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## DELIVERABLE

**Project Acronym:** REScoop Plus

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### Regulatory Factsheet

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RES cooperatives are cooperatives of renewable energy, producers and/or consumers, being formed in the developing European Smart Grid. Today, there are more than 2,397, having more than 650,000 members. Growing concerns about climate change impacts on humans and eco-systems motivate us to explore new strategies to complement traditional climate policies like mitigation and adaptation.

Specific practices have already been adopted by RES cooperatives in order to increased energy efficiency and environmental benefits. The impacts of proposed energy efficiency (EE) interventions in terms of energy consumption decrease are being presented below. The results concern 7 REScoops, namely: EBO from Denmark, ECOPOWER from Belgium, ENERCOOP from France, SOMENERGIA from Spain, SEV from Italy, ENOSTRA from Italy and COOPERNICO from Portugal.

The main interventions implemented by the RES coops were:

1. Smart Metering Installation
2. Energie ID
3. Dr. Watt
4. Generation action
5. Empowering action
6. The technical support
7. Promotion through EE leaflets
8. Tariff types.

The main results of these implementations, with respect to energy savings, are shown below per intervention and REScoop. The results have been tested with strong statistical methods. Additional analytical presentation exists in included in deliverable D2.4.

## Smart Metering Installation

Enercoop – France

There is a significant difference in total consumption\* between those who have installed Smart Metering and those who haven't. Customers who have installed smart metering consume on an average 90 kWh less (267 kWh to 362 kWh i.e. about 26% less).

(\* total consumption is the sum of actual consumption, cooking, and electricity produced).

## Optimized Return Flow

SEV – Italy

SEV is a federation of several REScoops, therefore the analysis was carried out on 2 separate Community Buildings in order to validate the results.

**Community 1 :** There is a noticeable difference in actual consumption before and after the implementations of the EE proposed intervention (49,659 to 35,847 kWh i.e. 27.8% reduction on energy consumption) and this can be converted into 5.57 tnCO<sub>2</sub>.

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**Community 2** : There is also a noticeable difference in actual consumption before and after the implementations of the EE proposed intervention (45,047 to 37,106 kWh i.e. 17.6% reduction on energy consumption) and this can be converted into 3.21 tnCO<sub>2</sub>.

## EnergieID

Ecopower – Belgium

There is a significant difference in actual consumption between the customers with EnergieID and those with no EnergieID. Customers with energy ID consume less electricity (2,023 kWh to 2,193 for those with no EnergieID i.e. 8,5% less) which is translated to almost 70 kgCO<sub>2</sub> per customer.

## Dr. Watt

Enercoop – France

There is a significant difference in total consumption\* between those who take part in Dr. Watt program and those who don't. The customers who take part in Dr. Watt program consume on an average 45 kWh less (305 kWh to 350 kWh for those who don't take part i.e. about 13% less) which can be translated to almost 35kgCO<sub>2</sub> per customer.

(\* total consumption, which is the sum of actual consumption, cooking, and electricity produced variables).

## Generation action

Som Energia – Spain

There a significant difference in the average actual consumption between those who take part in the generation action and those who don't (195 to 260 kWh i.e. 25% difference). Those who take part consume 55 kWh less and this can be translated to 22.22 kgCO<sub>2</sub> per customer.

## Empowering action

Som Energia – Spain

There is a significant difference in the average consumption between those who take part in the empowering action and those who don't (202 to 280 kWh i.e 28%). Those who took part in empowering action, consume 78 kWh less than those who have not and this can be translated to 31.51 kgCO<sub>2</sub> per customer.

## The Technical Support

EBO – Denmark

Those who have received technical support seem to consume more energy than those who have not, 1,522 to 1,515 kWh. Also, there is a small difference in normalized\* actual consumption between those who have received technical support and those who haven't (15.20 to 14.96). The achievement of the intervention is that the amount of consumed energy of those who have received the technical support has met the level of those who have not received it.

(\* normalisation regarding actual consumption per heating degree days).

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Remark The actual consumption, decreased in 2014 when the intervention was initially implemented. Since then, there is an increase and this is possibly related to a decrease in the average daily temperature (increase in heating degree days).

## EE leaflets

### Ecopower – Belgium

Even though, customers who have received EE leaflets tend to consume 2 times more (7,524 kWh to 3,452 kWh) than those who haven't., the intervention had a serious impact on customers' energy consumption, as consumption was reduced by almost 30% since 2012, from 2,147 kWh to 1,517 kWh and this can be translated to 254.52kg CO2 per customer annually.

### Som Energia – Spain

There is a difference in the average consumption between customers who have received EE leaflets and those who haven't (255 to 257.5 kWh i.e. 1%) and this can be translated to 1 kgCO2 per customer.

## Tariff types

### Som Energia – Spain

There is a significant difference in actual consumption between those charged with special tariffs and those charged without standard tariffs. Those charged with special tariffs consume two and a half times more electricity (497 kWh to 202 kWh for those charged without special tariffs).

### Coopérnico – Portugal

Three types of tariffs were used, (a) BTN Simples, (b) BTN Bi-Horário and (c) BTN Tri-Horário. There is a significant difference in actual consumption between Bi-Horario, Simples and Tri Horario tariff customers for the year 2017 (308.8, 205.6 and 3,651 kWh respectively). Customers who are treated with Tri- Horario tariff are the most energy consuming ones and these of Simples tariff are the least consuming ones.

### Enostrá - Italy

Two types of tariffs were used, (a) TOU tariff and (b) FLAT tariff. TOU stands for Time-of-Use and the cost of energy depends on the time the energy is used. There is a difference, in actual consumption, between the two types of tariffs (for TOU customers, the average actual consumption is 10 kWh higher, 159 to 150 kWh for FLAT).

## Conclusions

The most successful intervention implemented seems to be the Smart Metering Installation. It is used by more than one RES cooperatives leading to energy reduction ranging from 9% to 28%. Other successful measures, that were implemented only by one RES cooperative at a time are: EE leaflets (Ecopower – Belgium, 30% reduction), Empowering action (Som Energia- Spain, 28% reduction), Generation action (Som Energia- Spain, 25% reduction), Dr Watt (Enercoop-France 13% reduction), Energie ID (Ecopower Belgium, 8,5% reduction).

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