



**SET-UP**  
Interreg Europe



European Union  
European Regional  
Development Fund

## Best practices of the Smart Synergy Project and Hungarian Case Study leading to the SET-UP Project (Hungary)

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SET-UP Hungarian project partner

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# SET-UP at a glance

« Smart Energy Transition to Upgrade regional Performance »

SET-UP aims at improving energy performance of the partner regions with **enhanced policies on smart grids**, addressing 3 main challenges of



Empowering consumers



Securing funding sources



Developing economic models



# SetupProject



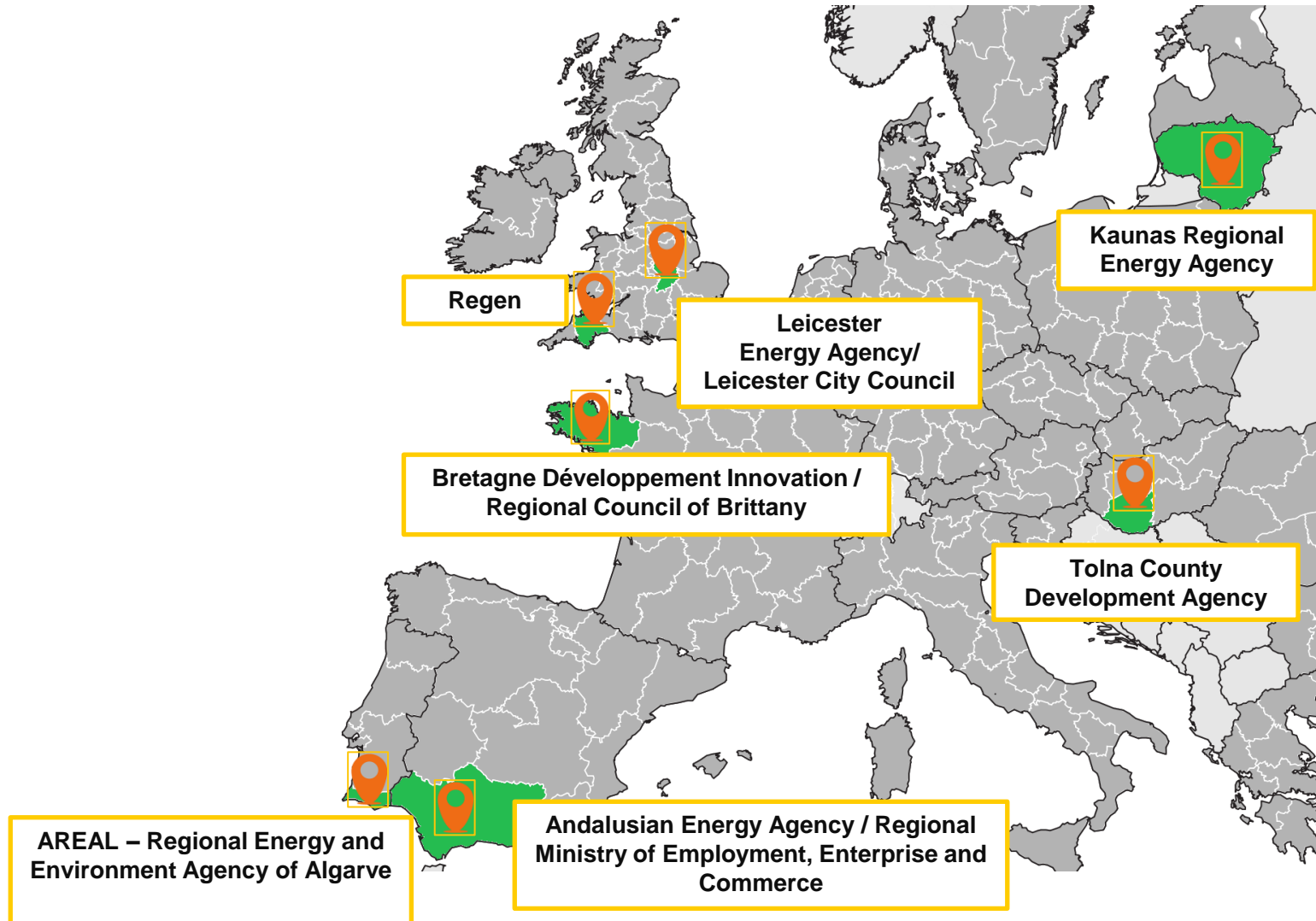
## SET-UP in figures

- 1,35 M € ERDF
- 2016 - 2021
- 8 partners from 6 EU regions

Want to know more?  
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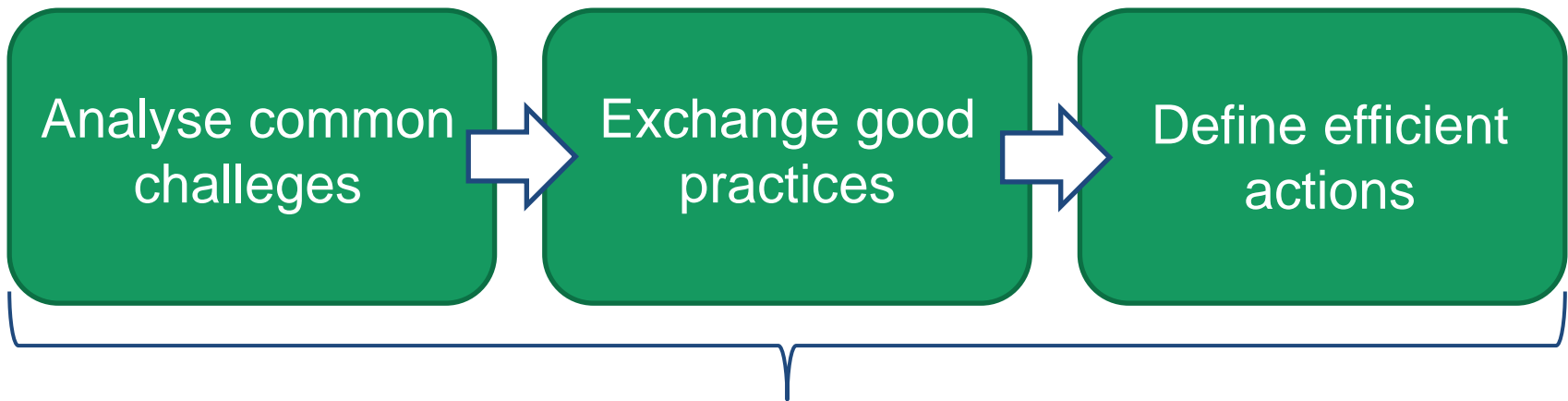
# SET-UP partners

« Smart Energy Transition to Upgrade regional Performance »



# SET-UP interregional learning process

« Smart Energy Transition to Upgrade regional Performance »



Improve  
regional  
energy  
policies

# Focus on consumer engagement

« Smart Energy Transition to Upgrade regional Performance »



General lack of knowledge and understanding  
of the smart grid concept



Focus on good practices contributing to consumer engagement and  
the provision of information tools, support services and opportunities

Demand  
response  
solutions

Awareness  
raising initiatives

New business  
models (e.g. self-  
consumption)

Legislation

# What have led to SET-UP? – Hungarian experiences

Smart Synergy project – Measuring the impact of smart meters on consumers

- Testing smart meters at representative group of diverse consumers, selected by statistical methodology
- Implemented by DÉMÁSZ - South-Hungarian Power Supply Plc.
- DÉMÁSZ Zrt. supplies electricity for 775,000 household and business customers all over Hungary and operates a network having a length of 32.320 km in South Eastern Hungary.
- The project has analysed the rollout solutions, obstacles and technological need from the aspect of a Distribution System Operator (DSO)
- Mission:
  - Analyse the attitude of the consumers related to SM
  - Examine the technological possibilities of multi-utility smart metering
  - Define possible business models for SM system
  - Observe the data security&protection aspects

# What have led to SET-UP? – Hungarian experiences

Smart Synergy project – Measuring the impact of smart meters on consumers

## ■ Partners:

ÉGÁZ-DÉGÁZ Földgázelosztó Zrt.

Szegedi Vízmű Zrt.

EDF DÉMÁSZ Zrt. (universal service provider)

EDF DÉMÁSZ Partner Kft. (installing meters)

## ■ Planned volume of meters

Electricity meter: 3000 (500 PLC, 2500 GPRS)

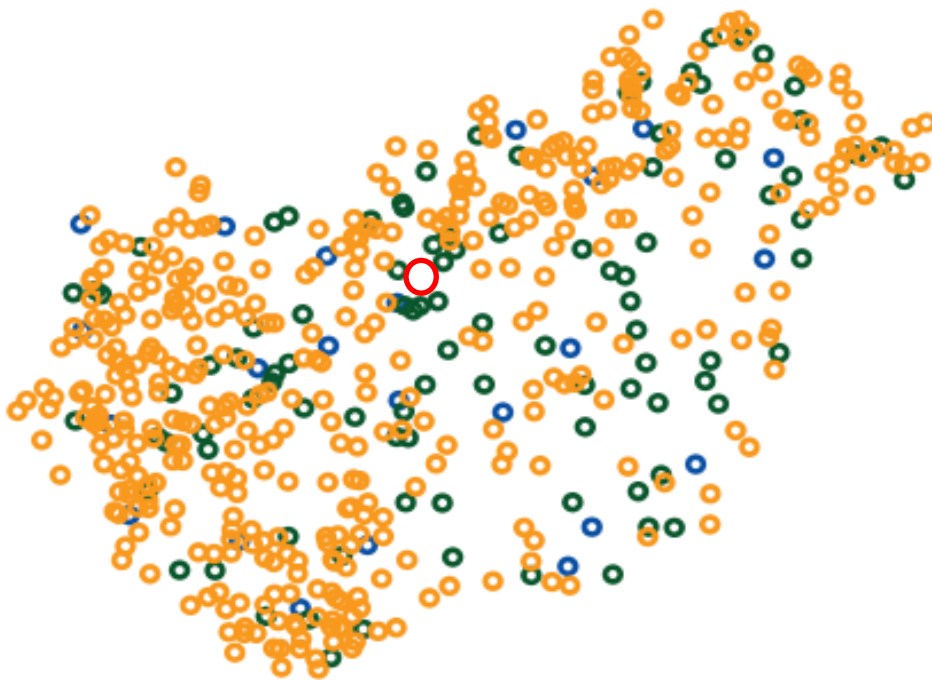
Gas meter: ca. 10-50

Water meter: ca. 50-100 as submeter of block of flats

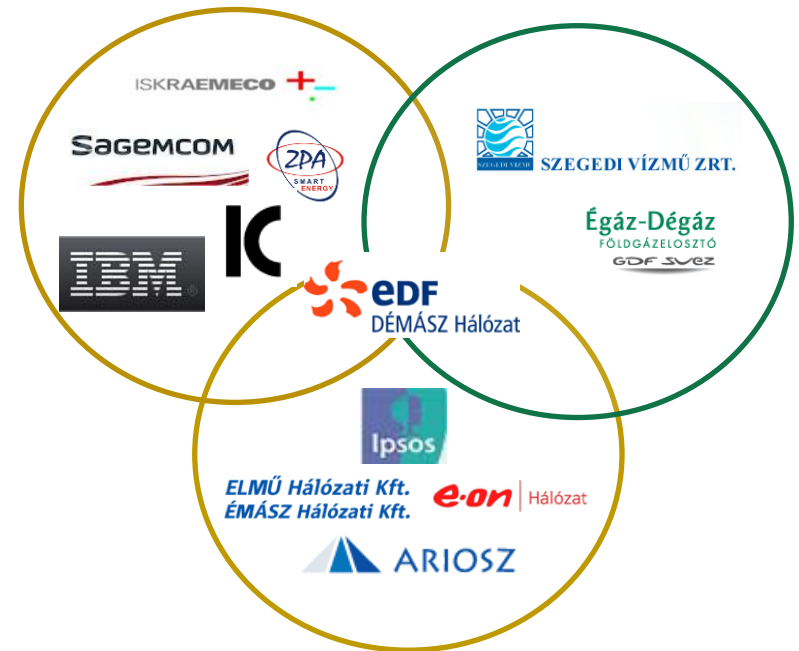


# What have led to SET-UP? – Hungarian experiences

Smart Synergy project – Measuring the impact of smart meters on consumers



- Budapest
- City with county rights
- Town
- Village





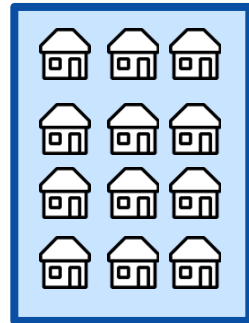
# What have led to SET-UP? – Hungarian experiences

Smart Synergy project – Measuring the impact of smart meters on consumers

## Test metering:

**Consumer panel equipped with smart meters**

- where the changes in consumption due to metering or energy market offers can be registered.



12.000

## Control meters:

**Consumers equipped with meters registering data with 15 mins frequency**

- similar characteristics as the test panel, therefore comparable as a reference consumption.



6.000

18.000

# What have led to SET-UP? – Hungarian experiences

Smart Synergy project – Measuring the impact of smart meters on consumers

- Experiences:
  - Successful data reading: GSM 97-99%, PLC 96-98 %
  - PLC meters can be installed easily
  - The PLC concentrator should be installed with the same type of meter
  - External GSM antenna is needed for the 4 % of the meters
  - During the installation of the meters only minimal consumer resistance was found
  - It is hard to establish well-operating balance of the meter + adapter + head end + system + SAP
  - It is hard to adjust the gas and water meters

# What have led to SET-UP? – Hungarian experiences

## Smart Synergy project – Measuring the impact of smart meters on consumers

### Csökkentse kiadásait

#### Hűtőgép elhelyezése

A hűtőgépet tanácsos naptól, tűzhelytől, fűtőtesttől távol elhelyezni.

[További ötletek](#)

### Legyen hatékony

#### Energiafelhasználás fejlesztése

Telepítsen egy programozható termosztátot, amely fenntartja otthonában a kellemes hőmérsékletet a téli és a nyári hónapokban.

[További ötletek](#)

### Csökkentse hatásait

#### Szereljen napenergiával működő lámpákat a szabadba

Telepítsen napelemes lámpákat, amelyek összegyűjtik és tárolják az energiát a nap folyamán, és kigyulladásnak a szabadban minden este.

[További ötletek](#)

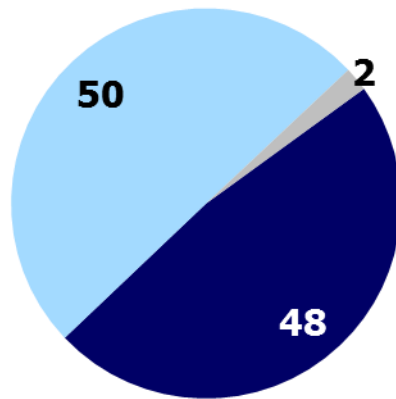
Dátum	Tomb1	Tomb2	Összes
13/01/01 - 13/01/31	4 781,15 Ft	48 599,98 Ft	53 381,13 Ft
<b>Összes díj Alapdíj</b>			<b>53 564,01 Ft</b>



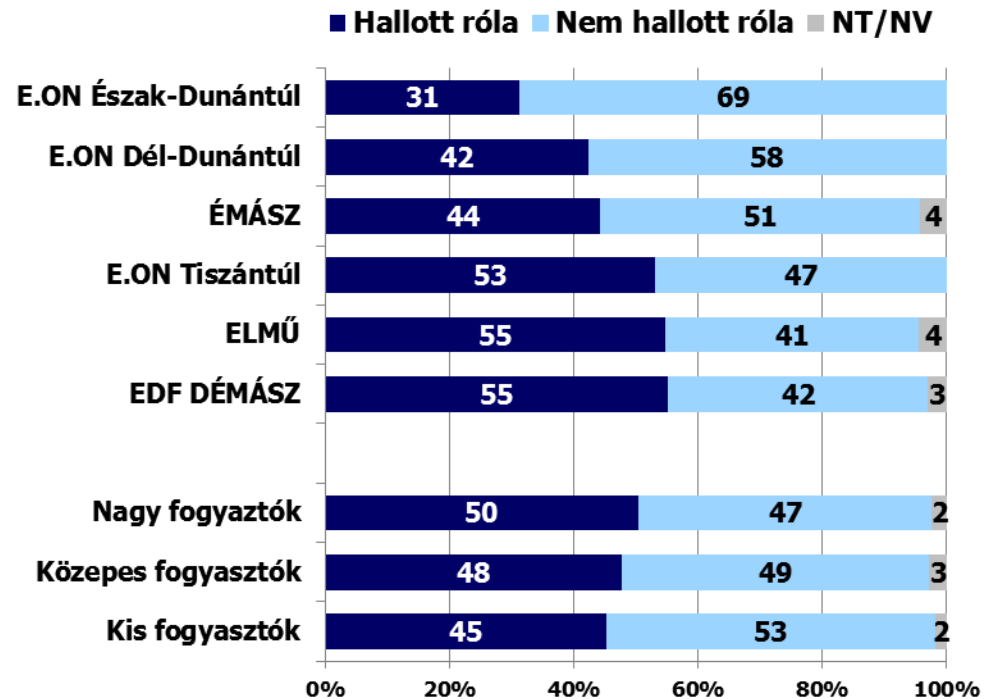
# What have led to SET-UP? – Hungarian experiences

Smart Synergy project – Measuring the impact of smart meters on consumers

## ■ Consumer information on SM



■ Hallott róla ■ Nem hallott róla ■ NT/NV



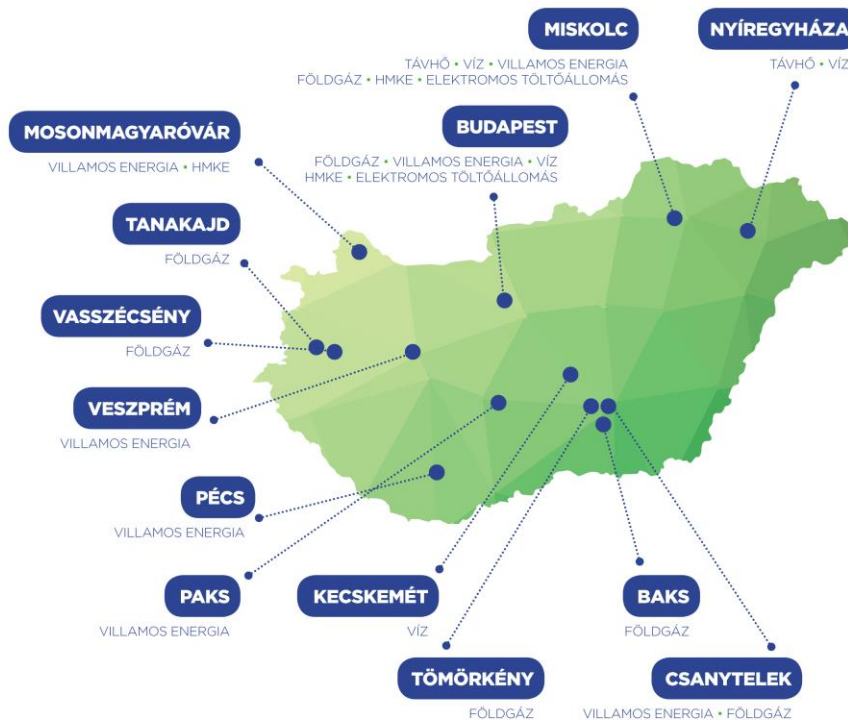
# What have led to SET-UP? – Hungarian experiences

## Central Smart Metering LTD project – Smart meter rollout in Hungary

- Founded by MAVIR Ltd. as its wholly owned subsidiary in September 2011.
- Financial background for the company was provided by the Hungarian government by transitional allocation of carbon dioxide emission allowances free of charge with the support of the European Union.
- Mission: To harmonize the initiations of smart metering, smart grids, to support establishing synergies and competencies between the different industrial fields,
- Tasks:
  - Developing and testing of an infrastructure for data collection contributing to the modernisation of the energy system
  - Contributing to solving system regulation problems (household power plants, E-Mobility) and decreasing the system level energy losses
  - Providing necessary information for the country wide roll-out of smart metering in Hungary, collecting and methodizing experiences, creating recommendations

# What have led to SET-UP? – Hungarian experiences

## Central Smart Metering LTD project – Smart meter rollout in Hungary

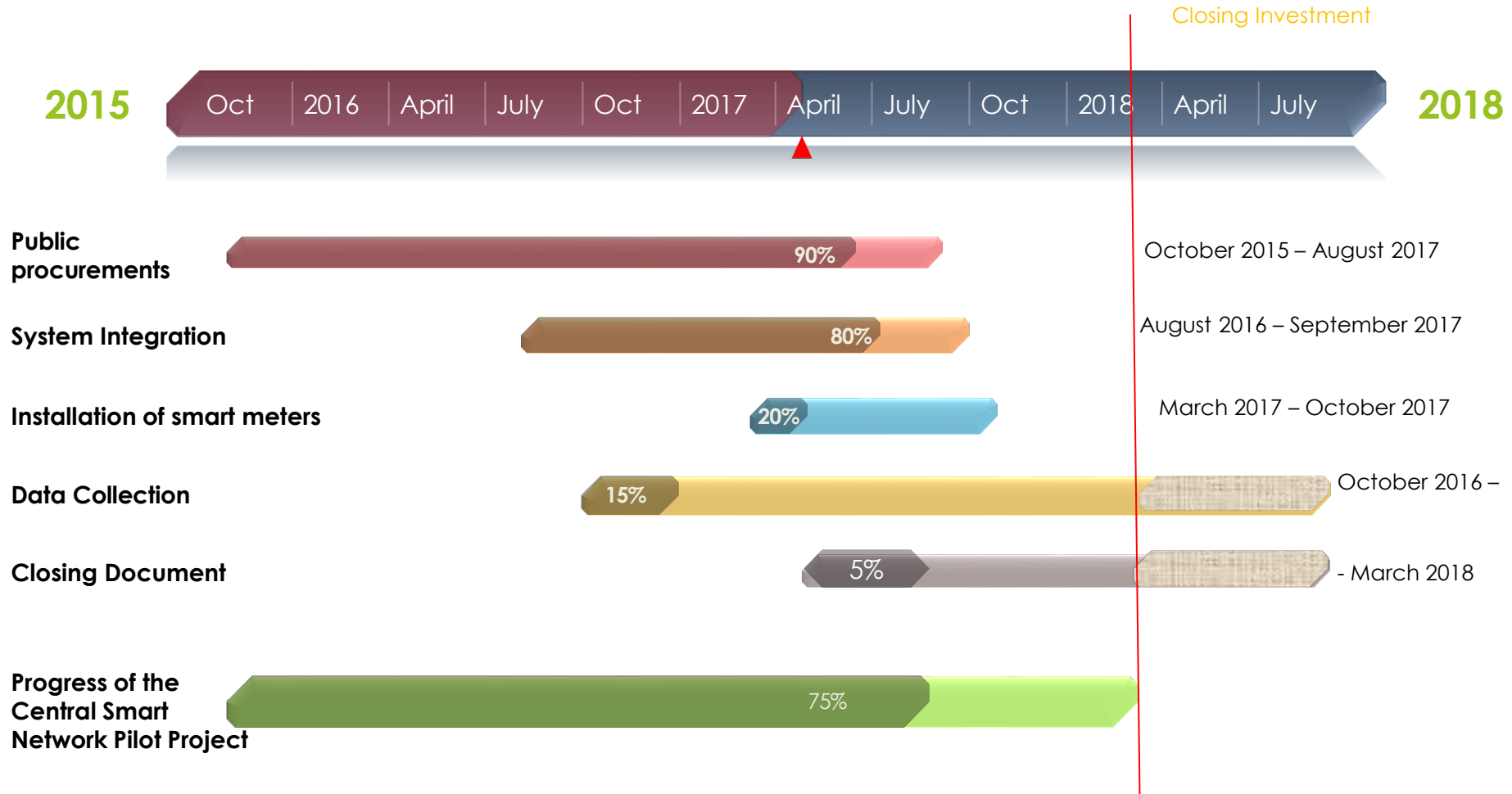


### Metering locations, partners in cooperation

- Municipalities of Budapest and rural municipalities managing city administration offices, **public institutions:** nursery, kindergarten, school, hospital, university
- Small household power plants and electric charging stations
- Infrastructure operators
- Energy Traders
- Market Players
- Citizens – Universal Service

# What have led to SET-UP? – Hungarian experiences

## Central Smart Metering LTD project – Smart meter rollout in Hungary



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## Central Smart Metering LTD project – Smart meter rollout in Hungary

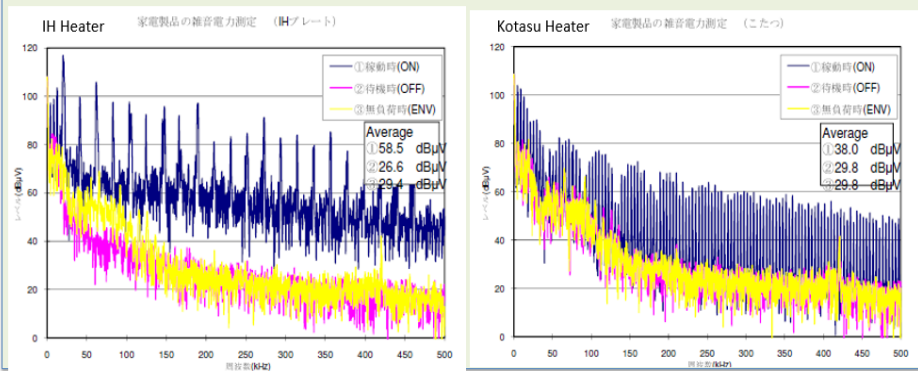
### Examples for the technologies applied:

#### Electricity - G3 PLC\*

##### Home Appliances Noise



- The following appliances are used as the noise source in the field trial:
  - IH Heater, TV, triac, 3 Kotasu Heaters, Microwave, Rice Cooker, Water Pot, Blanket, and carpet vacuum
- The noise spectrum of two major noise sources IH Heater and Kotasu are as shown below:



#### Natural gas – 169 MHz WMBUS concentrator

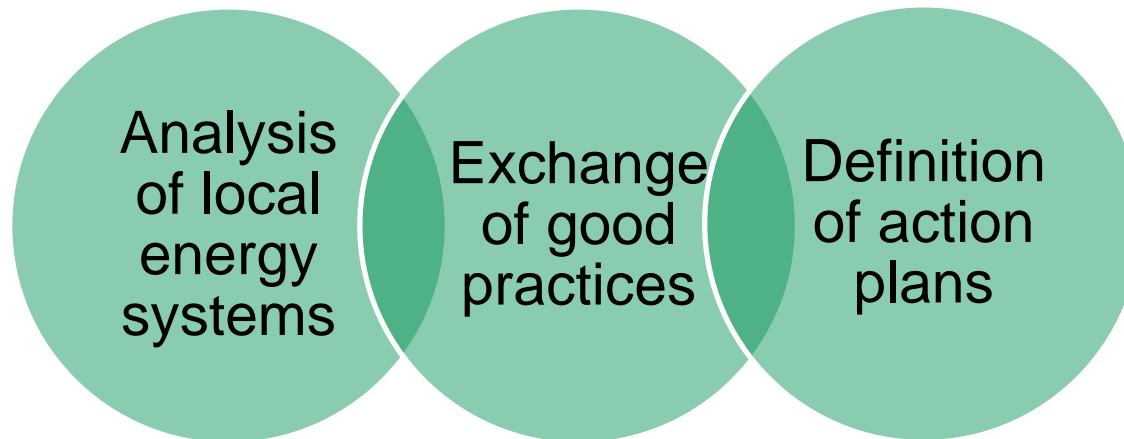




# SET-UP main activities

## Phase 1 (2016 – 2019):

Interregional exchange and definition of an action plan for each territory



## Phase 2 (2019 – 2021):

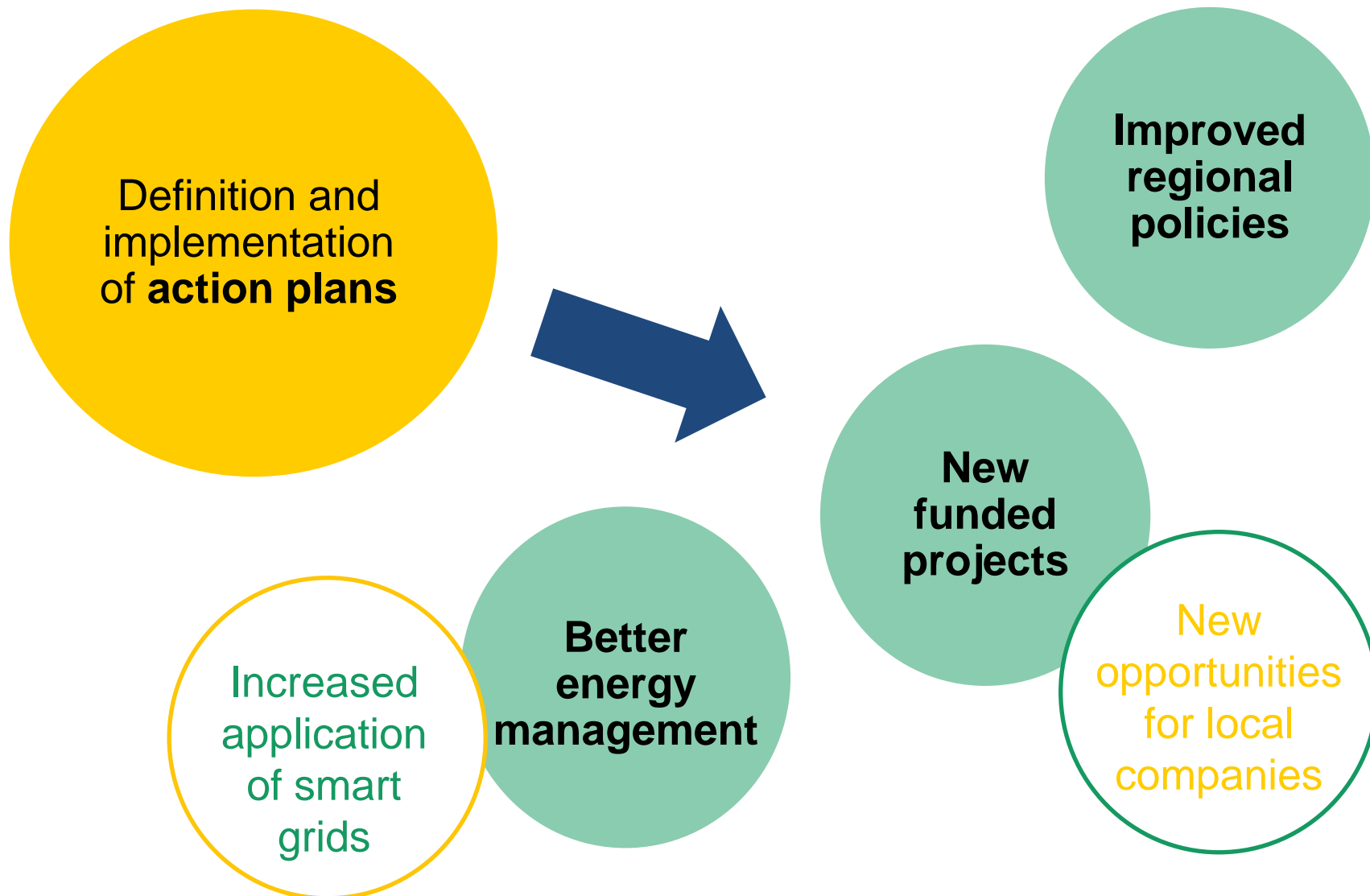
Implementation and monitoring of the action plans

# Empowering consumers - SWOT

<p style="text-align: center;"><b>S</b></p> <p style="text-align: center;"><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>▪ Electricity Directive is transposed into the HU legislation.</li> <li>▪ There are already successfully implemented smart grid pilots by DSOs.</li> <li>▪ Awareness raising actions target the end users/consumers.</li> <li>▪ Regional pilot actions have been initiated by the DSOs, and currently a national level pilot is run by the TSO, experiences could be used.</li> <li>▪ The necessary technologies are available for metering and signal transmission.</li> <li>▪ A dedicated company was set up on national level to coordinate smart metering.</li> <li>▪ ICT companies are striving to join smart metering projects and integrate their technologies.</li> </ul>	<p style="text-align: center;"><b>W</b></p> <p style="text-align: center;"><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>▪ Energy Efficiency Directive is not fully transposed to HU legislation.</li> <li>▪ Electricity prices are too moderated to provide impetus for demand side actions and decentralised electricity production.</li> <li>▪ Price of smart meter has to be probably born by the consumer (to be regulated after the pilot project).</li> <li>▪ Data privacy solutions are not complexly elaborated.</li> <li>▪ Data transfer methods have to be carefully fitted to the location of the consumer (GPS for remote, PLC for densely inhabited areas), and some methods have their distortion risks.</li> <li>▪ Consumers are not aware of the meaning of smart metering and they are often sceptic about new technologies.</li> <li>▪ Dynamic pricing model and other benefits are not elaborated to provide advantages for the households.</li> </ul>	<p style="text-align: center;"><b>O</b></p> <p style="text-align: center;"><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>▪ Extended consumer empowerment actions targeting households and business units for a better uptake of smart metering.</li> <li>▪ Early detection of meter failures.</li> <li>▪ Faster service restoration, flexible billing cycles.</li> <li>▪ Providing a variety of time-based rate options to customers.</li> <li>▪ Creating customer energy profiles for improved access to the electricity market via accurate consumption history and possibilities to benefit from demand flexibility.</li> <li>▪ More accurate and timely billing.</li> <li>▪ Increased meter reading accuracy.</li> <li>▪ Feedback on energy consumption to the consumer and his energy automation systems.</li> <li>▪ Improved safety of humans and equipment through better power quality and fault management.</li> <li>▪ Reduction in meter reads and associated management and administrative support (results indirectly lower energy costs for consumers).</li> <li>▪ Improved utility asset management (results indirectly lower energy costs for consumers).</li> <li>▪ Easier energy theft detection.</li> <li>▪ Easier outage management.</li> </ul>	<p style="text-align: center;"><b>T</b></p> <p style="text-align: center;"><b>THREATS</b></p> <ul style="list-style-type: none"> <li>▪ Smart meters may reveal personal assets/appliances when the occupants are away or present.</li> <li>▪ Data about personal energy usage can be sold to marketers or packaged with other data to create detailed portraits of the habits, lifestyle, and income level.</li> </ul>
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# SET-UP expected impacts

« Smart Energy Transition to Upgrade regional Performance »





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**Thank you.**

**Any questions?**



# SetupProject

[www.interregeurope.eu/set-up/](http://www.interregeurope.eu/set-up/)