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Table of Contents

Introduction.....	2
The tools of energy efficiency in the REScoops.....	2
How this report is structured	5
Methodology.....	5
Data Management.....	6
Data Privacy.....	7
The definition of “personal data”	7
The actors of data privacy	8
Data Processing	10
Data Anonymization	10
Data Protection by Design.....	11
The nature of Consent.....	11
Data Portability and Accessing data	13
The right to receive personal data	13
The right to transmit personal data from controller to controller.....	13
The tools of data portability.....	14
Best Practices	15
Ecopower and the 100% renewable pursuit	15
The Gold Standard, the competitive advantage of Data Privacy for REScoops	16
Conclusion	19
Energy Efficiency Support Schemes and Barriers.....	20
European Legislation	21
The Energy Efficiency Directive	21
The Energy Performance in Building Directive (EPBD).....	23
The Internal Energy Market Directive	24
Energy Efficiency Incentive Schemes	26
Energy Efficiency Obligation Scheme	26
The Alternative Policy Measures.....	28
Conclusion	31



Introduction

The REScoop PLUS project has the purpose to help enhance energy efficiency as a value creating activity for the European cooperatives. The energy efficiency topic is crucial to reach the EU's 2020 climate and energy targets. Specifically, EU has set a target reduce primary energy consumption in Europe by 20%¹, a target of 20% final energy consumption from renewable sources by 2020², and a target to reduce greenhouse gas emissions by 20%. In order to reach those targets, the local communities across Europe will need to be activated and the citizens will need to participate in energy saving efforts.

The REScoop PLUS project has the objective to provide tools and techniques to help REScoops³ develop energy efficiency in their organization, and to help our members understand how to become more energy sober. The project, which includes 8 cooperatives from 7 different countries, looks at the impact of the cooperative engagement and the drivers of the behavioral change in favor of a sober energy consumption.

The purpose of Work Package 6 is to explore the legal environment, or framework, in which the toolbox develop by the REScoop PLUS team will evolve. The review of the legal environment, and the guidelines toward the cooperatives, will be developed in three separate reports. This first report will deal with a broad view of the legal topics impacting energy efficiency at the European level. It will also provide insights regarding new legislation that is being discussed currently at the European level. The purpose of this report is to provide a dynamic view of the energy efficiency and data privacy laws at the EU level, and the trends that will make their future. We will close this part by giving some recommendations regarding the building of data privacy policies for REScoops.

The second report will take a look at the local legal environment of energy efficiency in each of the countries that deployed the best practices. This second report will focus on providing a context to the best practice report by identifying and analyzing the legislations of energy efficiency in 6 European countries.

The third report will provide an in-depth analysis of the Portuguese situation, where our pilot REScoop, Coopernico, will use the REScoop PLUS toolbox to carry out energy efficiency activities with its members. This report will explore the Portuguese legal context for energy efficiency, and will offer solutions to deploy the toolbox of the REScoop PLUS project. The purpose of this third report will be to help the team at Coopernico deploy some of the best practices.

The tools of energy efficiency in the REScoops

The tools deployed by the REScoops are described in report 3.1, which was produced by REScoop PLUS. This report provides a framework for different categories of tools used by the REScoops throughout Europe that encourage more energy efficient behavior from their members. The report provides 4 categories of tools:⁴

- 1- **Incentive based tools** will act on the assumption that the members will answer strongly to a price point and will be more sensible to an argument that impacts their financial well-being.

¹ Directive 2012/27/EU on energy efficiency

² Directive 2009/28/EC on the promotion of the use of energy from renewable sources

³ REScoop: Renewable Energy Source Cooperatives; cf <https://rescoop.eu/what-rescoop>

⁴ Cf. Deliverable 3.1 of the REScoop PLUS project

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This also helps the final objective of the cooperative, which is to improve the direct benefit of the energy system participation to the citizens. This type of external incentives is more traditionally expected to be effective, but is usually difficult to put in place because of legal constraints. Here are some of the tools that are put in place by the REScoops around Europe:

Economic incentives

- transparent and single price, 3x
- simple tariffs, 3x
- bonus systems, 1x
- joint/collective purchasing, 2x
- differentiation between retailers, 1x
- give out shares in social capital RESCOOP, 1x
- lend money to members (to get distr. heat.), 1x
- agreements with RES/EV resellers to obtain specific offers, 1x

- 2- **Capacity Tools** includes information and modeling. These tools are based on the leadership of the cooperatively engaged citizens in their communities. These tools do not have a heavy framework; however, it is to be noted once again that providing advice in certain EU countries can incur responsibilities for REScoops. Also, those tools rely in large part on the collection and harvesting of personal data, which will bring forward another type of legal risk. Here are some of the tools currently put in place in the REScoops observed:



Social and communicative measures mentioned by the REScoops

- awareness raising, 6x
- behavioural change campaigns, 3x
- use of 'ambassadors', 2x
- use of process managers, 0x
- education, 5x
- tailor made advice, 2x
- fossil free project (with citizens), 1x
- 'TupperWatt meetings', 1x
- coaching, 1x
- customers service provision evaluation, 1x
- newsletter, Facebook, website, adds, articles, 2x (but probably more...)
- conferences, 1x
- helpdesk with tutorials, 1x
- social networking platform, 1x
- participation in 'locale' (meeting by housing associations, etc.), 1x
- competitions (e.g., between kindergartens of schools), 1x

- 3- **Symbolic Tools** include commitments and goal setting by the members. These two specific tools are already implemented in several REScoops, although maybe not to their full potential. The framework around these tools is rather light since it only requires the consumers to be convinced to participate. However, in some countries of the EU, the engagement of the citizens can, again, impose certain responsibilities on the REScoop.
- 4- **Learning Tools** rely on the assumption that all citizens wish to improve their behavior. Coupled with the symbolic tools they can be most efficient and very easy to put in place because the legal framework governing them is rather light. However, they usually heavily rely on the use of personal data, and pose risks. These tools are mostly linked with feedback and trainings provided to the citizens. Below are some of the tools used by the REScoops currently:



Technical measures:

- measuring devices, 2x
- energy audit, 3x
- electronic billing, 3x
- online client account, 4x
- smart metering, 3x
- apps providing feedback on energy consumption using smart phones, 1x
- web-based platform to manage smart grids, 1x
- installation of RES production devices, 1x
- consulting office for thermal insulation in the built environment, 1x

How this report is structured

In order to investigate the legislative environment which impacts the ability of REScoops to implement the tools identified above, we have organized this report as follows. In the first half of the report, we will explore the management of personal data, which is crucial because it impacts the relationship between the REScoops and their members. Consumption data are private data in most of the analysis that we could find, and therefore needs to be protected and handled with great care due to the legal and communication risk it represents. In general, the European legal environment is not particularly homogenous and therefore causes a set of different problems to each local cooperative. However, a set of constrains, which is more or less present in each local environment, can be summarized. Also, we can extract from the work done at the European level some best practices to be used by data controllers in the management of data privacy.

In the second half of the report, we will take a look at the legal environment surrounding energy efficiency. Energy Efficiency Regulations are at the cross-roads of market rules, building and construction regulation, and consumer protection. For this reason, we will only review aspects of the legislation that is relevant for REScoops. In a large number of EU countries, regulations are still not to the standards that we could hope considering EU requirements .

Finally, we will assess the legislation being currently discussed and provide a brief outlook on what EU legislation could look like in a few years.

Methodology

In order to prepare this report, we used a combination of documentary research and qualitative interviews from members of the local REScoops. We also benefited from the support of legal experts from Client Earth and EDPS (European Data Privacy Supervisor). We attended, and hope to consolidate here, information gathered at several conferences and workshops.



The documentary research was mostly around EU legislation, but also the work of the Institut Negawatt⁵, and reports from the Council of European Energy Regulators (CEER), the Agency for the Cooperation of Energy Regulators (ACER) and E-Bridge. Finally, we received the support of the EDPS through trainings at the European Commission.

The qualitative interviews were realized with each of the cooperatives participating in the project (ENERCOOP, ECOPOWER, Som Energia, Avanzi, ODEcentraal, SudTirool Energieverband (SEV), EBO Consult and Coopernico). We conducted interviews with the responsible people in each of those cooperatives, which lasted between 60 and 90 minutes depending on the content. The cooperatives also filled in a questionnaire regarding data privacy and market barriers to entry.

Data Management

Article 8 of the European Charter of Fundamental Rights provides the legal foundation for the individual's right to protect the privacy of their personal life, which includes the protection of their data. This right is also very much tied to the individual's right to a private family life (Article 7).

The European framework for personal data is composed of three main instruments, Directive 95/46/EC⁶, Regulation 2001/45/EC⁷ and Framework Decision 2008/977/IHA⁸. Several other instruments also directly or indirectly impact the Data Privacy debate at the EU level: The regulation of smart grids and smart meter technologies directly impact the way data privacy is implemented in technical systems (like Smart Meters, DMS and Energy Saving services). Directive 2002/58/EC⁹ must be taken into account when using smart tools and collecting and processing data. These instruments are complemented by recommendations of the EDPS. The European Commission has also elaborated upon data management in its Smart Grid Task Force, created in 2009. Specifically, the task force conducts prospective work regarding the development of data privacy. The work around data privacy has been complemented by advices from the Working Party 29¹⁰.

The framework around data privacy was updated in 2016 with the adoption of a new Directive and a new Regulation replacing the previous legal framework. This report will explore existing legislation, and provide a view on the advances made by the EU in the new legislation.

Finally, there is limited treatment of customer privacy in the legislative framework governing the energy market. Albeit very limited, this legislation is also being revised to ensure data protection, security and privacy, particularly in the context of further digitalization and deployment of smart grids and technologies. There is a short mentioned in the Directive 2012/27/EU Article 9(2)(d)¹¹ is

⁵ *Manifeste NégaWatt : En route pour la transition énergétique !*; Association Négawatt, Thierry Salomon, Marc Jedliczka, Yves Marignac ; Babel édition ; 22/10/2015

⁶ Directive 95/46/EC on protection of individuals with regards to the processing of personal data and on the free movement of such data

⁷ Regulation 45/2001/EC on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data

⁸ Council Framework Decision 2008/977/JHA on the protection of personal data processed in the framework of police and judicial cooperation in criminal matters

⁹ Directive 2002/58/EC concerning processing of personal data and the protection of privacy in the electronic communication sector (Directive on privacy and electronic communication)

¹⁰ The Working Party 29 is an independent European Advisory body on data protection and privacy. Its tasks are described in Article 30 of the Directive 95/46/EC and Article 15 of Directive 2002/58/EC

¹¹ Directive 2012/27/EU on energy efficiency

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mentioning that the data extracted from smart metering shall be made available in an “understandable” format, but it does not make any statement regarding what this might mean. This topic is meant to take a bigger place in future legislation for the energy.

Data Privacy

The definition of “personal data”

Data Privacy is linked to the protection of the “personal data”. However, this does not concern all data linked to a single person. Therefore, the most crucial aspect of ensuring protection of data privacy is the definition of personal data, which will inform any decision about the protection of such data. The definition according to the Directive of 1995 is the following:

‘Personal data’ mean any information relating to an identified or identifiable natural person (‘data subject’); an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity.¹²

This definition could include a wide range of information that could be traced back to a private person. For instance, reference to an “identification number” implicates smart tools that are increasingly being used in today’s electricity systems. The individual consumer’s label, for instance their meter number, should also be considered “personal data”.

The definition of “personal data” is an ongoing topic of discussion however. For instance, under recent case law¹³, personal data is not linked to “data relating to private life” but to identifiers of that would lead back to a singular individual. In this broader sense, the consumption data used when providing energy efficiency services could also be considered personal data. While consumption data is usually considered personal data on its own, it can be anonymized so not to allow for formal identification of the individual consumer. But it can easily be the case if context data is provided. That is why a set of rules must be followed in the use of such data for various purposes. This also why the legislation has provisions regarding those various developments, and the ultimate decision to what is personal or not, is in the hands of data supervisor at the member-state level.

Aspects of the individual to which the definition of personal data applies is defined in Directive 95/46/EC, and since then its scope has only increased . In the Directive, the definition included several factors. Any data identifying direct, indirectly a person or one of his characteristics (physical, psychological, mental, economic, cultural or social) is considered “personal”. This definition was enriched by the 2016 legislation, which added several identifiers to the list: personal data now refers specifically to identifiers such as localization and online identifiers, or to one or more specific factors including genetic information.

The restrictions to the right to privacy that may apply to our case are not linked with traditional security measures but are more about:

- Important objectives of general public interest, in particular to economic or financial interests of the Union or a Member State including monetary, budgetary and taxation

¹² Directive 95/46/EC on protection of individuals with regards to the processing of personal data and on the free movement of such data

¹³ Case C 615/13-P; Client Earth & PAN vs EPSA

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matters. This means that for tax purposes the public authorities may get around the personal nature of the subject's data, for example to fight against discouraging mechanisms against energy efficiency.

- The prevention, investigation, detection and prosecution of breaches of ethics for regulated professions (which includes TSOs).

Those restrictions directly apply to the activities of Energy Efficiency, since at the beginning of any optimization mechanism there is processing a consumption data, which is "personal". This also has another implication linked with the portability of data. This aspect is especially crucial as it becomes a market weapon in the hands of monopoly actors to favor some partners by delivering to them data in an easier way.

The actors of data privacy

EU legislation defines the roles of the organizations that have access and responsibilities in preserving the privacy of personal data throughout their processing for whatever purpose the data subject gave consent for. Those roles did not evolve much between Directive 95/46/EC and Regulation 2016/679/EU, although the roles of each actor in the privacy chain are more detailed and the responsibility of each of them is now more clear. The three actors are: the supervising authority, the data controller, and the data processor.

The data supervisor

The supervising authority is both at the Member State and the EU level the public body responsible for legislating and protecting the citizens. The new Regulation however makes it mandatory for Member States to design and run a supervisory authority and to cooperate at EU level in order to bring more homogeneity to the EU data privacy landscape. This is a very positive point compared to previous legislation. Cooperation is enhanced in Directive 216/680 article 50(1) and in Regulation 2016/679 article 50 and 51(2) for the purpose of legal pursuits and for European relationships between the supervisors. The creation of the European Data Protection Board and the enforcement of its powers will be an important step in better integrating the European privacy legislative environment. It is to be noted however, that this is only a consultative body. It is necessary that this integration continues in order to bring more clarity at the European level regarding data management.

The tasks of supervising authorities are set in articles 57 and 58 of the Regulation 2016/679. Besides the traditional powers and responsibilities of those agencies to enforce the law, they are responsible for giving advice to data controllers and processors regarding the data protection impact assessment and, therefore, the ways to protect the personal data of the consumers¹⁴.

The data controller

Data controllers are defined in EU legislation as a "natural or legal person, public authority, agency or any other body which, alone or jointly with others determines the purposes and means of the processing of personal data".¹⁵ The responsibility for the protection of the private data will be shared between several actors. This allows other actors, beside the supervising authority, to carry the burden of ensuring the correct management of personal data. Data Controllers could be any number

¹⁴ Article 57 par. 1.I of the Regulation 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data

¹⁵ Directive 95/46/EC

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of organizations (including REScoops). Finally, Article 26 on joint controllers also allows for several organization to share this responsibility. The fact that responsibility for data protection can be assumed through joint organization is interesting for small organizations. The responsibilities of the data controller are linked with ensuring the safe processing of the data and monitoring the actions of the processors. Under the new legislative framework, this is ensured by “data protection by design and by default,”¹⁶ a concept that encourages system owners to build their processing systems with data protection at the core¹⁷. We will touch upon this topic below. The new legislation also further defines the role of the controller:

- The obligation to record processing activities (Article 30). This responsibility is particularly important for REScoops practicing energy efficiency services since all processing applied to the personal data must be recorded;
- Designation of a data protection officer (article 37), whose tasks are to ensure impartial safe keeping of the data; and
- The reporting any data breach to the supervising authority (article 33) and the assessment of the risks of such breaches by a data protection impact assessment (article 35).

In general, the definition of the data controller is the center-piece of the personal data protection under EU law. This role could be assigned to any organization capable of handling personal data. This might be a barrier to the use of personal data by REScoops for Energy Efficiency purpose, or a great opportunity if this status is made accessible to the cooperatives.

The data processor

A data “processor” is a “*natural or legal person, public authority, agency or any other body which processes personal data on behalf of the controller*”.¹⁸ The processor is the actor actually processing the data and therefore is the most vulnerable to breaches of the personal data. Most current actors in the market such as DSOs, Suppliers, Cooperatives, Service Providers, would be considered a data processor. The main obligation of a processor is to report to the controller and the supervising authority. The processor is also at the center of the data privacy by design strategy as the executant.

Managing the privacy of “personal data” is a complicated task. Therefore, the instances in which personal data needs to be processed should be minimized as much as possible. The process of determining if a piece of data is “personal” or not is a large challenge, although as we saw the definition is quite expansive. The next challenge becomes how to use and maintain such data, either by getting rid of the “personal” nature of the data or by following the correct processing described in the applicable legislation. This will be explored below.

¹⁶ Article 25, Regulation 2016/679 on the protection of natural persons with regards to the processing of personal data and on the free movement of such data

¹⁷ The concept of data privacy by design is explored in the paper of Seda Gürses, Carmela Troncoso and Claudia Diaz of KU Leven; *Engineering Privacy by Design*

¹⁸ Directive 95/46/EC

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Data Processing

Given the personal nature of the consumption data used in most energy efficiency services provided by the REScoops, precautions need to be taken when dealing with such data¹⁹. The following are relevant from the individual's perspective:

- They have a right to access the collected data;
- They have a right to modify and erase all data provided. The data can also be so called "blocked" which is the process of "marking of stored personal data with the aim of limiting their processing in future";
- They have a right to know that their data has been collected / shared / used;
- They have a right to know for which use the data will be used; and
- Any processing of the personal data must be confidential and secure.

Data controllers may receive private data from their customers and/or members. Therefore, the above rules must be respected, particularly when REScoops are deploying informative tools. Because such tools are based on the collection and processing of personal information, it is important to:

- Obtain the formal consent of the data subject;
- Inform the regulator;
- Create a secure processing environment where the data can be analyzed; and
- Inform both the citizens and the regulator of any use of those data for other purposes than the ones advertised in the first consent was obtained.

As part of these duties, special attention must be paid to anonymizing the data and transmitting it to a third party. The rules of data processing are built around the concept of "consent". The concept was first brought forward in Directive 95/46/EC Article 7(a). This concept was however not explained in the legislation. This notion of "consent" is described in more detail under Regulation 2016/679. However, before dealing with personal data, data can be also processed in order to take away the "personal" nature of such data.

Data Anonymization

The process of anonymization consists of actions taken to make a single piece of the set unidentifiable. By aggregating the data and processing it as one single entity, the data processor avoids the personalization of the data and therefore the capacity of any third party to identify one single data subject. This process is described in the 1995 legislation as "to make anonymous," which means *to modify personal data in such a way that details of personal or material circumstances can no longer or only with disproportionate investment of time, cost and labor be attributed to an identified or identifiable natural person.*²⁰

Under the new legislation, the process of anonymization is put into focus and a technique known as "pseudonymisation" is cited. The anonymization process is also described in more specific details as a way to make the data non-relatable to the identify of a single person. Identification should be made impossible in a reasonable way, whether by adding or reverse engineering specific information. The legislation also adds a notion of cost and time when talking about a "reasonable way" of

¹⁹ Charter of Fundamental Rights of the European Union; 2000/C 364/01

²⁰ Directive 95/46/EC

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identification²¹. This is especially interesting because it opens the question of how to process data, and its impact on data privacy. What we imagine is that in the coming years, and with the rapid development of technology, this requirement is going to become more and more difficult to reach. This issue is being dealt with by the Smart Grid Task Force, through the publication of the Data Protection Impact Assessment (DPIA).

Any data that has followed the process described above should be considered anonymized data and used accordingly. It is to be noted that, besides an in-depth analysis of the risks linked to the status and sensitivity of any type of data provided by the members, it is important to remember that any new piece of data brought forward by the members could call into question the anonymized status of this data.

Data Protection by Design

The Data Protection Impact Assessment is referenced in Regulation 2016/679 (article 35) as part of the dialogue between the controller and the supervising authority. The reference to this assessment is linked with the template produced by the Expert Group 2 of the Smart Grid Task Force in 2014²². This report is focused on the smart grid and smart meters, but can be extended easily to any type of smart technology necessary to measure the consumption of consumers. Consumption data is at the center of most of the tools that will be developed by the REScoop PLUS project. The DPIA is at the center of the strategy of the European Commission to promote Data Protection by Design.

The concept of “*privacy by design and its concrete implementation whereby data protection compliance would be embedded throughout the entire life cycle of technologies and procedures from the early design stage to their deployment and use*”²³. This concept should be taken into account when designing any type of systems that rely on “personal data”. However, the European legislator is not giving a lot of details on how to realize concretely this data protection by design. During our research, we found that the most common denominator is linked with the minimalization of the data collection. This is the point of view defended by the team at the K.U. Leuven regarding the way to ensure data security. However, it is still an on-going topic, which we hope will be tackled by the Smart Grid task force. We will propose our own solution later on, in the best practices. Data Protection by Design must be at the center of the energy efficiency tools developed by the REScoops, and could become a competitive advantage due to inherent transparency toward the citizens linked to the cooperative model. The data privacy by design is at the center of the recommendations of the European Commission. The consumers are more and more aware of the nature of the power they are giving away when giving their personal data. Therefore, we could see in the future the REScoops being leaders in the management of personal data and pushing the other actors of the energy efficiency world to treat personal data more responsibly. This is because, in the end, Data Privacy by Design relies on the step by step consent given by the data subjects.

The nature of Consent

Consent is at the center of processing “personal data”. The first appearance of the notion of consent in Directive 95/46/EC, is in the article 7, where it is mentioned as the “criteria for making data

²¹ Regulation 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data

²² https://ec.europa.eu/energy/sites/ener/files/documents/2014_dpia_smart_grids_forces.pdf

²³ Engineering Privacy by Design, Sedo Gürses, Carmela Tronsco, Claudia Diaz; KU Leuven
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processing legitimate". Article 7 refers to "unambiguously given" consent as well as compliance with local legislation. The new 2016 Regulation adds "conditions of consent" (article 7), which deal with all unethical behaviors put in place by data processor trying to extract consent from the data subject:

- The consent must be given unambiguously when presented with a choice separated from other matters, and in plain and accessible language;
- The data subject must have the possibility to take away this consent at any time; and
- The consent must be given freely and without the pressure of performance of a service that has nothing to do with the requested data.

The collection of data is not the only problematic issue that is dealt with by the protection of the personal data. The processing of those data is also regulated. The processing of personal data is most sensitive because that is how most of the monetary value of those data can be extracted. Up to now, of the scope of protections under the article 9 of the Directive 95/46/EC, were limited only to underage children. Article 6 of Regulation 2016/679 refers to consent in much more specific terms, specifically that "the data subject has given consent to the processing of his or her personal data for one or more specific purposes". This last part is especially important because it references the fact that the data subject may attach to his consent to the controller to a specific processing of their data. This is to be cross referenced with Article 15 of Regulation 2016/679 about the obligations of the controller to inform the data subject about any processing done to his or her personal data. This legislation will hopefully close a gap that previously opened the door to abuse of the personal data. In the past, and currently, controllers would collect data for one purpose and use the consent once given over and over again for other processing purposes.

The above applies when providing Energy Efficiency services, and therefore, any further processing of personal data (for example to provide services) must be notified to the data subject. The request of consent can be avoided when the controller is benefiting from a contract that relies on the processing of personal data, or when there is a legal or moral obligation but always submitted to the respect of fundamental rights of the subject. The legislation also provides a framework regarding further processing of personal data when the consent is not explicitly given. However, it is worded in broad terms, allowing processing for a "compatible purpose for which the data was collected", which may still serve as an open door for abuse of the data subject's rights.

Also, the debates which reside around consent and the ways to extract it from the data subjects, is still very much open. During a workshop around data privacy in the age of big data (organized by BEUC in partnership with the EDPS), it appeared very clearly that the debate around the abuse of the data subject's consent is still a big issue in the market place. This relates to companies with dominant market position who extract data based on terms of conditions that are too long, to unrelated data requests from service providers that take advantage of the social pressures on the consumer.

In the energy market, the problem of consent is especially felt since the personal data of our consumers is captured and held by dominant market actors²⁴. Specifically, consent for the collection and use of data is systematically not asked properly, consumers are kept in the dark, and they are not given the clear choice that they deserve. This unethical behavior impacts REScoops in two ways: first, it impacts our members and creates a need for cooperatives to be proactive in informing and

²⁴ Cf. Opinion 8/2016 of the EDPS; 23/09/2016

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training their members. The second aspect, which directly impacts the ability of REScoops to provide energy efficiency services, is the inability of consumers to direct their supplier to share their consumption data with the cooperative at their request. This will be our next point.

Data Portability and Accessing data

The work of the European Commission to create the digital single market, as well as the free movement of persons, goods and services, brought quickly forward the problem of the transfer and sharing of data, including personal data. But it is only recently that this “right to data portability” was recognized (Article 20 of the Regulation 2016/679). The concept of data portability however was first tackled in Regulation 45/2001. Considering that this right is created in the new legislation, a number of new obligations have emerged for data controllers.

The right to data portability can be divided in three separated topics: 1) the right to receive personal data; 2) the right to transmit personal data between controllers; and 3) the tools of data portability. The right of data portability concerns all personal data provided by the data subject. However, the type of data is relevant for determining the responsibilities of the controller. The data subject can provide two types of data²⁵:

- Data actively and knowingly provided by the data subject, and the inferred data produced out of their treatment; and
- “Observed data”, meaning data collected by virtue of the use of a service or a device is included in the “personal data” category.

The first type of data described above would fall under the purview of the individual’s right to data portability. Processing of the latter type of data, however, even though it is considered “personal data”, is not systematically included in the right to portability. For example, assessments or profiles derived or inferred from such data will not be considered “*provided by the data subject*”, and therefore will not be included under the new portability right. This would apply to consumption analysis and other first steps included in the consulting on energy efficiency.

The right to receive personal data

The Right to receive personal data is the right of the subject to receive, store and transfer his or her personal data for further personal use, without transmitting it to another data controller. In this sense, it complements the right to access of the data subject²⁶. The right to data portability is conceived as empowerment of the data subjects regarding their own personal data. It aims to rebalance the relationship between the data subject and data controller. The way of providing the data is also described as “*structured, commonly used and machine-readable format*”. This commonly used format is meant to help the data subject support their own data and be able to understand and use their own personal data before, if needed, transmitting them further to another data controller.

The right to transmit personal data from controller to controller

The second part of the right of portability is the Right to transmit personal data from one data controller to another. This right covers the obligation of the data controller to transmit personal information at the demand of the subject or in order to allow performance of a contract without

²⁵ This part is an adaptation of the *Guidelines on the right to data portability*, from the WP 29; adopted on 13/12/2016

²⁶ Article 15 of the Regulation 2016/679

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hindrance. It prevents the data subject from being “locked into” a relationship with one data controller. This should be enforced with two reserves. The first one being that any transmission should be performed without prejudice to the right of another subject, and by extension without prejudice to intellectual property and trade secrets. The data transmitted must be as provided, meaning without modification or corruption that would make its use impossible.

The tools of data portability

As demonstrated above, the format of the data is also important. The “*structured, commonly used and machine-readable*” formatting use that was described also applies here to relationships between controllers. The clarifications of those terms are given in the recital of the regulation:

Recital 68: interoperable²⁷ is defined as “*the ability of disparate and diverse organizations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organizations, through the business processes they support, by means of the exchange of data between their respective ICT systems.*”

The above definition gives a better idea of what is expected from data controllers in terms of transmission of information. The aim is not to have compatibility between all systems, but to make the systems interoperable. The other useful definition comes from Directive 2013/37/EU, and defines the “machine readable” standard: “*a file format structured so that software applications can easily identify, recognize and extract specific data, including individual statements of fact, and their internal structure.*” the directive also adds “*Documents encoded in a file format that limits automatic processing should not be considered to be in a machine-readable format*”.

These points give a better idea of the type of restrictions that EU legislation places on the transmission of data, and pushes back on unethical behavior regarding the transmission of consumption data from support market actors of the energy system. Finally, the last point mentioned in the recommendations of the Commission regarding the transmission of the data is the inclusion of as much meta-data as possible of in the transmission of personal data, in order for the receiving controller to know when, how and for which purpose the data was collected. This is especially important because it allows the receiving controller to have better idea of the processes the data have been through, and which kind of permissions the subject had given to the previous data controller. This is important for our case because we want to know to which extent the dominant actors of the market have abused the data that we receive in the end. In order to guide the data controllers in making the data more readable and to better integrate our systems, the European Commission as, through the IDABC²⁸, created a European Interoperability Framework²⁹. The new Regulation 2016/619 and Directive 2016/680 push the Member States on the road of harmonization of legislation and standards. But it is still a struggle for smaller actors to share standards that are built for larger actors, with larger infrastructures.

/The format of the consumer data is touched upon in the 2016 proposal of the European Commission on common rules for the electricity market. Articles 23 and 24 state that “*Member States shall organise the management of data in order to ensure efficient data access and exchange*”. This takes on the issue of unfair advantage given to organization defining the “standard” used for data

²⁷ Interoperable is recommended in the Article 2 of Decision No 922/2009/EC

²⁸ Interoperable Delivery of European eGovernment Services to public Administrations, Businesses and Citizens

²⁹ <http://ec.europa.eu/idabc/servlets/Docd552.pdf?id=19529>

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portability. The addition of a standard transmission process like it is foreseen in article 24 would help greatly in making data portability less of an uncertainty for small organization. This will benefit greatly in building a smoother flow of the information between market actors.

On the other hand, the will of the European government is clearly to make all data processing more responsible, not only personal data. New legislation is focused much more on the use of the data rather than simply on its categorization, which would not give enough weight to the way the data is processed and accessed. For example, the fundamental rights of the energy consumers, the European Commission formally states that each consumer is entitled *“to be properly informed on the benefits of using equipment and vehicles using renewable energy and be properly informed on how much energy they use and how to use energy more efficiently”*³⁰. This, added to the fact that easier processing can be admitted in case it is done in the favor of the data subject, could speak to the REScoop being privileged in the way they are processing and using the data in order to give better service to their members. BEUC, the EU consumer organization has put forward in their position paper on a consumer driven digital single market³¹, the need for re-enforcing the trust of the consumers in the single market, and the transparency and community-benefit centered approached of the REScoops could make them leaders in the enforcement of proper data management standards, data privacy being part of it. This is what we will discuss in the next section of this chapter.

Best Practices

In general, the REScoops that we interrogated brought forward the fact that in their respective jurisdictions, data privacy is not an issue for them at the moment. They are using the data of their members entrusted to them as clients. Therefore, the level of transparency of the cooperative provides a strong benefit for the implementation of the tools of the REScoop PLUS project. A lot of the members of the cooperatives are actually asking for extra services based on the ones provided by the REScoops, and are willing to share more personal data in pursuance of that objective. Some of these examples are provided below.

Ecopower and the 100% renewable pursuit

Since its creation, Ecopower, the largest cooperative in Belgium, has been pursuing a balance between its production capacities and the consumption of its members. In that pursuit, and because of the long development time of the renewable production in Belgium, Ecopower decided to work on the two sides of the equation. It became obvious that to reduce the consumption of the members was as important as to develop new production projects. Since the beginning of 2017, Ecopower is covering 100% of the electricity consumption of its members with renewable energy produced by its own installations.

The essence of the renewable energy cooperative is to cover the energetic needs of its members by renewable sources, which was the hope on which Ecopower was built. The main challenge was the rapid growth of the membership, which made it difficult to match consumption with production. The first measure that Ecopower put in place was strong customer support to answer energy efficiency related questions from the members that desired to lower their bills. The targeted advice of energy experts from Ecopower allowed a lot of the members to be sensitized to the topic of energy

³⁰ European Energy Consumer rights; Publication Office of the European Union; 2014; https://ec.europa.eu/energy/sites/ener/files/documents/mj0214530_en.pdf

³¹ *A Consumer-Driven Digital Single Market, BEUC Strategy*; BEUC; 09/2015
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efficiency, and provided a basis for future engagement by the cooperative in favor of energy efficiency. The second step was a more proactive approach. The customer support team is targeting the members with high consumption and calling them to inform them and support them in changing their behavior.

The final step was a tool to help the members of Ecopower to take ownership of their consumption. This was realized through a partnership with Energie ID. As a platform, Energie ID uses the data provided by the user to make a consumption profile and give them access to a support group animated by the energy experts of Ecopower. The use of data, first internally, then through a medium, was closely monitored by the cooperative and its partners. From this activity, a “Gold Standard” of energy privacy is being created by Energie ID to deal with the members’ data, the aim of which is to make data privacy and the use of members’ data more clear to everyone.

The Gold Standard, the competitive advantage of Data Privacy for REScoops

As part of the redaction of this report and the work on the REScoop PLUS toolbox, the team of REScoop PLUS is looking at creating a guideline for REScoops to implement as they deal with data privacy. The main purpose of these recommendations is to help demonstrate the uniqueness of the cooperative model and to give ideas to REScoops on how to implement data privacy in a way that allows members to benefit from services while having trust that their personal data is well protected. We identified 5 main principles that should apply when creating a fair approach to data privacy.

The base of data management

In their opinion paper of April 2014³², the Working Party 29 delivered an opinion on the anonymization process and the management of personal data. This question of *what is anonymized data* is at the center of the effort of the data controller to manage the data. There are two main methods of dealing with personal data: one, to put in place processes and controls to ensure the protection and the proper use of those data; and two, to de-anonymize the data in order to be able to use them in a personalized way. We will review best practices for each of these methods.

The main barrier that needs to be considered when dealing with the anonymization process is: this process needs to be continuous. Personal data is private even if the data can be considered at a certain point as reasonably anonymized. The addition of context data, or simply the natural progression of the data mining technique and technology make it impossible to consider a meaningful data set as completely protected. The second constraint that is faced when dealing with anonymized data. Article 5(3) of the e-Privacy Directive (2002/58/EC) prevents storage of and access to “information” of any type (including non-personal information) on terminal equipment without the subscriber’s/user’s consent as this is part of the broader principle of confidentiality of communications. Therefore, even though the information is not private it will be protected and not easily accessed.

Three questions

The report of WP 29 describes how to assess an anonymization technique by grading the techniques according to the answer to three questions:

- Is it still possible to single out an individual?
- Is it still possible to link records relating to an individual?

³² Opinion Paper 05/2014 on Anonymisation Techniques; WP29 Data Protection Working Party
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- Can information be inferred concerning an individual?

By answering these questions, we can assess the vulnerabilities of each technique for anonymizing data. Usually a combination of several techniques is used in order to optimize protection. However, it is to be noted that anonymization is an on-going process and should be monitored closely in order to ensure protection of the dataset. Below we describe several of the identified techniques to anonymize the dataset.

Different techniques

Each technique is defined in more detail in Opinion 05/2014 of the Working Party 29³³. Therefore, we will just give an overview of the identified techniques for anonymizing a data set. This is not a full catalogue of the possible measures, but is simply an overview of the well-established techniques:

- **Pseudonymisation:** This technique consists of replacing one attribute by another in the record. This methodology is mostly to reduce linkability but will not alone make the data set anonymous. The idea is to use a key or an element to make this identifying piece of the data un-identifiable. This key can be more secure as its encryption is more successful.
- **Noise Addition:** This technique consists of adding “noise” to the dataset, which means reducing the specificity of some of the attributes of the dataset in order to make it impossible to identify a single individual. Used with other techniques, this method can be used to efficiently remove a quasi-identifier, although it requires a deep understanding of the level at which the information is private.
- **Substitution:** This technique is based on switching some values in order to link them artificially to different data subjects. This technique is interesting when it is necessary to keep the exact data in the set. This technique is especially vulnerable if the values are strong identifiers, therefore allowing identification by a simple logical analysis.
- **Aggregation or K-anonymity:** This technique aims to prevent the identification of a single data subject by grouping the subjects in at “k” categories. To achieve this, attributed values must be aggregated according to their nature. The point is to extend the group to the individuals that share the same values, for example by lowering the granularity of localization values, or creating intervals for numerical values. The main pitfall of this technique is linked to the outliers that will be easily identified because they will occupy alone a category.
- **L-diversity or T-closeness:** This technique is an extended version of the aggregation technique in which we make sure that there is a certain number of values per category. The point is to add “L” values to each category making it difficult to identify a single data subject. Finally, each category is adapted to the distribution of the dataset, and therefore has an adapted number of category for each dataset with a fixed number of values in each of them.
- **Differential Privacy:** This technique is usually used in the case of a query from a third party, and allows the original information to remain with the data controller. When delivering a sub-set, the differential technique is the amount of random noise added to the sub-set in order to make it un-identifiable. The strength of this technique lies in the fact that despite releasing the information to a third party, the controller is capable of answering a query in a rather accurate way because it keeps the original information. However, it is important to keep track of the query in order to avoid cross-referencing.

³³ Opinion 05/2014 on Anonymisation Techniques by Working Party 29; Adopted on 10 April 2014
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- **Hashing/Tokenization:** Hashing and Tokenization are variations of the Pseudonymiation technique, where the key is encrypted in a specific way. tokenization is a technique by which a random value is assigned to an attribute and replaces it completely. The index table or function is then used to decrypt the dataset. Hashing is the use of a function which returns a fixed output from an input of any size. The main risk of this technique is that through brute force an attacker can find the function used. That is why it is interesting to “salt” the hash function with adding random non-related values.

Efficiency of the techniques

To summarize the efficiency of each of the methodologies that we introduced in the previous section:

	Is Singling out still a risk?	Is linkability still a risk?	Is Inference still a risk?
Pseudonymisation	Yes	Yes	Yes
Noise Addition	Yes	May Not	May Not
Substitution	Yes	Yes	May Not
Aggregation or K-anonymity	No	Yes	Yes
L-diversity	No	Yes	May Not
Differential Privacy	May Not	May Not	May Not
Hashing/Tokenization	Yes	Yes	May Not

As is made apparent by this table, the currently available techniques for anonymizing personal data have only a limited efficiency. In the next section, we will discuss some ways to manage personal data in a way that limits the risks linked to the exploitation of private data. Ultimately, because anonymization is a difficult process, we need a way to minimize our exposition as data controller.

The mitigation techniques

As it was made clear above, the questions linked with data privacy are obviously not only technically challenging but also moving in time. As data controller, we are responsible for the data protection and management of our clients and members. Therefore, below we propose some techniques gathered in the literature that would help move forward the thinking about data management in Europe.

Data minimalizations

The first and most straight forward technique is data minimalization. This is defined in the paper of Pr. Seda Gürses, Pr. Troncoso and Pr. Diaz of the University of Leuven³⁴ as a part of the Privacy by Design concept. The principles are extracted from Article 6(1)(b) and 6(3)(c) of the Data Protection Directive,³⁵ which state that personal data must be “collected for specified, explicit and legitimate purposes” and must be “adequate, relevant ad not excessive in relation to the purposes for which they are collected and/or further processed”. From this legal basis, and in order to avoid a large exposure to risk brought forward by the processing of personal data, through data minimalization only data that is absolute necessary for the service proposed is collected. Therefore, any service

³⁴ The concept of data privacy by design is explored in the paper of Seda Gürses, Carmela Troncoso and Claudia Diaz of KU Leuven; *Engineering Privacy by Design*

³⁵ Directive 95/46/EC

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should limit the amount of personal information requested to that which is necessary for its performance. The services that requires less personal data should be rewarded.

This calls upon the idea of “privacy by design” whereby the use, and therefore collection, storage and processing of personal data should be at the center of the design of any new technological product. This concept, as introduced by the Working Party 29 and the EDPS, includes data minimalization in its founding principles³⁶.

Frame by Frame consent

The issue of consent is getting more central to policy debates in Brussels. As pointed out by a great number of the consumer protection associations, the current state of consent gathering from a wide number of operators is suffering from a great number of crippling limits. Those limits include, but are not limited to: a lack of information to the consumer, consent forms too long to be read, and “social blackmail,” through which services are conditioned on extensive requests for personal data even though there is no clear link between the performance of the service and the data collection. These are only some of the abusive practices undertaken by market actors.

The solution that we are recommending to deal with these issues is “frame by frame” consent. It is a straight forward concept that recommends the update of the consent each time personal data is processed. For example, consent is requested in relation to energy efficiency service “recommendations regarding your energy consumption” for the use of the consumption data and the name of the consumer. In a second stage, we are proposing the service “recommendation for renovation of your house”, and we ask for consent for the capture of other personal data: size of the house, number of person in the household, localization, etc.

This allows consumers to be updated in real time with the status of their personal data and to enhance transparency of the processing. The added value is that the consumer will be much more engaged in the energy savings process. The data privacy becomes then not a barrier but a value adding process.

Training and Information

Finally, it is necessary for REScoops to train and inform their members regarding the management and collection of their personal data. The abusive behavior of a large number of the market actors are made possible largely because of the lack of knowledge and understanding of the data privacy framework under which we are all living. The role of the data controller is to make those frameworks, risks and opportunities understood. Transparency is part of the Cooperative values and it will become a competitive advantage in the age of the data mining and exploitation. The abuses pointed out by the EDPS and consumer organizations will continue unless we take on the task of shedding light on this opaque process. This is the main purpose of building a gold standard of data privacy for REScoops.

Conclusion

Data Privacy is an issue that is to be considered while developing the energy efficiency tools of the REScoop PLUS toolbox. The legislation on data privacy is about to be revised in order to take into

³⁶ Working Party on Police and Justice. The future of privacy: Joint contribution to the consultation of the European Commission on the legal framework for the fundamental right to protection of personal data. Technical Report 02356/09/EN WP 168, Article 29 Data Protection Working Party, December 2009
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account the changes in the current energy market. But despite the necessity to be aware of the protection of the personal data, this was never a barrier to the cooperatives that we interrogated because the transparent model of the REScoops allows for a trust to be built with the members and for the members to be informed clearly about the activities of the REScoop and what is happening to their personal data. However, and to ensure the clear view of our members, the REScoops are taking steps in the direction of harmonization of the data privacy process and the creation of a gold standard. Setting the bar high will make the REScoops the leaders on what will become a competitive advantage in our societies where data is gold and privacy is a luxury.

It is obvious that an effort was made in Regulation 2016/619 and Directive 2016/680³⁷ to clarify the roles of each actors of the chain of privacy of the data. However, it is to be noted that there is no specific format or process given by the 2016 legislation. This therefore does not solve one of the clear issues faced by the starting REScoops when faced with the barriers put on them by DSOs around Europe. The format of the consumption data then is commonly-used, but the standard is created and upheld by the representative of the status quo, and therefore used as a barrier to entry for smaller organizations.

Data privacy is becoming a central point for the legislation of energy markets, which in the future will deal directly with consumer's data management, security and processing. Data protection is not a new concept in the European legal framework, but the evolution of the market and the uptake of new technologies is changing the way we appreciate and use data, personal or otherwise. The wide scale roll out of smart meters, the smart captors, and to a certain extent the IoT (Internet of Things) movement is exposing new challenges to the security and protection of consumers' data. At the same time, the knowledge and point of view of the users are evolving. They want easier portability of their data and at the same data for those data to be better protected. In terms of building a market where data are not an unfair advantage to a certain number of player, data portability is also crucial. Access to consumer data is becoming more and more a central question to the business model of energy actors. The right of consumer to award their data to the supplier of their choice while having them protected is key. The legislator needs to work in that direction. But the delicate balance between law and best practice is a challenge in which the European Union will need help with. The REScoops are natural partners in striking this balance between protecting the privacy of the data subjects and offering them exciting services. On this road, we hope that the future legislation will continue improving the right to data portability and support the REScoops' best practice in terms of protecting personal data.

Energy Efficiency Support Schemes and Barriers

In this second half of the report, we will look at the legislative environment for implementation of energy efficiency measures in Europe and the Member States. Such legislation is relevant because it will support REScoops in deploying the tools that will be included in the REScoop PLUS toolbox.

First, we look at European legislation and review the main elements that impact efforts of REScoops to undertake energy efficiency measures with their members. We will then take a look at the most popular energy efficiency promotion schemes that are developed in the European Member States at

³⁷ Directive 2016/680 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data

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this time. The strategy put forward by the European Commission of “Efficiency First” is making us look forward to the development of a strong strategy toward more energy efficiency. The REScoop PLUS project is definitely a part of this effort, as it encourages citizens, through their REScoops, to bring forward energy efficiency as an integral part of their collective work towards the energy transition. This part of the report was written with the support of the Coalition of Energy Savings.

European Legislation

European legislation around the implementation of energy efficiency measure is based on three main instruments:

- The 2012 Energy Efficiency Directive³⁸, which is the driving force behind making the EU’s strategy of Energy Efficiency First. A proposed revision of this directive was proposed in November 2016, in order to promote the achievement of Europe’s 2030 climate and energy commitments, and to pursue an energy sober Europe by 2050.
- The 2010 Energy Performance of Building Directive³⁹ relates to the transformation of the building stock of the Member States in Europe. Buildings are responsible for 40% of our energy consumption, and it is a major battle ground to help reduce our CO2 production. A revision of this directive was proposed by the European Commission in November 2016.
- The Internal Market Directive on Electricity⁴⁰ establishes harmonized rules for all actors in the energy sector in the EU’s internal energy market, and aims for more open competition, as well as a better deal for consumers (e.g. through the provision of certain rights). The directive sets a foundational basis for promoting energy efficiency throughout the internal market, in particular through consumer empowerment (e.g. transparency). Revisions of this directive were proposed by the European Commission, as part of its efforts to promote a new market design and a new deal for energy consumers, in November 2016.

The revisions are being currently discussed.

The Energy Efficiency Directive

The purpose of the directive is to allow the EU to reach its target of achieving 20% of energy saving by 2020 (Article 1). National indicative targets are also set for each Member State (Article 3). The directive then defines a number of measures to be put in place by the Member States so that they are able to meet these targets.

At the heart of these measures is Article 7, which requires energy companies to achieve an annual 1.5% energy savings in terms of final consumption by their customers. To achieve this obligation, Member States must establish Energy efficiency obligation schemes. Member States have discretion in how to set up their schemes. It is to be noted that the Commission wanted to create a white certificate scheme at the EU level but this proposal was let go due to the fear of a high administrative burden on the Member States. However, this article is the basis for the schemes that we will review in the following section. The Member States also have the option to put in place alternative policy options, however, the EEO (Energy Efficiency Obligation) scheme is by far the most popular option with European countries.

³⁸ Directive 2012/27/EU on energy efficiency

³⁹ Directive 2010/31/EU on the energy performance of buildings

⁴⁰ Directive 2009/72/EC concerning common rules for the internal market in electricity

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Also relevant for the REScoop PLUS toolbox, Article 8 of the Energy Efficiency Directive obliges the Member States to devise a way to promote the availability of Energy Audits in their respective markets. The idea is for consumers to be able to dispose of independent, and qualitative service to assess their energy efficiency possibilities. The Member States must also develop programs to raise awareness among households about the benefits of such audits. This is exactly the role that the REScoop would fill, as long as they can become qualified to provide such audits. As such, Article 8 also describes the need for Member States to encourage training programs for the qualification of energy auditors. Furthermore, access of market participants offering energy services must be based on transparent and non-discriminatory criteria.

In addition, under Article 18, the Energy Efficiency Directive promotes participation of business models such as the cooperatives in the market for energy services. Specifically, it states that: *“Member States shall promote the energy services market and access for SMEs to this [the energy service] market,”* in particular through disseminating information on, inter alia, incentives, grants and loans, and providing a list of available and qualified energy service providers. However, while Member States are required to support the proper functioning of the energy services market, they have significant discretion whether to take *“measures to remove the regulatory and non-regulatory barriers that impede the uptake of energy performance contracting and other energy efficiency service models for the identification and/or implementation of energy saving measures”*. This could result in differing levels of market access for REScoops among different Member States.

From the consumer’s side, the directive also provides them with a right to have access to their data (consumption and otherwise) in a fair and understandable way (article 11). This access must be free of charge (article 11). Member States must also take measures to promote empowerment programs so that consumers can receive the appropriate information and support to carry out energy efficiency actions (article 12). While Member States maintain discretion on which tools to use to achieve this objective, the Directive describes a range of instruments and policies to promote such behavioral change:

- *“fiscal incentives;*
- *access to finance, grants or subsidies;*
- *information provision;*
- *exemplary projects;*
- *workplace activities;”*

Finally, Member States are strongly encouraged, through the use of a cost-benefit analysis, to roll out smart meters (that should equip around 80% or the total EU households by 2020⁴¹) in order to empower small energy consumers. These provisions, however, do not deal with portability of the data or facilitate its sharing with service companies. However, article 9(2)(a) Directive 2012/27/EU states that the data provided by Smart Meters installed in the household must be made available to the end-users. However, it does not give a format for which this data needs to be made available, or how to guarantee their portability to other service providers to the end-users. Regarding the deployment of Smart Meters, a last point may be interesting to other actors of the energy system. Article 9(2)(e) requires that end-users receiving a smart meter be correctly informed about the “full

41 Cf. preamble of the Directive 2012/27/EU

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potential” of the tool. That may include other services available, and the amount of data transmitted by the meters.

The directive encourages energy efficiency in buildings, in particular through the promotion of an exemplary role for public buildings (article 5). In this way, the directive also links with the Energy Performance of Building Directive, which is further explained below.

The Energy Performance in Building Directive (EPBD)

The Energy Performance of Building Directive (EPBD) impacts the refurbishing and future development of the building stock of the European Union. The purpose of the EPBD is to help reach the 20% energy savings objective by 2020. Although this is not traditionally the main domain of the REScoops, it is important to note that this directive sets up the framework for many of the energy efficiency decisions in the homes of our members.

The EPBD is interesting for REScoops in two aspects: the first one being the calculation of the energy performance of buildings⁴². According to the EPBD, this indicator must take into account the “positive influence” of renewable production and cogeneration on the building. This provision encouraged the Member States to recognize the role played by self-consumption, and has given way to the *Loi relative à la Transition Énergétique et pour la croissance verte*⁴³ provisions on the calculations of building efficiency in France. This is a mechanism that could be used by the REScoops to encourage both Energy Efficiency and renewable production, like for example in the *Mieterström* model⁴⁴ in Germany. While this calculation is maintained in the 2016 proposal, the interaction with renewable production is still not yet fully recognized. The directive only states a “positive influence” when the major aspects are “taken into consideration” in the calculation. We hope that this relationship will be better demonstrated in the debates to come. Another proposed revision of the EPBD that is relevant for REScoops is the inclusion of the electric vehicle charging stations in the renovation of buildings with more 10 parking spots (article 2). This would definitely be a big step forward in electrification of the transportation sector, and could also help the growth of EV cooperatives that are starting to emerge in Europe.

In the meantime, the EPBD also requires energy performance certificates for buildings, and a framework for the issuing of those certificates (article 11 and 12). This is typically the type of scheme that, coupled with the recommended measure in the Energy Efficiency Directive, may encourage renovations by our members and could support energy efficiency consulting by REScoops. This should cover some of the best practices targeted by REScoop PLUS. These actions of the REScoops could be considered as having a proven impact on energy efficiency, either by changing behavior, or though their consulting to the member, in terms of building efficiency and use. However, the efficient use of the building is not taken into consideration when calculating the performance of a building. The methodology of calculation for the performance of the building can be found in Annexes 1 and 2 of the 2010 Directive. This should be taken into account by the REScoops when advising their members. To recognize the importance of a conscious use of a building capacity and

⁴² Cf. Annex 1 EPBD 2010/31/EU

⁴³ French application law proposed in 2015; <https://www.legifrance.gouv.fr/eli/loi/2015/8/17/2015-992/jo/texte>

⁴⁴ The Mieterström model is a popular model developed in Germany that promotes the implementation of RES production on a building and the sharing of the production between neighbors. To know more:

https://www.polarstern-energie.de/downloads/Wirklich-Mieterstrom_v1.pdf

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the work of the cooperative and community engagements in that aspect could be useful. Behavioral changes which have a large impact on energy sobriety should be recognized as part of the solution for the energy efficiency of the building.

The Internal Energy Market Directive

The Internal Energy Market directive establishes “the rules of the game” in terms of the organization of the energy market. In setting rules for a level playing field for all energy companies throughout the EU to ensure proper market functioning and competition, it provides a foundational basis for energy efficiency measures by the energy sector and consumers, which are supplemented through sector-specific legislation (i.e. the Energy Efficiency Directive and the Energy Performance of Buildings Directive). This includes basic rights that consumers can rely on in order to have access to accurate consumption data, as well as principles on economic incentives to engage in energy efficiency. The electricity market legislation is being currently updated, and a proposal was made by the European Commission. This proposal for a revised regulation (2016/0379) impacts strongly the state of the legislation, and therefore we will try to give a perspective on it below.

Regulated Prices

Despite the aim of the internal energy market regulation to build an open competition and access to the market, it is still at the discretion of the Member States to implement those regulations at the national level. This leaves the door open for national governments to decide the construction and regulation on their energy prices. It is to be noted that the Electricity Directive requires on prices to be based on “*published tariffs*” and the publication of the “*methodologies underlying their calculation*”, but our interviews with the REScoops proved that these calculations are often unclear and poorly justified. Many Member States have today regulated prices, which discourage competition and represent a strong barrier to the inclusion of smaller actors in the local energy markets. The proposed revision to existing Electricity Regulation⁴⁵ deals with this question in its Article 9. This article prevents the national government of fixing the wholesale prices and therefore establishing an artificially built price of the electricity. It also prevents manipulation of the wholesale price by the TSO (Transmission System Operator) through restriction around the price formation. These actions on the electricity prices are also dealt with in Article 8 for transmission costs and Article 16(2) regulating the access charges to the network. These protections will be especially interesting for small suppliers and producers because it will finally prevent the abuse of dominant position that was inflicting the historical actors on decentralized market participants. It opens the door for decentralized production linked with energy efficiency measures that we presented before (Mieterström).

Market access for new actors

Directive 2009/72/EC should provide a level-playing field for new actors to enter and compete in the energy market. It is obvious, however, that today this level-playing field never appeared due to the overwhelming monopoly of historical actors, and the lack of national regulatory frameworks being able to adapt to allow new and small actors, such as REScoops, to participate in the retail market. This enforcement of a market open to new actors is represented by Article 36(e), which encourages the local regulatory authorities to “*remove barriers that could prevent access for new market*”

45 Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003 (Text with EEA relevance)

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entrants” regarding new production capacities. This article is making a reference to the proliferation of decentralized production, and is encouraging more involvement of the citizens in the energy production. This last point is also highlighted by Article 3(3) which states that *“nothing in this directive shall prevent Member States from strengthening the market position of the household, small and medium-sized consumers by promoting the possibilities of voluntary aggregation of representation for that class of consumers”*.

Many national energy markets are also distorted to the extent that consumers are not incentivized to use energy more responsibly. This is because of the systematic upward estimation of the support actors need to provide backup capacity to the grid in the case of a security of supply crisis, and the under-estimation of energy efficiency in assessing adequacy. This barrier is dealt with in Article 18 and 19 of the proposed revisions to the Electricity Regulation. These two articles state explicitly that energy efficiency should be part of the capacity calculation of a certain bidding zone: *“The European resource adequacy assessment shall be based on a methodology which shall ensure that the assessment: is based on appropriate scenarios of projected demand and supply including an economic assessment of the likelihood of retirement, new-build of generation assets and measures to reach energy efficiency targets and appropriate sensitivities on wholesale prices and carbon price developments⁴⁶”*. Finally, the proposal also states that a timeline to remove barriers to energy efficiency should be delivered by the Member States in order to deal with policy related issues currently blocking the wide deployment of energy efficiency in the energy systems.

This could help the REScoops and other market actors develop their activities to encourage consumers to engage in energy efficiency measures. The current status quo large utilities that do not have any incentive to reduce their production and the consumption of their customers. That would be against their own business model. On the other hand, the REScoops do not have this problem considering that the main objective of the cooperative members is to be energetically self-reliant and therefore energy efficiency is a great tool in that regard.

A transparent market for the consumers

The current energy market is rather opaque for the citizens due to the factors previously cited. Despite, the directive 2009/72/EC call for Member States to *“remove barriers that could prevent access for new market entrants”* (Article 36), which should have allowed for a fair competition to be established and therefore for the market offer to be clarified. The current monopolistic market actors have not incentive to make the prices more transparent since they are fixing them. The consumers are systematically excluded for a fair chance to participate in the energy markets. And finally the energy efficiency aspect is downplayed by the historical actors.

However, the proposed directive on the internal market for electricity is showing again the strong position taken by the Commission on self-consumption is expressed in Article 3(d): *“market participation of consumers and small businesses shall be enabled”*. This will finally include the consumers as full-rights market actors and therefore call for a more transparent market. The strong emphasis on consumer rights in the directive can provide an advantage for the local REScoops, because in general most protective measures that apply to consumers are simply common practices in the cooperatives. As such, they help to create a level playing field. Also this article mentions energy efficiency as a key factor to be included in the new electricity market design : Article 3(e)

⁴⁶ Article 19 (4)(b) of the proposed revision on the internal market for electricity
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states “market rules shall support the decarbonization of the economy by enabling integration of electricity from renewable energy sources and providing incentives for energy efficiency”. This could be a great step in the direction of reaching the objectives that the Union has fixed for itself.

Finally, the Internal Market Electricity Directive will open more freedom for REScoops and individual citizens to participate in the energy system, but we have to understand that the “level playing field” will not be established by simply opening this door to participation of small actors. In order to avoid the dominance of actors that developed in a closed market space without competition, the European Union will have to ensure that the electricity market balance is restored, and that will be done by protecting smaller and vulnerable actors from the overreaching power of historical actors.

Energy Efficiency Incentive Schemes

In this section, we will review the most popular energy efficiency support schemes that were put in place at the Member State level in application of the article 7 of the Energy Efficiency Directive⁴⁷. Those schemes, encouraged by the energy efficiency Directive, are used to reward and encourage a sober attitude of citizens. They can become a strong ally when building an energy efficiency offer to the members. The new version of Article 7⁴⁸ proposed by the European Commission clarifies conditions for the establishment of schemes in the Member States. The main changes are a strong push in favor of schemes that will include a social aim and fight against energy poverty⁴⁹; and the calculation of energy savings obtained from the alternative policy measures⁵⁰. These changes will hopefully result in more effective schemes around Europe, addressing some of the implementation flaws that are present today around Europe, for instance around the calculation of the energy savings from alternative measures by Member States. The schemes are described in two main categories, Energy Efficiency Obligations schemes and Alternative Policy Measures.

Energy Efficiency Obligation Scheme

An Energy Efficiency Obligation Scheme is a regulatory mechanism that requires obligated parties to meet quantitative energy saving targets by delivering or procuring eligible energy savings produced by implementing approved end-use energy efficiency measures⁵¹.

Founding Principles

The Energy Efficiency Obligation schemes are set up by the article 7 of the Directive 2012/27/EU. This type of mechanism was doubted the most effective to reach the 1.5% annual saving objective that is imposed on Member States. The implementation of those schemes relies on three key components:

- **A quantitative target:** in order for the scheme to be efficient there is a need to fix a clear target to be achieved through the scheme.
- **Obligated parties** which will be enforced to produce the desired objective of the scheme.

⁴⁷ Directive 2012/27/EU

⁴⁸ Proposal for a Directive of the European parliament and of the council 2016/0376

⁴⁹ 7(5a) “shall include requirements with a social aim in the saving obligations [...] to be implemented as a priority in households affected energy poverty and in social housing”

⁵⁰ 7(b)(1) “by way of alternative policy measures they shall ensure that the energy savings required under Article 7(1) are achieved among final customers”

⁵¹ Best Practices in Designing and Implementing Energy Efficiency Obligation Schemes; Webinar of RAP directed by David Crossley; June 25, 2014; <http://www.raponline.org/event/designing-and-implementing-energy-efficiency-obligation-schemes-webinar-rescheduled/>

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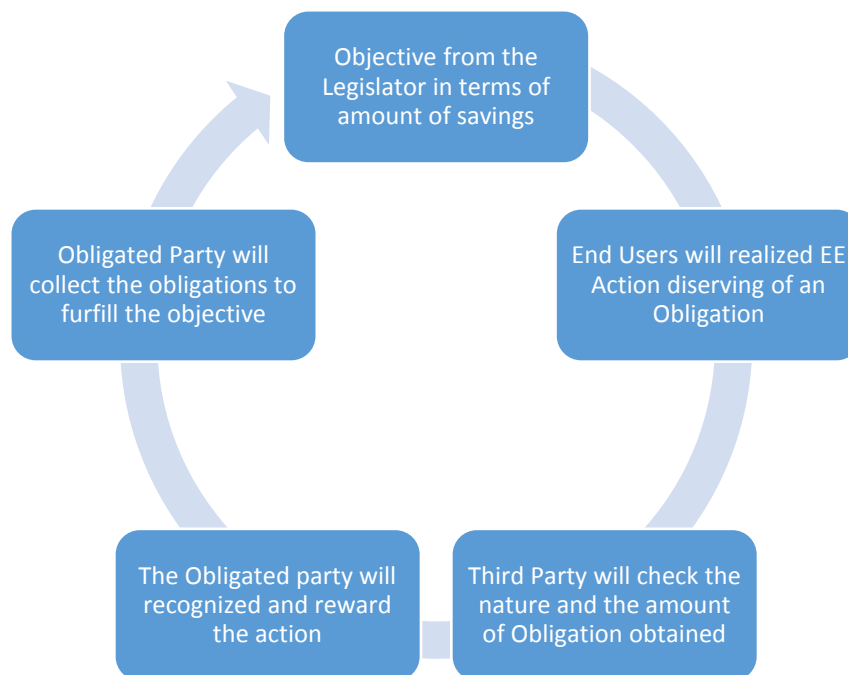
- **Eligible energy efficiency activities** and measures to confirm the impacts of those activities.

The target is fixed by the regulator. This can be done in various ways; however, it is recommended to fix a binding target with sanctions defined in order to ensure the effectiveness of the scheme. RAP (Regulatory Assistance Project) also recommends separating the institution setting this target from the political power (even though the actual enforcement will have to go through the traditional channels), in order to make it less vulnerable to changes in in political power.

The target needs to be defined with a clear unit (e.g. through GHG emissions or total energy savings, or KW/h). It is especially important to set the right unit because it will impact the final result of the policy. At the same time, the alternative objective of the policy should be taken into account to set this unit. If the alternative objective is to fight energy poverty, the unit should be chosen carefully in order not to have adverse effect on vulnerable populations.

Mechanisms

The mechanism of an EEO scheme can work in various ways, but the most popular relies on the creation of a stated objective that must be fulfilled by the Obligated Parties:



The mechanism relies on the actions that are identified by the legislator as energy efficiency actions, and are quantified in terms of how much of the main target (may it be save GHG emission or Energy Savings), and therefore how much of the Obligation tool is deserved, by the End User realizing this action.

The Obligated party is responsible for encouraging the realization of those actions either by offering incentives, or by realizing them itself.

Limitations

The Energy Efficiency Obligation is the most implemented mechanism among the alternative policies to favor energy savings at the Member State level. It is a very efficient tool because it focuses on promoting actions from the end-user and helping the implementation of Energy Saving as an

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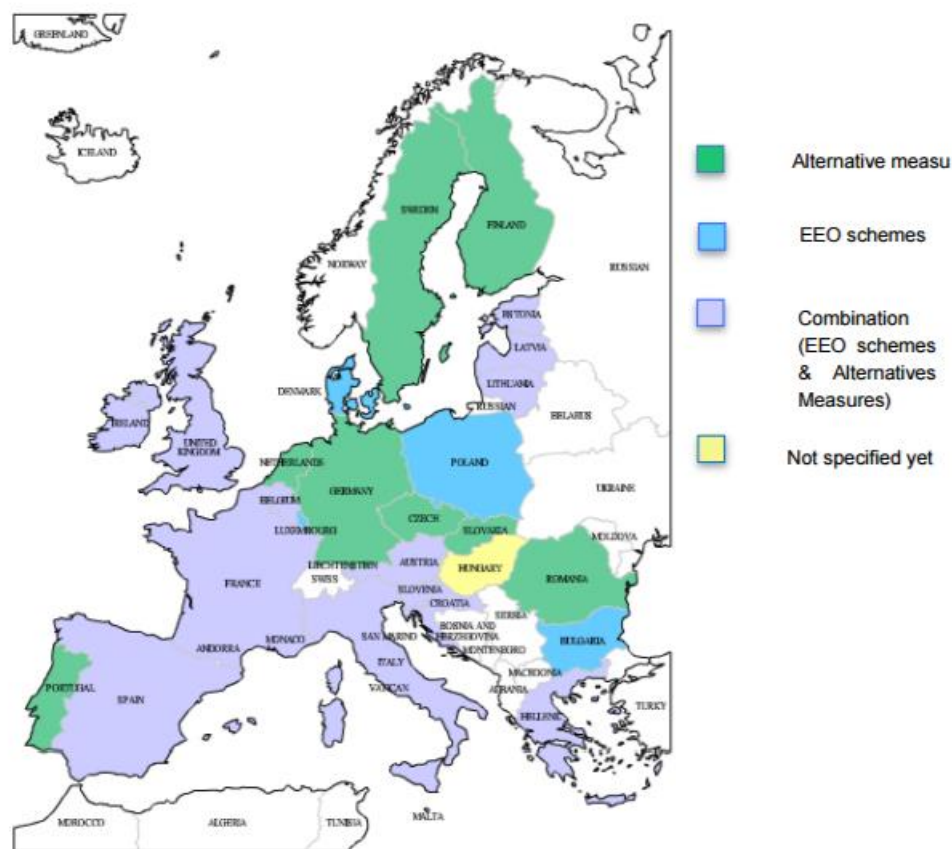


incremental way while benefitting in making energy efficiency alive for the citizens. However, sustainable behavioral changes toward energy savings is usually not recognized by the EEO schemes. This is a paradox when behavior change is clearly flagged as one of the major tools for a more efficient energy system. It is difficult to measure exactly the impact of behavioral changes on KW/h saved. This may explain why behavioral changes are under-estimated by most EEO schemes in Europe. However, the Cooperatives, with the role they play to educate and train their members, but also due to the proven impact on member behavior, are a functioning mechanism to promote more sober attitudes and work as a multiplier in local communities. It is a proven and measurable (in average) mechanism to promote energy saving. Therefore, to recognize the REScoops' action in favor of energy efficiency would be a step forward in terms of reaching saving's targets, both for communities and authorities.

The Alternative Policy Measures

Alternative Policy Measures cover a wide variety of mechanisms to support energy efficiency efforts at the Member State level. Energy Efficiency Obligations are not seen as not practical in some of the Member States,⁵² and therefore Article 7 foresees the possibility to implement alternative policy measures. It is to be noted that most of these measures are implemented in addition to an EEO scheme.

52 Energy Efficiency Obligation Schemes in the EU: Lessons Learned from Denmark, By Sirid Sif Bundgaard, Kirsten Dyhr-Mikkelsen, Anders E. Larsen and Mikael Togeby, International Association for Energy Economics
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Status of EEOs and alternatives policies in the EU in 2016⁵³

Those measures include:

- **energy or CO2 taxes** : This mechanism relies on the taxation of a certain type of energy source in order to disrupt the its use and make it less competitive. This type a policy mechanism is used in France, Ireland or the Netherlands. These policies need to be designed carefully since they overlap with the ETS system of the European Commission. This tax can be constructed in several different ways, for example applying a tariff to the import of certain energy sources, or sanctioning the potential carbon emission due to the use of those energy sources. This type of tool can be difficult to put in place because it has a wide scope and hits the source of the energy, therefore impacting the end-users. However, the constraints put on the automobile sector in France for example have proved efficient. At the EU level, a proposal for a “carbon tax” was proposed by the European Commission in 2012⁵⁴, but was withdrawn in 2015 due to unsuccessful negotiations between Member States.
- **financial incentives** that lead to an increased use of energy efficient technology: This covers support schemes for energy efficient technologies. One of the most successful is the support put in place by Norway for electrical vehicles, which allowed their massive deployment in the

⁵³ Final Report of the project ENSPOL, IEE Program of the EU

⁵⁴ MEMO/12/262; Statement following the vote on the Energy Taxation Directive in the EP Plenary;

http://europa.eu/rapid/press-release_MEMO-12-262_en.htm?locale=en

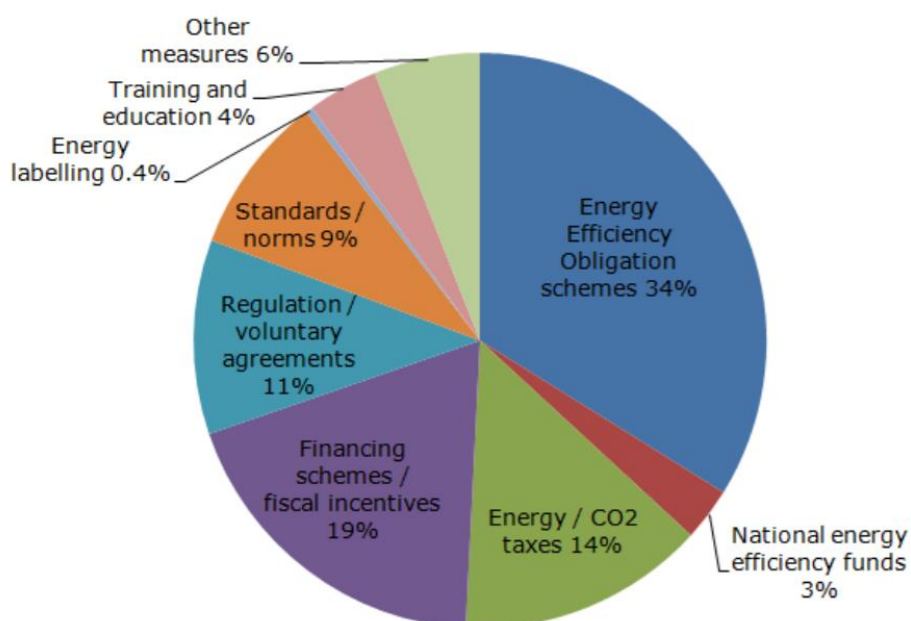
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country. The objective of 50,000 electrical vehicles fixed by the Norwegian government was reached two years in advance.

- **regulations or voluntary agreements** that lead to the increased use of energy efficient technology: This is basically the same mechanism as the previous policy tool, except it is based on legal barriers in order to provide an incentive for the consumers to change their purchasing behavior.
- **training and education**, including energy advisory programs: training programs and educational actions are usually very much encouraged as a support mechanism for any type of energy efficiency actions. However, it is difficult to reach a large number of consumers through detailed trainings and the energy efficiency topics are not easily summarized. But most of the European countries have savings programs either through the civil society or through state actions. This is where the REScoops are especially involved today.

The share of those alternative policies in place is rather small but they can definitely make a difference to create niche treatment of specific types of organization like the Cooperatives.



Breakdown of energy savings expected from Article 7 by Policy measure⁵⁵

It is possible as part of the implementation of the Article 7⁵⁶ to promote a certain type of actors which are recognized as especially benefitting the effort in terms of energy efficiency. The REScoops are definitely one of those actors and therefore could benefit of specific support scheme, like financial incentives or support for the training and education of the members.

⁵⁵ Source: Ricardo AEA, et al, Slide from Energy Savings Summit of Study evaluation the progress if implementation of the article 7 of the Energy Efficiency Directive, May 2016

⁵⁶ Article 7(9) is describing the alternative measure, and completed by the 7(10)(b) we can understand that a particular actor can be entrusted with achieving specific results in terms of energy savings, as long as the transparency of the process is maintained (article 7(10)(c))

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Conclusion

In conclusion we will simply point out that most of the topics that we reviewed here are not barriers to the REScoops in order to deploy the REScoop PLUS toolbox. Through the questionnaire that they filled, the REScoops made it clear that data privacy is not a topic that they have run into so far. The members are usually trusting the action of the REScoops and therefore are allowing more easily the use of their personal data. However, this is a topic that will come into focus as more and more services are deployed by the REScoops, and that portability and management of large datasets will become an issue. With the innovation and shift in tools, technology and business models, the energy market is more and more impacted by personal data. The deployment of tools such as smart meter is changing the way information is gathered from consumers. The data privacy legislation that is in place needs to be updated in order to face those changes, and to find a balance between rights and trust. Topics such as data portability and management of data privacy become central both to the energy market and consumer well-being. The REScoops are proposing a model that has this sensitive balance built-in. The cooperative model is certainly an opportunity to guarantee the fair use of personal data and therefore this may become a competitive advantage for the REScoops, when put facing tradition market actors. The systematic abuse of personal data by market actors is a fact that is pointed out by the EDPS and various research institutes, and the gold standard proposed by the cooperative might be a solution for the end-users.

Regarding the context of the European legislation for energy efficiency, although it is currently going through significant changes, it is unlikely that it becomes a barrier to the actions of the REScoops regarding Energy Efficiency. However, there is a clear opportunity to make the legislation progress in the right way to help the REScoops support the efforts to make Europe more efficient. The REScoop PLUS project is showing that REScoops are a tool for a more efficient Europe of tomorrow. By their nature and their work, REScoops will hold the keys to reach the targets that are agreed by the EU. It is time that the European Union put “energy efficiency first” by recognizing the major potential of the REScoop movement.

The REScoops certainly have a role to play in the European Energy Union of tomorrow. Although historical legislation does not formerly recognizing the role of community energy in driving forward a fair and sober energy system for all citizens, their role needs to be recognized. There is an opportunity for legislators to build on the potential of community energy to reach the objective that collectively we have fixed for ourselves, both at the Member State level and the European level. The REScoop is a way to reach this goal while ensuring the protection and engagement of the end consumers.

Finally, the European context seems to be in favor of the efforts of the cooperatives. However, and as proven by much of the literature, most of the impact of the legal environment is about the implementation of such legislation at the local level, which is the aspect that we will cover in the report 6.2 about Member State legislation.