can rise to the full capacity of the interconnected network.
- Available standards are still lacking in this area even though the EN 50438:2013 is a positive addition.

Net metering enhances the e-market but ...

- Lack of incentivised regulation in the required technologies for effective net metering systems hinders market uptake and preserves distortion of the market through feeding tariffs etc
- Net metering system costs are not covered by grid codes creating distortion between markets and technologies.
- Lack of policy on system operation in systems of high DG penetration leads to non optimised / unnecessary investments that can include a second smart meter and / or other active equipment for operation / control

SG standardisation process STARGRID.EU

- Smart Grid Coordination Group together with the Smart Meter Coordination Group are totally supportive and enriching the work of the standardization bodies in Europe (CEN-CENELEC - ETSI) and the deliverables up to now is a proof.
- The smart grid reference architecture and priorities are well focused.
- It is taking a bit longer than originally targeted but to a great extend this was expected .
- An effective collective effort through which all stakeholders seem to play their respective roll in this process.
- A measure of success is the degree that deliverables achieve a fair balance between interoperability, data security, flexibility and additional system cost.



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