Policy toolkit typology

Deliverable D4.5

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Acronyms

BAU  Business as Usual
EeB  Energy Efficient Buildings
EU  European Union
EV  Electric Vehicle
EVE  Basque Energy Agency
FIT  Feed in Tariff
GHG  Greenhouse gas
HOV  High Occupancy Vehicle
ISM  Individual Social Material
ICT  Information and Communication Technologies
KCP  Knowledge and Communication Platform
MOOC  Massive open online course
NGO  Non-Governmental Organisation
OECD  Organisation for Economic Co-operation and Development
PV  Photovoltaic
PPP  Public Private Partnership
RES  Renewable Energy Sources
R&D  Research and Development
SME  Small and Medium Enterprises
UK  United Kingdom
WP  Work Package
About the ENTRUST Project

ENTRUST is mapping Europe’s energy system (key actors and their intersections, technologies, markets, policies, innovations) and aims to achieve an in-depth understanding of how human behaviour around energy is shaped by both technological systems and socio-demographic factors (especially gender, age and socio-economic status). New understandings of energy-related practices and an intersectional approach to the socio-demographic factors in energy use will be deployed to enhance stakeholder engagement in Europe’s energy transition.

The role of gender will be illuminated by intersectional analyses of energy-related behaviour and attitudes towards energy technologies, which will assess how multiple identities and social positions combine to shape practices. These analyses will be integrated within a transitions management framework, which takes account of the complex meshing of human values and identities with technological systems. The third key paradigm informing the research is the concept of energy citizenship, with a key goal of ENTRUST being to enable individuals to overcome barriers of gender, age and socio-economic status to become active participants in their own energy transitions.

Central to the project will be an in-depth engagement with five very different communities across Europe that will be invited to be co-designers of their own energy transition. The consortium brings a diverse array of expertise to bear in assisting and reflexively monitoring these communities as they work to transform their energy behaviours, generating innovative transition pathways and business models capable of being replicated elsewhere in Europe.

For more information see http://www.entrust-h2020.eu

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Executive Summary

The ENTRUST project provides a mapping of the energy system in Europe. It aims to achieve an in-depth understanding of how human behaviour around energy is shaped, both by technological systems and socio-demographic factors.

This report corresponds to the last deliverable of Work Package (WP) 4, “Policy Analysis”, which focuses on depicting current energy policies and regulations in six European countries (France, Spain, UK, Germany, Italy and Ireland). WP4 will use the input from WP2 (energy technologies) and WP3 (socio-economic analysis) to create a best practice policy toolkit for EU Member States. As such, it will serve as a key input for three future WPs:

1. WP6, where it will help to define innovative energy pathways;
2. WP7, where WP4 outputs will be integrated into the energy portal;
3. WP8, where it will help to stimulate the dialogue at the national and EU level.

Steering society through a responsible energy transition is an eminently political process. To date, most of the policymaking efforts to obtain a low-carbon energy system and to reduce the environmental impact of energy consumption have focused on energy-efficient technologies and renewable energy resources. In representative democracies of Western countries, these efforts have historically been limited to top-down interventions, such as legislation and regulation. However, policies focused on changing people’s behaviours may also have significant impact on the energy consumption of a country. Therefore, new and alternative behavioural approaches are increasingly being developed in a range of policy areas, providing a broader mix of policy options available to policymakers.

Three key policy areas featuring a strong focus on behaviour change are energy, environment and transport. The investment cycles in each of these areas tends to be long, meaning strategic decisions taken today have long-term implications for the achievement of climate-orientated energy policy goals.

If a sustainable and cost-effective transition towards a low-carbon energy sector is to occur, long-term policy guidance is required. The ENTRUST policy toolkit hopes to help in this regard.

What is the ENTRUST policy toolkit?

The ENTRUST policy toolkit is designed for policymakers and practitioners whose work ultimately seeks to engage people and influence their behaviour, resulting in improved outcomes. It presents a set of policy recommendations formulated via workshops with both ENTRUST partners and community members. These policy recommendations are aimed at reducing the environmental impact from energy consumption. The toolkit covers both the supply and demand sides of the energy sector, focusing on three energy-intensive sectors: Transport, Buildings, and Local Energy Production. Within these sectors, eight key objectives are defined. These were identified with the collaboration of local community stakeholders.
This report begins with a depiction of the policy cycle. There are four phases: Agenda Setting, Policy Formulation, Policy Implementation, and Policy Evaluation. Stakeholder feedback serves as a critical component throughout each phase.

The policy cycle has two notable limitations. The first is that it is an over-simplification of the actual policy process, which is never as clear-cut as the model depicts. The second is that it does not show the web of interactions that co-exist between institutions, people, and other policies, all of which help to determine a policy’s success or failure.

Nevertheless, the policy cycle guides policymakers throughout the policymaking process. This report presents factors that policymakers may not have already considered, and highlights the importance of consulting the appropriate stakeholders within each phase.

In recent decades, many Western societies have witnessed a change in governance structures. New players, such as businesses, civil society groups, and international organisations, have emerged with an increasing presence in policies. To reflect these new voices in the policymaking process, this report classifies the process according to three approaches:

- **Top down:** a process led by a governmental body, whether national or local
- **Bottom up:** a process that is driven by the governed, such as community members, NGOs, businesses and other organisations
- **Hybrid:** a process that is inclusive of both, top-down and bottom-up actors

Policy instruments can help policymakers of all types, regardless of the approach taken. These are the tools or means through which governments (central, regional, local) attempt to accomplish their goals (Linder & Peters, 1990).
They are used throughout all stages of the policy cycle, from agenda setting to policy evaluation (Howlett, 2005; Howlett, Ramesh, & Perl, 2009). As Europe is hoping to lead the global energy transition, European policymakers will find the ones included in this deliverable especially valuable. Many find that a mix of policy instruments works best, whether they are market-based, information-based, regulation, or behavioural insights.

Policy instruments do not act alone, however, and many instruments employed by policymakers have failed to achieve the desired behaviour changes due to other factors. Some of the major debilitating features of failed policies include a lack of theoretical grounding, ineffective measures, a lack of monitoring and feedback, and a lack of integration with other policies—pointing policymakers back to the policy cycle, underscoring the importance of how the process gets conducted, and who is included.

Policymakers will find a step-by-step methodology for co-creating policies relating to energy behaviour change. The methodology includes 10 different steps, divided into three general stages:

1. Understanding the context
2. Co-creating policy options
3. Evaluating, selecting and developing the best policy recommendations.

The methodology serves multiple purposes: to obtain a more thorough understanding of the many factors that influence the way people act every day; to map existing policy interventions addressing these factors; to identify gaps and new ideas; to engage stakeholders; and to prioritise and develop the best policy mix.

This methodology was specifically designed by the ENTRUST partners, and was used throughout this deliverable. It is inspired by the Design Thinking approach and has been complemented by applying insights from behavioural science thinking, as well as by engaging citizens in the policy-design process. The 10 steps outlined below are intended to be implemented consecutively. However, all the tools and steps identified have specific utilities and functionalities which can be used individually. The 10 steps are meant to be applicable to any country or region, with different focal points to accommodate for local circumstances.
Emerging from the methodology were 183 recommendations, 44 of which have been developed more fully and classified according to their approach in the Policy Canvas. The set of policies include 19 top-down, 8 bottom-up, and 17 hybrid approaches and the following mix of policy instruments: 7 regulatory frameworks, 4 planning and infrastructure, 5 fiscal measures, 10 service provision, 7 communication and marketing tools, 2 guidelines, 3 collaboration platforms, and 6 business support schemes. These can be found in the Appendices of this deliverable. Policymakers will find these examples useful as they attempt to co-create their own policies. Finally, they will also be interested in the “Policy Toolkit” a separate document that explains the most important aspects to keep in mind.
Introduction

The world is currently undergoing an energy transition to sustainable sources, with the application of new technologies contributing towards this movement away from carbon-intensive energy systems. Since the development of renewable energy sources (RES) in the 1980s and 1990s, public policies have tended to increasingly focus on expanding its presence in the market. The number of related renewable energy policies in Europe has been growing from a very small number of disconnected measures in the 1990s to more than 161 measures in the first part of 2017 (International Energy Agency, 2016). In addition to encouraging renewable energy, policies promoting energy efficiency have also been implemented for both the supply and demand sides of the market.

However, most of the policies created have focused on promoting the technologies involved, not on addressing human behaviour. Human behaviour policies encourage making sustainable decisions, whether this relates to daily activities or to one-time purchases that have a long-term impact. Examples include choosing to take public transport rather than driving one’s car, retrofitting one’s home with energy-saving appliances, or installing solar panels on one’s roof. Changing human behaviour has the potential to produce significant results and reduce the amount of energy consumed. For instance, the behaviour changes induced by policy measures in Japan to confront the energy shortfalls following the Fukushima nuclear disaster succeeded in reducing the overall energy demand by 15% (Le Diouron, 2013).

Notwithstanding, behaviour change initiatives can be challenging. When it comes to changing human behaviour in the energy sector, there are a number of barriers to consider. One aspect that makes behaviour change difficult is that energy infrastructure has a long lifespan—a nuclear power plant, for example, is built to last around 50 years. Another aspect preventing change is the rapid development of new technologies for reducing energy consumption automatically, thus limiting the incentive for people to change their behaviour. Ironically, instead of leading to a reduction in consumption, investing in new technologies tends to result in people increasing their consumption even more than before. Known as the rebound effect, this can reduce the energy saved from a behaviour change by as much as 20% (Nadel, 2012).

Building on this understanding, human behaviour is considered a key factor in the energy transition. This deliverable, as part of Task 4.4—the final task of Work Package (WP) 4—is dedicated to proposing potential policies focused on human behaviour change. These recommendations aim at leading societies towards a sustainable energy transition, and they are classified according to their approach, type of intervention and cost-benefit. That is, who drives the process (a government body, the governed, a mix of the two, etc.), how (Who gets consulted? Is it an inclusive process? etc.), through which tools (market-based, communication, infrastructure? etc.) and what is the cost/benefit.

The recommendations provided are based on the previous work achieved in this WP (notably the Mapping of policies, Replication analysis, and the Identification of market-driven instruments), as well as inputs from WP2 on technologies and WP3 on the human factor.

The body of this document is divided into three sections. Section 1 presents the ideological framework leading up to this task, exploring the key concepts associated with policymaking; Section 2 presents the
methodology both implemented in this task and recommended for policymakers; Section 3 presents the policy recommendations created in this task.

Section 1 encompasses key concepts associated with policymaking. The policymaking process is explored via the policy cycle framework, with each phase providing policymakers information and advice. Also presented are the main actors and their roles within the various phases of the policy process: agenda setting, policy formulation, policy implementation and policy evaluation. The different approaches to policymaking are then presented, providing policymakers with examples of each approach:

- **Top down**: a process led by a governmental body, whether national or local
- **Bottom up**: a process that is driven by the governed, such as community members, NGOs, businesses and other organisations
- **Hybrid**: a process that is inclusive of both, top-down and bottom-up actors

Throughout the different phases of the policy cycle, different policy instruments related to energy behaviour change can be used. Some of the most common and useful instruments are provided, with both best practice guidelines and notifications of their limitations, as evident in case studies of five European countries (Morrisey, et al., 2016). This background information should aid policymakers in forming appropriate policies regarding energy behaviour change.

Section 2 presents a methodology practitioners can use to co-design policies targeting energy behaviour change. The energy sectors studied in the report (transport, buildings, local energy production) are introduced, as is the 3-stage, 10-step process used in this report. An illustrated example is then provided to guide policymakers through the methodology. The ENTRUST partners designed the methodology for policymakers, putting citizens at the heart of the process.

Section 3 showcases 44 of the 183 policy recommendations that emerged from the workshops in Section 2. Policy recommendations are structured by the three energy sectors, with a total of eight behaviours highlighted:

**Transport**

a. Increasing the purchase and use of electric vehicles
b. Increasing the practice of car sharing
c. Encouraging automobile commuters to carpool
d. Encouraging the use of public transport

**Buildings**

a. Reducing electricity usage through smart technologies
b. Initiating thermal refurbishments

**Local energy production**

a. Promoting subscription to green energy suppliers
b. Enabling green energy self-consumption
The deliverable concludes with a synthesis of the main results, some additional observations, and limitations of the task. Advice for future research is also given. The appendices following the report gather all of the supporting documents used throughout this task: the mapping of behaviour factors per target area, a list of the 183 policy ideas formed via the co-creation workshops, a Policy Canvas that develops 44 policy proposals and finally the “Policy Toolkit”, a separate document that explains the most important aspects to keep in mind.

1 Conceptual Framework

1.1 The Policy Cycle

The policy cycle framework aims at defining the policymaking process. Recognising the roles of various players in policy, including elected officials, interest groups and appointed bureaucrats, the policy cycle links these actors to the various stages within the policymaking process, typical of Western democracies. As such, it enables a policy to be judged according to its efficiency and efficacy, and it offers a perspective to compare the democratic quality of the processes (Jann & Wegrich, 2007). Decision makers can use the policy cycle to guide their actions when creating policy, helping to ensure that they consult the appropriate experts and stakeholders throughout the process.

It should be noted, however, that there is no one-size-fits-all solution for policymaking, so one model cannot apply to every single situation, and each governmental institution has its own processes in which it conducts business (Bridgman & Davis, 2003). Furthermore, historical and cultural factors have influenced how the various actors interact, as well as how the policy cycle operates within different countries (Jann & Wegrich, 2007).

As such, different policy cycle frameworks have evolved over time. Researchers and practitioners have both created their own policy cycles that they feel best represents the policymaking process. Despite the various versions that exist, most models typically aim at depicting a continuous process, starting with an idea, turning it into a policy, and then taking it through evaluation exercises. After the evaluation stage, the policy process then starts all over again, repeating the cycle with the newfound evaluation results. The policy cycle used in this deliverable is described as follows (Figure 1):
Each phase of the above policy cycle is explained below. While each step allows for specialised knowledge and expertise to enter the process and improve the relevant policy, it is important to note that politics also affect the cycle at all stages (Barkenbus, 1998).

The initial stages have often proven to have a greater impact on the outcome of the policy as compared to the final stages that operate in the parliamentary realm (Jann & Wegrich, 2007).

Nevertheless, the authors of this report argue that all phases of the cycle are critically important, as when they are successful they bring together the social, political, economic and technical aspects of policy development. Furthermore, the authors contend that the type of actor conducting each stage of the policy cycle matters as well. There is a vast spread of academic literature focusing on the policy implementation phase, and whether or not it gets carried out by central or local levels of government. However, the authors of this report point out that non-traditional actors, such as citizens, non-governmental organisations (NGOs), companies and other groups can play a crucial role long before policies ever reach the implementation phase. These groups can also impact how policies are perceived and get evaluated post-implementation as well.

1.1.1 Agenda Setting

The initial stage of the policy cycle is essentially recognising that a problem exists (Subroto, 2011). In essence, this initial stage of policy development represents a shift whereby individualised issues are elevated into the public domain.

Agenda setting can take place in many forms, and who sets the agenda can have a potentially drastic impact on the issues that get defined.
Sometimes it is the politicians who set the agenda, stating the problems they want to change, while other times it is civil society who sets the agenda, perhaps via panel discussions or petitioning their government. Still other times, issues may be identified by the private sector, pushing for a change that will enable business to improve. The media is also a major agenda setter, giving attention to the issues it covers.

The policy cycle does not include how to determine what is a problem, however. Nor does it include how to prioritise such problems. Studies have tried to help social scientists identify and rank their risks, so that attention and resources can flow to those issues with a higher need. However, this has not necessarily led to an actual restructuring of priorities by decision makers (Barkenbus, 1998)

1.1.2 Policy Formulation

This second stage of the policy cycle is where policy objectives are defined. Decision makers should consider all options that are on the table before ruling out any of them. After careful consideration, decision makers emerge from this stage with government programs to address the problems identified in the previous stage (Jann & Wegrich, 2007). It is vital that actors involved in this stage imagine the impact of policies on all potential stakeholders. As stakeholder support will be critical for success, seeking out stakeholders’ opinions will prove advantageous.

The processes involved in policy formulation are varied. Contemporary practices include the development of cost-benefit assessments, public policy analysis, public hearings and judicial evaluations. Policy formulation may be done by decision makers, the public, or the private sector. A critique of having the public formulate policy, however, is that they are not experts in the subject matter, and may not be capable of designing policy that fits everyone’s needs. Likewise, if the private sector is involved, one may rightfully question the agenda of the business(es) involved, and if it is in the interest of the wider community. Having multiple stakeholders participate in the process therefore helps to ensure the representation of different social groups.

1.1.3 Policy Implementation

The policy implementation stage deals with putting into practice the policy that was conceived. Traditionally, policy implementation procedures have received less focus than policy formulation processes (Barkenbus, 1998). However, the policy implementation stage is a particularly difficult stage, with some scholars noting that successful development of programmes is a challenging process and usually leads to policy development shortfalls (Barkenbus, 1998). That is because several factors, such as mismatch with existing bureaucracies, inadequate funding and weak levels of political support, amongst other factors, can derail the implementation process.

Even when such implementation factors are not a concern, a policy may still fail. As such, some governments prefer to conduct a pilot or trial of the policy in a few select areas, before deciding if the policy should get implemented on a large scale. This can be a safer method politically, and it also allows policy makers to go back to the policy formulation phase and tweak some aspects of the policy, if needed. However, it also takes more time, something government representatives may not have.
1.1.4 Policy Evaluation

The final stage of the policy cycle is policy evaluation. Monitoring a policy’s performance is critical to its success, although several factors work against this step. For instance, evaluation exercises may not have been written into the policy itself, or may have been poorly executed (Hallsworth & Parker, 2011). Furthermore, evaluations showing poor or embarrassing results tend be downplayed either by the politician championing a particular cause or the responsible bureau leading the implementation; the human tendency to be risk averse and to stick with the status quo only adds to this inclination of side-lining even carefully-conducted and beneficial evaluations (Barkenbus, 1998). As with the other stages, who controls the policy evaluation phase is important, as this will determine whether a policy gets continued, revised, or terminated.

1.1.5 Feedback

Although not an actual stage in many policy cycles, feedback plays a crucial role throughout the process. Like the evaluation stage, feedback has the power to terminate a policy, or to restart the policy cycle from the beginning (Jann & Wegrich, 2007). It also has the power to improve policies. Successful communication and dissemination of policy evaluation findings is critical to organisational learning (Hallsworth & Parker, 2011). While the logical step for feedback comes after the evaluation phase, it is valuable at any point in time throughout the policy cycle.

Feedback may come from field experts early in the process and from citizens after the policy has been implemented, or vice versa. There may be more ideal times for feedback, although this is very circumstantial and depends upon the actors involved and the type of policy at hand. Furthermore, who provides the feedback to whom may also impact the process, such as if an elected official tends to ignore advice from civil society, and instead gives more weight to advice coming from the business community.

The policy cycle is a limited concept, based on abstract representations driven by academic debate. Unlike the clearly-defined process highlighted by the model, the process is rather complex in reality. “Stages are often skipped or compressed and the idiosyncrasies, interests, pre-set dispositions, policy paradigms or mental maps of the actors involved often usurp the sense of a smooth process” (Subroto, 2011, p.3). For instance, policy processes typically do not have a clear-cut beginning and end (Jann & Wegrich, 2007). When they do, they are typically determined by events rather than the government being in control of its agenda (Hallsworth & Parker, 2011). Furthermore, many officials strive to make things happen in sync with their election timelines, office deadlines and annual budget constraints, all the while appeasing special-interest groups (Barkenbus, 1998).

Not only does the policy process not happen step-by-step, but policies are often the output of several related choices, rather than one single decision made by one institution or person (Bridgman & Davis, 2003). In fact, there is a multitude of actors taking part in the process, each with their own interests and perspectives (Subroto, 2011). Due to the constant interaction between the various levels of policy makers, it is difficult to understand the policy process without first understanding the evolution of relationships that exist between the policy makers and their respective programmes (Jann & Wegrich, 2007).
As a policy often works in conjunction with other policies that have been issued, it may be difficult to isolate and measure the results that it has produced alone. Likewise, the true impact of a policy tends to be indirect, and may take time to appear (Hallsworth & Parker, 2011).

Despite the inherent limitations of the policy cycle, it provides a clear framework to explain the policymaking process, and it can steer the development of new policies.

1.2 Changing governance structures and policymaking

Western governance architecture has changed considerably in the last 30 years (Bridge & Perrault, 2009). These changes are particularly manifest in the making of government policies, transnational rulings and local decision-making mechanisms (Lemos & Agrawell, 2006). However, these changes are not unproblematic and questions have arisen in relation to who should be making decisions and why (Larson & Soto, 2008).

Three main debates can be highlighted in this instance. Firstly, it could be argued that the role of the state has decreased as a consequence of neoliberal influences that have geared western societies toward more self-regulating models where central governments play a much smaller part (Rhodes, 1994). In this view, the state has less influence over important social strategies and these in turn are replaced by the endeavours of large corporations in the interest of economic stability and gain (Pierre, 2000; Bridge & Perrault, 2009).

A second viewpoint says that the unravelling of wider governance regimes can be explained as a transformation whereby the traditional model of central-state control has become more varied (Pierre, 2000). Processes such as globalisation, decentralisation, privatisation and devolution are seen to be both manifestations and channels of change in what is a refashioned state apparatus (Ostrom, Burger, Field, Norgaard, & Policansky, 1999; Pierre, 2000) (Ostrom, Burger, Field, Norgaard, & Policansky, 1999) (Pierre, 2000). There are thus less obvious forms of partnership and collaboration that nonetheless substantially influence the political background where policies emerge and decisions are carried forward (Folke, Hahn, Olsson, & Norberg, 2005). This perspective recognises the growing influence of actors such as NGOs, transnational agencies and other social groups and movements at different spatial scales (Bridge & Perrault, 2009).

Lastly, other readings view governance as an alternative to the hierarchical structures of government and as a response to inadequate policy implementation and management practices (Peters & Pierre, 1998; Lee, 2003). In this light, new governance structures address the shortcomings of more traditional governing practices, which in turn allows new forms of collective action to flourish (Folke, Hahn, Olsson, & Norberg, 2005). New governance regimes can therefore highlight the limited capacity of previous governing structures and allow access to new actors, resources and ideas. The underlying consensus between these various definitions of governance lies around the idea that there are new governing systems, which increasingly transcend the boundaries between the public and private domains (Stoker, 1998; Kooiman, 2000). In effect, this trend signals an increase in the number of participants and stakeholders handling matters such as the development of social policy, the management of natural resources and delivery of welfare services.
While energy policy in Europe is still dominated by central government administrators given current governance trends, there is a potential shift in the range of actors and institutions involved in policymaking (Szulecki, Fischer, Gullberg, & Sartor, 2016). Indeed, civil society organisations and local communities are increasingly contributing to policy analysis and relevant debates, becoming key actors in devising innovative approaches and implementing development initiatives (Members of the World Economic Forum Global Agenda Council on Latin America, 2014).

While governments remain the main legitimate actors within the policy implementation phase, the other phases of the policy cycle more easily facilitate the incorporation of community members and other non-traditional stakeholders. Whether it is setting the agenda, formulating the policies that get implemented, evaluating a policy, or providing feedback throughout the duration of a programme, such participation enables a far more inclusive process for groups that might otherwise have been overlooked. By engaging various and diverse actors in addition to government officials and policy experts, the potential to yield robust, usable solutions is enlarged (Mont, Neuvonen, & Lähteenoja, 2014). This was evident in the Le Trapeze community focus group, which offered novel insights into how French citizens react and perceive various proposed policies. The group also offered their own ideas, based on the issues they faced on a daily basis.

In order to reflect the different approaches to policymaking, and to highlight the potential value of a participatory democracy process, the authors of this report classify policymaking according to three dimensions, depending upon who drives the process:

- **Top down:** a process led by a governmental body, whether national or local
- **Bottom up:** a process that is driven by the governed, such as community members, NGOs, businesses and other organisations
- **Hybrid:** a process that is inclusive of both, top-down and bottom-up actors

It should be noted that all approaches can be successful, and the appropriate approach largely depends upon the situation and actors involved. Likewise, the approaches are not contradictory to each other (European LEADER Association for Rural Development, 2017).

A top-down approach starts with direction from a government institution or agency. As top-down actors, bureaucrats and government officials play an important role in helping societies to manage both uncertainty and risk (Llambi & Lindemann, n.d.). Top-down policy processes typically gather expert advice and use it to develop policies or guidelines that apply to the public at large (Meslin, 2010). Such an approach enables policymakers to have more control over the policy process, can often provide a cost-effective solution, and is easy to evaluate (National Consumer Research Centre). However, even with highly-trained experts, a top-down approach tends to lack detailed local knowledge, and may fail to generate community support for policy changes (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006). As such, a top-down approach may not reach the actual needs to target stakeholder groups, and policymakers may find it difficult to engage with these groups and their partners (National Consumer Research Centre).
An example of a top-down approach is France’s air quality certificate for vehicles, Crit’Air. This program aims to reduce air pollution in urban areas by classifying vehicles according to their level of air pollutant emissions, which is stated on the certificate. Both State and local authorities can restrict vehicles below a certain classification, depending upon the area and level of pollution at the time (Ministère de l’Environnement, de l’Energie et de la Mer, n.d.).

A bottom-up approach, on the other hand, starts with the people. Such an approach attempts to build the capacity of the citizens who are most affected by a problem (Meslin, 2010). Sharing knowledge via community focus groups empowers the community members, and each individual is able to increase his/her own knowledge as a result of participating in the process (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006). A bottom-up approach allows policymakers to engage with stakeholders directly, making it easier to adapt to their different needs (National Consumer Research Centre). However, a bottom-up approach can be both time and resource intensive, and it may result in non-standardised data that make it difficult to compare different regions at the point of evaluation (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006).

An example of a bottom-up approach is Som Energia, the first renewable energy cooperative in Catalonia, Spain. Thousands of people have come together to power their homes with green energy, both from the market and self-produced. In addition to creating a social movement to support renewables, the project hopes to foster public participation and provide information in a clear, transparent manner. An affordable, refundable membership fee of 100 EUR keeps the project open to anyone who would like to join (Som Energia, n.d.).

A hybrid approach includes both, government bodies and the governed. This approach offers the possibility of solving some of the challenges posed by the top-down and bottom-up approaches. A Public-Private Partnership (PPP), for example, can bridge the gap between the needs of stakeholders and the financial resources available to meet those needs, allowing the private sector to take on functions traditionally undertaken by the government (Rall, Reed, & Farber, 2010). This allows for the public to benefit from the talent and resources of various actors (Ernst & Young; the Federation of Indian Chambers of Commerce and Industry, 2013). Multilateral organisations, academic scholars, and civil society groups all play a key role in the evaluation of the partnership (Members of the World Economic Forum Global Agenda Council on Latin America, 2014). Such a hybrid approach offers value for money and typically receives broad support from all levels of government and society (van Herpen, 2002). However, these same advantages can turn into disadvantages, and cultural differences between the two or more groups can create challenges (van Herpen, 2002).

An example of a hybrid approach to policy is the Energy Efficient Buildings (EeB) PPP. This programme promotes research and dialogue that aim to reduce energy consumption and carbon dioxide emissions stemming from the built environment. The European Commission is the top-down actor representing the public’s interest, while large companies, SMEs, research institutions, and other stakeholders have formed a committee acting as the bottom-up representation. National governments are also consulted to streamline policies as much as possible with their national initiatives.
1.3 **Review of policy instruments in relation to energy behaviour change**

Europe is positioning itself as a leader of the global energy transition, having set ambitious sustainability targets for 2020 and 2050 (European Commission, 2012). This will require greater attention to energy policies, such as those that encourage greater energy efficiency and accelerate the uptake of existing green technologies and practices.

A mix of policy instruments can help achieve this. Policy instruments are the tools or means through which governments (both central and local) attempt to accomplish their goals (Linder & Peters, 1990). They are used throughout all stages of the policy cycle, from agenda setting to policy evaluation (Howlett, 2005; Howlett, Ramesh, & Perl, 2009).

One type of policy instrument is the market-based policy instrument, which seeks to address the market failure of environmental externalities by using market signals to stimulate certain behaviours, activities or investments. Market-based policy instruments are classified into two categories depending on the type of market signal they use: price and quantity. If a tool modifies the cost or the price of a good, a service or an activity, it will be considered as a price-based instrument. Among the different types of price-based instruments are feed-in tariffs (FIT), grants, loans, taxes and tax-abatement measures. However, if a tool limits or regulates the quantity of products or emissions that can be either produced or traded, it will be considered as a quantity-based instrument. Different types of quantity-based instrument include greenhouse gas (GHG) emissions permits, white certificates and green certificates (Salel, et al., 2016).

While both types of market-based instruments provide strong incentives for innovation, market forces alone may not be enough to induce the desired changes. For example, consumers and businesses do not always react as quickly as expected to price signals. Likewise, many energy-efficiency improvements require a campaign to promote their uptake, despite being non-expensive to implement.

Information-based policy instruments, such as energy-efficiency labels, can be used to complement market-based instruments. Likewise, research and development (R&D) programmes and regulations can be used to address challenges from both market and information failures.

Additionally, behavioural insights that take into account human biases and natural reactions can help prevent unintended consequences, allowing policymakers with such information to craft better policies. In addition to improving the design and implementation of policies, behavioural insights also support policymakers by helping them to diagnose problems and evaluate policy provided that measurable indicators of policy effectiveness are defined prior to policy implementation (Organisation for Economic Co-operation and Development, 2017). In most cases, however, behavioural insights should be used to supplement traditional pricing and regulation instruments, rather than being used as a stand-alone policy tool (Kriström & Kiran, 2014).

Instruments used strategically can induce behaviour change related to energy consumption, accelerating achievement of the desired effects (Martiskainen, 2007). However, policy instruments are not perfect, and many fail. When it comes to energy behaviour change, some policy instruments may be affected by other factors.
Deliverable 4.4 assessed the limitations of several existing policies regarding energy behaviour change in five European Member States (the United Kingdom, France, Italy, Spain and Ireland). The major limitations emerging from the policies in the case studies were:

1.3.1 Lack of a coherent narrative

Most of the case studies focused on individualist approaches (rational choice based models), without recognising that there is also a need for a wider social transformation (Morrissey, et al., 2016). This can reinforce a feeling of ‘powerlessness,’ as individuals can feel they are unable to have an impact since their behaviour pales in significance compared to the behaviour of society as a whole (Aitken, Chapman, & McClure, 2011). Most energy behaviour change interventions have been largely underpinned by economic approaches, accompanied by feedback and personalised advice (Morrissey, et al., 2016). However, key criticisms of many of these strategies is that they have largely failed to foster ‘mainstream’ behaviour change, with many of them lacking a clear framework for how behaviour could change and through which means (Wilson & Dowlatabadi, 2007; Janda, 2011).

1.3.2 Ineffective measures

While many energy policies are easy to integrate into the existing structure of individuals’ lifestyles (e.g. making it easy to recycle), they are rarely focused on behaviours driving the largest environmental impact or energy consumption (e.g. driving less, eating less imported meat, and flying less) (Whitmarsh, et al., 2007).

Despite good intentions and the sizable impact in terms of energy savings and switching to low-carbon energy sources, many policymakers will never introduce such policies out of fear of supporting unpopular measures (Verplanken, 2010).

1.3.3 Lack of monitoring and feedback

Due to weaknesses in programme design and monitoring and evaluation exercises, the effectiveness and efficacy (thus cost-effectiveness) of many current behaviour-change interventions is unknown (Frederiks, Stenner, Hobman, & Fischle, 2016). As a result, there remains considerable debate over which interventions work, demonstrating an ‘information gap’ in how to best apply behaviourally-targeted policy at a community level (House of Parliament, 2012).

1.3.4 Lack of integration with other policies

Many policies are one-off actions that seek to improve household energy efficiency, based on technical interventions to reduce emissions (Darnton, Jones, Lucas, & Brooks, 2006; RAND Europe, 2012). By so doing, there is a lack of consistency with numerous other policies relating to the energy system and thus individual lifestyle choices (see D4.1 for an extensive review of energy policies in the EU).

For policymaking to have an impact on behaviour change, the above limitations should be considered. It also needs to employ a mix of policy instruments with a long-term vision, as inducing behaviour change can be a long and complex process. Policymakers interested in learning more should consult the document Identification and Characterisation of Energy Behaviour Change Initiatives ENTRUST Deliverable 4.4. This work classifies energy-related behaviour change initiatives in more detail.
2 Methodology for policymakers to co-design policies targeting energy behaviour change

The ENTRUST policy toolkit is designed for policymakers and practitioners whose work ultimately seeks to engage people and influence their behaviour in order to deliver improved outcomes.

This chapter offers a step-by-step methodology to explore opportunities in the energy sector; understand the multiple factors that influence the way people act every day; map existing policy interventions to address these factors; identify gaps and new ideas; engage stakeholders; and prioritise and develop the best policy mix. This methodology was specifically designed by the ENTRUST partners. Our researchers applied it to develop the present work. A detailed example on one of the ENTRUST key areas is provided to guide policymakers as they conduct their own policy work.

2.1 Scope of the study

The present work covers both the supply and demand sides of the energy sector. Transport, buildings and local energy production sectors were selected based on the assessment of their role in the energy system and the direct relation with citizens:

- **Transport**, which continues to be one of the largest CO₂ emitters (about 23% of the global total), and the largest source of air pollution in European cities (Thomas, 2015).

- **Buildings**, which are responsible for 40% of total EU energy consumption and more than 50% of the EU’s emissions (Eurostat, 2017).

- **Local energy production**, which—depending on the energy source—could be one of the biggest contributors to greenhouse gas emissions worldwide. Curbing emissions of CO₂ and other greenhouse gases will require significant changes in how we produce and use energy in the future.

Furthermore, within these high energy-consuming sectors, eight key objectives were prioritised. These were identified with the collaboration of local community stakeholders. Figure 2 presents key insights resulting from this analysis. A more detailed discussion is presented in Section 3.
**Figure 2: ENTRUST policy toolkit key objectives**

### TRANSPORT

- **Increasing the purchase and use of electric vehicles**
  - 94% of energy demand in transport is met by oil.
  - The electrification of transport is key to meeting EU’s 2030 climate goals of achieving the reduction of at least 40% of CO2 emissions (compared to 1990 levels).

- **Increasing the practice of car sharing**
  - Modal shifts in transport are playing a prominent role in reducing private car use.
  - In Paris, for example, the introduction of car sharing programmes, which make available electric-powered cars, has contributed to a 25% reduction in car use.

- **Encouraging automobile commuters to carpool**
  - Environmentally-friendly and sustainable way to travel, reduces air pollution, carbon emissions and traffic congestion on the roads.
  - Each vehicle used for one-way car sharing can eliminate as many as 11 cars from the streets and cutting greenhouse gas emissions by nearly 13 metric tons a year.

- **Encouraging the use of public transport**
  - Plays a central role in large cities where private vehicle ownership is not widespread.
  - Significantly more energy efficient than private vehicle use, with bus and rail travel accounting for 18% of passenger-kilometres in Europe, but only 5% of energy consumption.

### BUILDINGS

- **Reducing electricity usage through smart technologies**
  - Smart meters can reduce emissions in the EU by up to 9%
  - This measure falls within the framework of the EU’s Third Liberalisation package, which aims at replacing at least 60% of the electricity meters by smart meters by 2020.

- **Initiating thermal refurbishments**
  - Existing buildings represent significant energy-saving opportunities.
  - EU needs to reach a building refurbishment rate of around 3% per year if 2050 target is to be achieved (including major retrofits).

### POWER GENERATION

- **Promoting subscription to green energy suppliers**
  - Green-energy cooperatives and suppliers contribute to the delivery of security of supply, a transition with reduced greenhouse gas emissions, industrial development leading to growth and jobs and lower energy costs for the EU economy.

- **Enabling green energy self-consumption**
  - Facilitates consumer empowerment and lowers energy system costs i.e. solar PV in sunny countries can help reducing grid peak demand for electricity driven by air conditioning.
  - System losses can be also reduced.
2.2 Step-by-step methodology

Research undertaken on alternative forms of policymaking suggests that a participatory approach to problem solving can be highly motivational and effective in encouraging behaviour change (Kaplan, 2000). The “Open Policy Making Toolkit” developed by the UK government and the French “Law for a Digital Republic” represent two examples engaging citizens in the design process.

With this in mind, the ENTRUST partners set out to develop a methodology aimed at co-designing policies targeting energy behaviour change. It is inspired by the Design Thinking approach and has been complemented by applying insights from behavioural science thinking, as well as by engaging citizens in the policy-design process.

Co-designing policies with citizens is not only aligned with ENTRUST’s philosophy but also results in policies that are more widely accepted. The Design Thinking method (Figure 3) provides a solution-based approach to solving problems and therefore was selected as the methodology to be used. It’s extremely useful in tackling complex problems, by understanding the human needs involved, by re-framing the problem in human-centric ways, by creating a multitude of ideas in brainstorming sessions, and by adopting a hands-on approach in prototyping and testing (Allio, 2014).

![Figure 3: Design Thinking methodology adapted from (Institut Hasso Plattner, No date)](image)

The methodology undertaken to co-design policies is laid out in Figure 4, and detailed below.

1. **Understanding the context:** In this first stage, a picture of the different contexts shaping people’s behaviour needs to be obtained for a specific sector. Technical, environmental, socio-economic trends need to be studied (1.1), factors influencing the way people act every day need to be identified (1.2) and existing policies need to be mapped (1.3).

2. **Co-creating policy options:** The second stage aims at co-creating a set of policy recommendations based on the valuable information produced in the first stage and through creative thinking. To do so, ideation sessions need to be conducted (2.1), ideas need to be structured (2.2) and finally pre-selected (2.3). This step will typically be driven by a core group of policymakers and experts.

3. **Evaluating, selecting and developing best policy options:** In this third stage of the policy-design process, citizens play a key role by taking part in organised focus groups to assess the ideas generated (3.1). The mix of sector-specific policy options needs to be prioritised (3.2), developed and assembled into coherent policy packages (3.3).
SELECT TARGET AREA

1. CONTEXT ANALYSIS
   1.1 Analyse context data and identify barriers
   1.2 Map « ISM » behaviour factors
   1.3 Map sector-specific policies

2. CO-CREATION OF POLICY RECOMMENDATIONS
   2.1 Identify gaps and ideate
   2.2 Classify ideas
   2.3 Select best ideas

3. EVALUATION, SELECTION & DEVELOPMENT
   3.1 Community assessment
   3.2 Prioritising
   3.3 Develop a mix of policy options

Figure 4: Step-by-step methodology
The steps outlined in Figure 4 depict the process our researchers followed throughout this deliverable. These steps were designed with policymakers in mind, and are to be implemented consecutively. However, policymakers could pick one or a number of the tools and use them— to a certain extent— by themselves or in a different order. The steps are meant to be applicable to any country or region, with different focal points to accommodate for and reflect local circumstances.

**SELECT TARGET AREA**

“If you want to change a behaviour, first specify that target behaviour” (Darnton & Horne, 2013). In this first step the core team should select the focus area/target behaviour. As an illustration, this is a specific behaviour (e.g. purchasing electric vehicles) undertaken by a group of people. Note that this is not necessarily the same as a policy goal. For instance, a policy goal might be ‘to reduce CO₂ emissions, air pollution and energy dependency from the transport sector’, but from the users’ perspective this could involve taking public transport, carpooling to work, or commuting by bike. All of these are different behaviours, with different contexts and influences, and each would need to be targeted differently.

As presented in Figure 2, eight target areas were selected and covered in the present work.

### 1.1 ANALYSE CONTEXT DATA AND IDENTIFY BARRIERS

**Objective:** Analyse technical, political, environmental, and socio-economic data and understand the barriers standing the way of the target behaviour, in order to render policy options (2.1) more targeted.

**Output:** Description of the context and barriers

The approach in this toolkit is to combine a context analysis of latest technical, political and environmental trends with socio-economic issues faced by individuals. Both qualitative and quantitative evidence should be collected.

In the ENTRUST project, a context analysis was carried out for each of the six countries studied (France, Germany, Ireland, Italy, Spain and the United Kingdom). Figures 5 – 7 below present the initial analytical framework used to assess these dimensions.

Note that the context analysis served as the starting point, as it helped to identify the existing sector-specific barriers that need to be addressed. Some results of the context analysis are discussed in Section 3 “Energy policy proposals”. Main findings will also be included in the “Policy toolkit platform”, which will be developed in the framework of the Knowledge and Communication Platform (WP 7).
## Features of the car fleet
- Number of vehicles per households
- Number of vehicles per households according to their socio-eco categories (upper, middle and lower classes)
- Evolution of the average age of the car fleet over the period 2005-2017
- Number of days/year with medium, high and very high pollution according to the Citeair classification over the period 2005-2017
- Fleet renewal rate over the period 2005-2017
- Share of electric vehicles in the transportation sector and its evolution over the period 2005-2017
- Share of hybrid vehicles in the transportation sector and its evolution over the period 2005-2017
- Qualitative assessment of the transportation network (collective transportation, charging stations for electric vehicles, solutions to tackle the urban-rural discrimination, etc.)
- Investments in the transportation network per year over the period 2005-2017
- Cumulative annual delay in public transport
- Number of hours spent in traffic jams
- Number of people using public transport or bike for getting to work

## Economic information
- Evolution of the oil prices over the period 2005-2017
- Assessment of the potential rebound effect due to the possible drop of the oil price
- Price of an electric vehicle compared to classic vehicles
- Price of an hybrid vehicle compared to classic vehicles
- Evolution of the public transport pricing over the period 2005-2017

## Social-cultural information
- Qualitative analysis about the social representation of public transport over private? Evolution of carpooling and car sharing over the period 2005-2017
- What is the nature of travels by carpooling/sharing?
- Assessment of the access to these services (carpooling and car sharing)
- Share of remote worker (home office) and its evolution over the period 2005-2017
- Average distance travelled per day via a vehicle (train, car, subway, etc.)
- Possible socio-eco data (which categories use public transport, which categories have a car, which categories travel more?)

## Environment
- Evolution of the population concern about environmental issues (air pollution, modification of landscapes, biodiversity, etc.)

### Figure 5: Initial analytical framework in the transport sector

<table>
<thead>
<tr>
<th>Features of the housing stock</th>
<th>Shares of new (built after 2005) and old residential buildings</th>
<th>Share of residential buildings with green labels</th>
<th>Number of energy refurbishment per year and its evolution over the period 2005-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>Main type of heating sources used in the country for accommodations</td>
<td>Share of devices with an European energy label and its evolution over the period 2005-2017</td>
<td>Average price of thermal/refurbishments over the period 2005-2017</td>
</tr>
<tr>
<td>Economic information</td>
<td>Average energy bill by household</td>
<td>Average share of the energy bill in the budget of family</td>
<td>How much expensive green/passive housing are compared to common ones?</td>
</tr>
<tr>
<td>Technological information</td>
<td>Effectivity of building's corporation (artisan, design department)</td>
<td>Number of accommodations with energy smart meters</td>
<td>Number of accommodations equipped with sustainable energy devices</td>
</tr>
<tr>
<td>Social-cultural information</td>
<td>Share of accommodations with communal/individual heating</td>
<td>Share of accommodations facing fuel poverty issues and its evolution over the period 2005-2017</td>
<td>Qualitative analysis over the position of the resident in the energy approach (active, passive)</td>
</tr>
<tr>
<td>Environment</td>
<td>Evolution of the population concern about environmental/energy issues (air pollution, modification of landscapes, biodiversity, etc.)</td>
<td>Number of accommodations facing fuel poverty issues and its evolution over the period 2005-2017</td>
<td>Possible socio-eco data: who are the occupants of green/passive buildings? Who are the owners? The tenants?</td>
</tr>
</tbody>
</table>

### Figure 6: Initial analytical framework in the building sector

### Figure 7: Initial analytical framework a in the local energy production sector
1.2 MAP “INDIVIDUAL SOCIAL MATERIAL” (ISM) BEHAVIOUR FACTORS

Objective: Apply the ISM methodology to understand the different contexts -the Individual, Social and Material- and the multiple factors, that influence the way people act every day.

Output: List of factors that influence behaviours within the three ISM contexts -Individual, Social and Material-

Traditional approaches to behaviour change have tended to focus on one particular context. However, this is often insufficient to lead to the change in behaviour that policy makers are expecting. The ISM methodology has greater chances of success because it encourages broader thinking and collaborative working to develop a more integrated set of policy recommendations.

Designed for policy makers and practitioners, ISM is based on ‘moving beyond the individual’ to consider all the contexts that shape people’s behaviours – the Individual, the Social and the Material (Darnton & Horne, 2013). The ISM tool helps to generate ideas that consider influences across multiple contexts.

As shown in Figure 8, the ISM model (Darnton & Horne, 2013) identifies 18 factors that influence behaviours within the three ISM contexts:

THE INDIVIDUAL CONTEXT
This refers to the factors related to the individual that affect his/her choices and modify his/her behaviour. Examples of individual factors are: values, beliefs and attitudes; costs and benefits; emotions; agency; skills and habits.

THE SOCIAL CONTEXT
This includes the factors that exist beyond the individual in his/her close ecosystem. These influences include understandings that are shared amongst groups. Examples of social factors are: opinion leaders; institutions; norms; roles and identity; tastes; meaning; networks and relationships.

THE MATERIAL CONTEXT
This corresponds to the external factors present in the wide environment, which both shape and constrain human behaviour. Examples of material factors are: rules and regulations; technologies; infrastructure; objects; times and schedules.
In the ENTRUST project, an ISM behaviour mapping was carried out for each of the eight target behaviours. The exercise enabled the consideration of multiple factors that could encourage the target behaviours, as well as the identification of potential barriers to behaviour change. A key aspect of the approach was to involve ENTRUST partners working across different contexts, thus incorporating a diversity of ideas and fresh sets of eyes.

A detailed example illustrating the insights and ideas that can be gained from using the ISM tool is provided in Section 0 “Illustration of the methodology”. Moreover, results from the ISM behaviour mapping exercise for each target behaviour is provided in summarised form in Appendix 1: Application of ISM methodology to target behaviours.

### 1.3 MAP SECTOR-SPECIFIC POLICIES

**Objective:** Lay out relevant available policies to address the barriers identified in step 1.1.

**Output:** A set of specific-sector existing policies and interventions, classified according to their type of intervention and approach

Once the different factors and barriers have been identified, policymakers can map existing policies and interventions that are being used to encourage the target behaviour. An understanding of the policy
landscape can be established within eight key categories: regulatory frameworks, planning & infrastructure, fiscal measures, service provision, communication & marketing, guidelines, collaboration platforms and business support schemes. An overview of these types, with examples of each, is illustrated with examples in Figure 9.

<table>
<thead>
<tr>
<th>POLICY INTERVENTION TYPE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULATORY FRAMEWORKS</td>
<td>• Government strategy to establish rules or principles of behaviour or practice</td>
</tr>
<tr>
<td>PLANNING &amp; INFRASTRUCTURE</td>
<td>• Public investment and procurement in infrastructures</td>
</tr>
<tr>
<td>FISCAL MEASURES</td>
<td>• Using the tax system to reduce or increase the financial cost</td>
</tr>
<tr>
<td>SERVICE PROVISION</td>
<td>• Establishing and delivering support services</td>
</tr>
<tr>
<td>COMMUNICATION &amp; MARKETING</td>
<td>• Education, public information campaigns and awareness raising</td>
</tr>
<tr>
<td>GUIDELINES</td>
<td>• Creating documents that recommend or mandate best practice</td>
</tr>
<tr>
<td>COLLABORATION PLATFORMS</td>
<td>• Public Private Partnerships with businesses at a national, regional or city level</td>
</tr>
<tr>
<td></td>
<td>• Industry collaboration platforms, value-chain and cross-sectoral initiatives</td>
</tr>
<tr>
<td>BUSINESS SUPPORT SCHEMES</td>
<td>• Financial support to businesses, for example direct subsidies, provision of capital, or financial guarantees</td>
</tr>
<tr>
<td></td>
<td>• Technical support, advisory, or training to businesses</td>
</tr>
</tbody>
</table>

Figure 9: Eight types of policy intervention types with examples

Desktop research can be particularly useful for policymakers wanting to map sector-specific policies. Another valuable exercise at this stage would be to interview industry stakeholders and other policymakers who have already implemented energy policy in other regions and countries. Inspiration could also come from innovative public sector supported mechanisms applied in other policy areas.

In the ENTRUST project, government schemes and other interventions designed to change people’s behaviour were mapped for each of the three priority sectors and in each of the six countries studied. This task built on the desktop research and work achieved in WP4. The output of the policy mapping exercise was a set of top-down, hybrid and bottom-up policies and interventions, highlighting the gaps within existing policy instruments.
A CLOSER LOOK AT SOME OF THE POLICY INTERVENTIONS IN THE ENERGY SECTOR

Regulatory frameworks

Zoom 1: Policy case example – The EU Emissions Trading System

The EU emissions trading system (EU ETS) is a cornerstone of the EU's policy to combat climate change and is one of its key tools for cost-effectively reducing greenhouse gas emissions. It is the world's first major carbon trading market and remains the biggest one.

The EU ETS works on the 'cap and trade' principle:
- A cap is set on the total amount of certain greenhouse gases that can be emitted by installations covered by the system. The cap is reduced over time so that total emissions fall. Within the cap, companies receive or buy emission allowances which they can trade with one another as needed. They can also buy limited amounts of international credits from emission-saving projects around the world. The limit on the total number of allowances available ensures that they have a value.

After each year, a company must surrender enough allowances to cover all its emissions, otherwise heavy fines are imposed. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another company that is short of allowances.

Trading brings flexibility that ensures emissions are cut where it costs least to do so. A robust carbon price also promotes investment in clean, low-carbon technologies.

https://ec.europa.eu/clima/policies/ets_en

Planning & infrastructure

Zoom 2: Policy case example – Bidelek Sareak

An example of a hybrid approach to policy in the Basque Country, Spain, is Bidelek Sareak. The initiative stands on a public-private partnership between the Basque Energy Agency (EVE) and Iberdrola Distribución Eléctrica to develop advanced smart grid technologies. In addition to financial support, EVE will contribute to the project with its experience and knowledge on energy savings, energy efficiency and improvements in managing of energy demand for end users.

Iberdrola will lead the Smart Grid Project from a technological perspective, to ensure that certain selected areas are recognised as reference areas on account of the quality and efficiency of their electricity grids, both on a national and international scale.

The following actions will be carried out in order to deploy the smart power grid: (i) Smart meters; (ii) Smart transformer stations; (iii) New concept of transformer stations; (iv) Distributed generation; (v) Development and implementation of new services and tools.

This total amount invested in this project will add up to 60,000,000 euros between 2012 to 2014.

http://bidelek.com/en
Fiscal measures

Zoom 3: Policy case example – Templederry wind community farm

An example of a bottom-up approach to policy in Ireland is the Templederry wind community farm, Ireland’s first community owner wind farm (Co. Tipperary, Ireland). The driving influence behind the project was the development of wind energy as an ‘environmental protection’ goal in the local community development. Key Actors Involved: National Grid Operator, Tipperary Energy Agency (TEA) and local community members.

The project was developed in the context of social and economic decline in this rural area and it was promoted as an opportunity to secure both an independent energy source for the community as well as providing a boost to the economy by selling the electricity produced to the main grid. The project also attempted to change people’s negative views of windfarm infrastructure by making it more acceptable to communities based on ownership and creation of local benefits to the community.

This initiative provides a new model of engagement with energy production by adding the element of ownership. Conventional forms of energy production are widely regarded as convenient and their immediate impact on the environment and the landscape is often hidden. Breaking with this overreliance on fossil fuels and addressing concerns with regards renewable alternatives such as wind can be achieved through relinquishing ownership of some of these project to communities which will benefit directly from the financial and environmental gains of deploying wind infrastructure and help counteract any negative impacts.

http://tippenergy.ie/projects/temblederry-community-wind-farm/

Service provision

Zoom 4: Policy case example – CasaClima action

An example of a hybrid approach to policy in is the CasaClima action in the Autonomous Province of Bolzano, Italy. Italy does not currently have a national system for testing, rating and labelling building materials, with the exception of voluntary third-party certification and some local best practice.

CasaClima Agency has its own system of testing, rating and labelling building materials using the local KlimaHaus certification system. It is an independent certifying authority which offers capacity building activities and services around the implementation of the EPBD.

Bolzano provides an alternative to the ITACA Protocol for sustainability assessment, and the approach is being adopted in other regions as a voluntary standard for energy efficiency in buildings.

http://www.agenziacasaclima.it/it/chi-siamo-5.html
Zoom 5: Policy case example – Smarter Travel initiatives

An example in Ireland is the Smarter Travel initiatives. It consists of a number of activities which aim to support people in adopting more sustainable travel options such as car-sharing, walking and cycling. The programme is largely reliant on raising public awareness and promoting behavioural change. It is led by the National Transport Authority. Most of the initiatives promoted are site-specific. For example, the Smarter Travel Workplaces, Smarter Travel Campus or Green Schools Travel. A large number range of actors such as large corporations, Higher Education Institutions, Schools, NGO’s, Local Communities and the general public are involved.

The approach aims to impact people's attitudes to mobility in a number of ways. There is a strong component that relates to educating the public through development of informational materials available in different formats (i.e. online, at work, in schools). Access to information is also expected to enable the public to take action more promptly by providing support mechanisms such web platforms and other tools. There are also a smaller number of incentives in the form of grants that aims to encourage greater uptake of these initiatives.

Available figures suggest that as of the end of April 2014, there were 4,879 people active on the platform, as part of 104 workplaces, culture, sports, personal and ‘other’ carsharing groups. People are encouraged to change their travelling habits and develop less individualised work and leisure mobility practices.

https://www.nationaltransport.ie/projects-schemes/smarter-travel/

Guidelines

Zoom 6: Policy case example – The Low Carbon Transition Plan 2009

An example of a hybrid approach to policy in the UK in the Low Carbon Transition Plan 2009. It outlines a number of energy efficiency plans that seek to build momentum for further changes to energy infrastructure. The Plan outlines a “whole house approach” that details a number of areas where efficiency savings can be made. A ‘whole house’ approach means considering a household’s energy needs and carbon dioxide impacts as a whole, and establishing a comprehensive package of measures to address them. The aim would be to include all the measures available that are suitable for a property and which could pay back through energy bill savings over their lifetime.

This strategy has had substantial changes on individual lifestyles and practices. For example, it has put into action a target that all homes should have smart meters by 2020 and provides a platform for a smarter electricity grid as well as setting up the Green Deal for homeowners to apply for money to improve the energy efficiency of their homes.

Finally, the policy has supported changes in habit through improving awareness of energy efficiency and practical solutions to reducing energy consumption through technical solutions and improvements to domestic energy efficiency.

**Collaboration platforms**

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**Zoom 7: Policy case example – The European Green Vehicles Initiative**

An example of a hybrid approach to policy is the European Green Vehicle Initiative (EGVI) PPP. This programme promotes research, development, demonstration of green vehicles and mobility system solutions. The Partnership involves all industry, research and associate members of the European Green Vehicles Initiative Association (EGVIA) and the various Directorates General of the European Commission engaged in the PPP. Public and private partners collaborate to identify research and innovation activities to be proposed for financial support under Horizon 2020 - the EU Framework Programme for Research and Innovation in the period 2014-2020. Three rounds of biennial calls for proposals are expected to be launched within the EGVI PPP. [http://www.egvi.eu/](http://www.egvi.eu/)

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**Business Support Schemes**

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**Zoom 8: Policy case example – KfW Energy Efficiency Programme – Waste Heat**

Particularly in difficult economic times, energy efficiency can make an important contribution to reducing the fixed costs of an enterprise. An example in Germany of a business support scheme is the Waste Heat programme, launched by KfW, a German government-owned development bank. It is addressed particularly to small and medium-sized enterprises in the form of low interest rates for loans. In addition, KfW finances the development of renewable energies, such as electricity and heat from the ground, sun, wind and water. Available funds include loans, up to 25 million euro per project and with a repayment bonus of 30% or 40%.

[https://www.kfw.de/inlandsfoerderung/Unternehmen/Energie-Umwelt/index-2.html](https://www.kfw.de/inlandsfoerderung/Unternehmen/Energie-Umwelt/index-2.html)
2.1 IDENTIFY GAPS AND IDEATE

**Objective:** Identify which factors are not covered by existing policies or interventions – the gaps – and organise ideation sessions with the core team to work on how these gaps can be addressed.

**Output:** List of ideas addressing factors and barriers identified in Stage 1.

In other words, in addition to current efforts, what can be done to encourage the desired behaviour change? Some ideas will arise naturally and may already have been generated as part of the mapping of behaviours (step 3), whilst others may require more creative thinking. Brainstorming and persona exercises carried out at this stage can enable greater creativity, thinking outside-of-the-box, and a more thorough understanding of key stakeholders.

In the Entrust project, the ideation phase built on a series of workshops; Eight people from different backgrounds (5 women, 3 men) and representing four ENTRUST partners (UCC, LJMU, REDDIN, LGI) attended a two-days working session in Paris. The sessions were moderated by LGI and followed four steps, as depicted in Figure 10.

**Figure 10: Example of an ENTRUST ideation session**

Each workshop started by reviewing the ISM factor sheets for 40 minutes (see results in Appendix 1: Application of ISM methodology to target behaviours): 10 minutes were devoted to the review of each of the ISM factors (30 minutes for 3 sheets) and 10 minutes to capturing the key points raised in relation to the different factors. It should be noted that the ISM behaviour mapping was a key start for the development of the workshops.

Afterwards, brainstorming and persona exercises were conducted for another 40 minutes. The objective was to enter into a creative mode and to think outside of the box, quickly generating ideas without criticising each other’s suggestions. The persona exercise was particularly useful at this stage of the policy design process, since it helped us to empathise with key user groups and shed light onto which problems to prioritise as well as identify previous un-considered issues and challenges. Examples of user groups or
2.2 CLASSIFY IDEAS

Objective: Classify the ideas generated during step 5 according to the type of policy intervention.

Output: Structured map of the mix of policy options generated.

An additional step towards contextualising future policies entails determining the functional characteristics of each policy intervention. To do so, it is advised to use the “Intervention Wheel”. This tool is built on the foundations presented by the Behaviour Change Wheel (Michie, van Stralen, & West, 2011) and has been extended by including the type of policy interventions from step 4. The advantage to using the wheel in this step is that it helps policymakers to streamline their policy ideas into specific policy interventions with related, practical functions (education, coercion, training, enablement, incentivisation, etc.).

Policy formulation is not the ultimate goals of this step. The objective is to build a structured map of the mix of policy options generated.

Figure 11: Intervention wheel and related practical functions
In the ENTRUST project, each of the 183 recommendations generated during the step 2.1 were classified by the ENTRUST partners according to the “Intervention Wheel” model.

### 2.3 SELECT THE BEST IDEAS

**Objective:** Prioritise ideas generated in 2.1 before moving on to the next step, the community assessment.

**Output:** List of ideas to present to the community for feedback and assessment.

Ideation sessions described in step 2.1 can result in a large number of ideas for each target behaviour. To guide further analysis, ideas need to be selected.

The following criteria was used in the ENTRUST project and could serve as guidance for policymakers looking to prioritise ideas targeting energy behaviour:

- The potential impact of the policy recommendation on people’s behaviour
- The potential capacity of the policy recommendation to drive society toward a sustainable energy transition
- The potential capacity of the policy recommendation to be accepted by citizens

By using this criteria, 65 of the 183 ideas generated were selected to be presented to the community.

### 3.1 COMMUNITY ASSESSMENT

**Objective:** Engage key stakeholders to assess the ideas generated

**Output:** Community feedback and list of ideas highly accepted, ideas under reformulation/modification and not accepted/disagreed ones.

As in any strategic project, key stakeholders should be engaged from the start. Citizens should be involved in the design of the policies so as to ensure a fuller and more realistic picture of the drivers and barriers shaping people’s behaviour, as well as to assess the ideas generated in the previous steps.

In the ENTRUST project, engagement with citizens created an excellent opportunity to exchange ideas and information and learn from each other. As an illustration, a three-hour focus group discussion was held among the eco-neighbourhood community of Le Trapeze, France. The focus group was moderated by LGI, and was held in French; 11 citizens from different backgrounds participated (4 women, 7 men).

65 ideas were presented to the community.
During the first part of the workshop, the community validated the policy recommendations presented through a red-amber-green chip exercise. To enable greater exchange among participants, three groups of approximately 3-4 people were created. The exercise consisted on assessing each policy recommendation through a colour code; green for highly accepted recommendations, amber for accepted recommendations but under reformulation/modification and red for not accepted/disagreed. The resulting marks enabled us to assess the acceptance of the policy measures. The second part of the workshop was dedicated to brainstorming and discussion.

Contributions from the community enabled the creation of several new policy options, helping to modify and refine the policies presented. Figure 12 illustrates one of the discussions held between the citizens during the first part of the focus group.

![Focus group with the eco-neighbourhood community of Le Trapeze, France](image)

**Figure 12: Focus group with the eco-neighbourhood community of Le Trapeze, France**

### 3.2 PRIORITISING

**Objective:** Apply a general qualitative prioritisation to select the policy options to be developed

**Output:** Set of policy options to be developed

Identifying barriers preventing targeted behaviour change policies and developing policy options to address these are key outcomes of working through the steps of this toolkit.

Prioritising proposed ideas can help put policies into perspective. Some useful criteria to prioritise policy options include their potential impact, pros and cons, cost-benefit analysis, practicality and feasibility (including time and resource constraints), to address existing gaps, and acceptance by the community.
The ENTRUST project used the following criteria to prioritise policy options:

- **The sustainable benefit** of a policy option:
  - The potential capacity of the policy recommendation to change people’s behaviours
  - The capacity of the policy recommendation to place citizens at the centre of the energy system
  - The conformity of the policy recommendation with the concept of “Energy justice.” This concept aims at “providing all individuals, across all areas, with safe, affordable and sustainable energy” (Heffron & McCauley, 2017)
  - Respect for sustainable development principles

In particular, the first two criteria were assigned a weight of 2.0; the third criterion held a weight of 1.0, and the fourth criterion was assigned a weight of 1.5. According to this analysis, a level of potential benefit was assigned for each policy option (low, low-medium, medium, medium-high or high).

- **The cost of implementation** of a policy option: An estimated cost of implementation was carried out at macro level for each policy option. According to this analysis, a level of potential cost was assigned for each policy option (low, low-medium, medium, medium-high or high).

From the 183 ideas generated in step 2.1, 44 ideas were retained in step 3.2.

### 3.3 DEVELOP A MIX OF POLICY OPTIONS

<table>
<thead>
<tr>
<th>Objective:</th>
<th>Develop the selected mix of policy options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output:</td>
<td>Set of policy recommendations, with detailed information on the type of actors, tools, approach, objectives, obstacles, acceptance and assessment</td>
</tr>
</tbody>
</table>

Once a prioritised set of potential policy options is determined, the next and final step is to develop the proposed policies and structure them into potential policy packages. To this it is important to consider the roles of government (central and local), business and other stakeholders, such as community members, when classifying the different policies (see Table below).

<table>
<thead>
<tr>
<th>Table 1: Type of policy approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feature of the approach</strong></td>
</tr>
<tr>
<td>Led by a governmental body</td>
</tr>
<tr>
<td><strong>Drafting mode</strong></td>
</tr>
<tr>
<td><strong>Actors</strong></td>
</tr>
</tbody>
</table>
Furthermore, use the “Policy Canvas” framework is useful as an initial step towards developing each policy recommendation. This tool is built on the same logic as the Business Model Canvas (Osterwalder & Pigneur, 2010) and aims to facilitate the policy-design process. The “Policy Canvas” framework can be described through nine building blocks: context, actors, tools, policy recommendation, approach, objectives, obstacles, acceptance and assessment. The “Policy Recommendations Block” is the core of the canvas around which the other blocks are articulated.

Figure 13: ENTRUST Policy Canvas
A ZOOM OF THE ENTRUST POLICY DESIGN PROCESS

• The present work covered the **supply and demand sides** of the energy sector.

• **Eight key objectives** were outlined. These were identified with the collaboration of local community stakeholders.

• **183 policy ideas** emerged from the methodology (co-creation workshops).

• **65** of these 183 ideas were selected and **presented to citizens** during a second co-design workshop.

• Participants’ contributions enabled **the formulation of some new recommendations** and helped us to modify/refine numerous policies presented.

• **44 policy recommendations** focusing on behaviour change were retained.

• **Different approaches**: 19 top-down, 8 bottom-up, and 17 hybrid approaches.

• **Wide array of policy intervention types covered**: 7 regulatory frameworks, 4 planning & infrastructure, 5 fiscal measures, 10 service provision, 7 communication and marketing tools, 2 guidelines, 3 collaboration platforms, and 6 business support schemes.

• Presentation of policy proposals through a **Policy Canvas**.

• Creation of a separated “**Policy Toolkit**” for policymakers and practitioners that explains the most important aspects to keep in mind.
2.3 Illustration of the methodology

In this section, an illustrated example is provided to guide policymakers in knowing how to apply the methodology and highlight the insights and ideas which can be gained. For presentational purposes, the example captures the main issues raised within the policy design process rather than providing an exhaustive analysis. The example corresponds to key objective n°3 in the transport sector and focuses on people's decisions to carpool.

<table>
<thead>
<tr>
<th><strong>Objective:</strong></th>
<th>Encouraging automobile commuters to carpool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy goal:</strong></td>
<td>Reduce CO₂ emissions, air pollution and energy dependency from the transport sector</td>
</tr>
</tbody>
</table>

2.1 ANALYSING THE CONTEXT DATA

The starting point should be a definition of car-pooling. According to the most commonly adopted definition, car-pooling is the agreement of sharing car journeys by several individuals frequently commuting along the same journey at mutually compatible times. The group takes just one single car of theirs and shares its travelling costs. Car-pooling is both associated to occasional and exceptional journeys.

Examples of current experiences: Initiatives usually promoted by local authorities and public agencies. Local actions are, most of the times, funded and coordinated, in a wider scale context, by the EC’s projects for an environmentally sustainable transport system.

- Examples of EU projects: The CARPLUS project (EU TR 1008), TAPESTRY (FP5)
- EU cities devoting increasing financial and organisational efforts to implement large-scale car-pool matching solutions
- Initiatives based on internet and on-line database, and focused on non-systematic trips. The main two, [www.car-pool.com](http://www.car-pool.com) and [www.ecotrajet.com](http://www.ecotrajet.com) set in Germany and in France, respectively, have provided matching services to many thousands of occasional work commuters and travellers all around Europe
- Other, private or non-profit, operators: [www.vroom.be](http://www.vroom.be) in Belgium, [www.comove.fr](http://www.comove.fr) in France, [www.jojob.it](http://www.jojob.it) in Italy, [www.car-pool.co.uk](http://www.car-pool.co.uk) in the UK, and [www.mitfahrzentral.de](http://www.mitfahrzentral.de) in Germany

2.2 MAP “ISM” BEHAVIOUR FACTORS

Carpooling in Europe is such a novel experience for most people that extraordinary attention needs to be devoted to it. Behavioural aspects in carpooling such as letting people meet and talk in advance, punctuality, safety, unsafe driving practices, and so on are relevant and need to be taken into consideration. A bad impression about the first car-pooling experience most of the times might mean that people involved never consider this option again. The ISM behaviour mapping presented below (Figure 14, Figure 15 and Figure 16) was carried out by the ENTRUST team and allowed to identify a wide range of factors – many of which are interlinked – and which all need to be addressed if a step change in carpooling is to be achieved.
INDIVIDUAL FACTORS

This section provides a description in summarised note form of the Individual factors which influence people’s decisions to carpool, rather than driving single occupancy vehicles.

Values, Beliefs, Attitudes
- Practical, ecological, convivial
- Concern about the environment and social issues
- Interested in trying new things, meeting new people
- Less independent
- Fear of people you meet

Emotions
- Car poolers feel satisfied (80%)
- Dissatisfaction (car poolers think that drivers get profit, they won’t like their car mates, will be delayed,
  - Anxiety/fear especially for women

Agency
- For those using a platform: anxiety about finding the right car, cancellation of the trip, what the others in the car will be like, etc.

Skills
- Know how to use the car pooling platform (for those not car pooling with people they already know)

Habits
- Traditional transport habits
- Planning is required before a trip
- Generational bias (elder vs young)

Costs & Benefits
- Expenses are shared (toll, fuel, etc)
- Journeys are more pleasant (drivers are not alone, social relationships)
- Less flexibility of own car use
- Ride arrangement: time consuming
- Environmental benefits
- Fear of last-minute cancellation or delays
- Concern about security for drivers and carpoolers
- Less number of journeys to small villages
- Responsibility of drivers in case of accidents

Figure 14: ISM factsheet – Individual factors on carpooling

The factors identified as part of the Individual context highlight affordability as well as increased flexibility when compared to public transport, in terms of travel time and distance covered. These advantages explain in large part carpooling’s success in Europe, although European countries are not equipped with high occupancy vehicle (HOV) lanes specific for carpoolers. Beliefs, Attitudes and Agency are all influenced by ‘range anxiety’. This is the worry about not finding the right car, cancellation of the trip or fear of people you travel with. Skills and ‘Know How’ are also an issue in terms of how to use the carpool platform.
SOCIAL FACTORS

This section provides a description in summarised note form of the Social factors which influence people’s decisions to carpool, rather than driving single occupancy vehicles.

### Opinion Leaders
- Celebrities (around 30-years-old who use social networks)
- Youtubers, bloggers
- Reality TV casts

### Roles & Identity
- Carpoolers are seen as « hypermobile »
- High-tech profile
- Open-minded people
- Socially engaged (NGOs, associations)
- Concerned about environmental issues
- Curious, adventurous people

### Institutions
- Friends
- Car hire market
- Car media
- Ministry of transport/Environment

### Tastes
- Social network users
- Non-traditional way of traveling
- Initiators

### Norms
- Young people activity
- Unsecured and risky activity
- For weekend trips, long distance trips
- Not used as a daily activity to go to work.
- Carpooling platforms mainly use for weekend/holidays trip

### Meanings
- More and more structured platform community
  (Before it was an arrangement between friends or just hitch-hiking)

### Networks & Relationships
- Social networks
- Target young (<30 years old people) and students
- Environmentally engaged people
- Close social circle

The Social context highlights the role of social networks and structured platform communities in facilitating the uptake of carpooling. The majority of users at the moment tends to be young open-minded people with a high-tech profile and willing to explore affordable options of travelling. Security issues are again underlined among drivers and riders who are carpooling together via an app, in terms of fear of the people you meet. Finally, carpooling is not yet seen as a daily activity to commute to work but used for long distance trips.

**Figure 15: ISM factsheet – Social factors on carpooling**
**Material FACTORS**

This section provides a description in summarised note form of the Material factors which influence people’s decisions to carpool, rather than driving single occupancy vehicles.

<table>
<thead>
<tr>
<th>Rules &amp; Regulations</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Payment methods/rules</td>
<td>- Alert system</td>
</tr>
<tr>
<td>- Regulation of car pooling by the State</td>
<td>- Eye-catching branding meeting points</td>
</tr>
<tr>
<td>- Plans for favouring car pooling in companies</td>
<td>- Smartphones</td>
</tr>
<tr>
<td>- Road concessionaires favour carpooling by informative actions, preferential tariffs and lanes (in some countries) Concessionaire?</td>
<td>- Car pooling platforms</td>
</tr>
<tr>
<td></td>
<td>- Apps</td>
</tr>
<tr>
<td></td>
<td>- Sticker in window (if receiving benefits for carpooling, such as preferential lanes or tariffs)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Time &amp; Schedules</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Smart phones</td>
<td>- Subscription to the platform</td>
</tr>
<tr>
<td>- Web platforms</td>
<td>- Planning in advance of your trip to find the most convenient car</td>
</tr>
<tr>
<td>- Cars</td>
<td>- Waiting for passengers</td>
</tr>
<tr>
<td>- Monitoring: carpooling credits</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 16: ISM factsheet – Material factors on carpooling*
MAP SECTOR POLICIES

The next step of the methodology mapped existing policies and interventions that are being used to encourage the target behaviour. Apart from the specific initiatives in carpooling, inspiration came from public sector supported mechanisms applied in the sustainable transport policy area. Figure 17 depicts an example of some of the existing interventions identified. The eight types of intervention were explored.

<table>
<thead>
<tr>
<th>POLICY INTERVENTION TYPE</th>
<th>Examples of sector - specific existing interventions</th>
</tr>
</thead>
</table>
| REGULATORY FRAMEWORKS    | • Air Quality Certificates: Crit’Air (France), aims at favoring the least polluting vehicles through incentives. Vehicles are divided into 6 environmental classes  
• UK Climate Change Act 2008 and the Low Carbon Transition Plan 2009 (UK) |
| PLANNING & INFRASTRUCTURE| • Air quality improvement plan 2016 (Spain), aims at redesign the main roads connecting the periphery with the center of Madrid, prioritization of sustainable mobility options (car sharing, electric vehicles, public transport, bikes, pedestrian) |
| FISCAL MEASURES           | • Eco-Incentives for Electric Cars (Italy), Law 83/2012 established state eco-incentives for the purchase of electric cars (2015-15%) to a max of 5,000 euro |
| SERVICE PROVISION         | • E-Vai car sharing initiative (Italy) – carsharing electric cars at airports and train stations, Milano and other towns in Lombardy |
| COMMUNICATION & MARKETING | • Smarter Travel Initiatives (Ireland), reliant on raising public awareness in adopting more sustainable travel options such as carpooling, walking and cycling |
| GUIDELINES                | • En biciclo por Madrid (Spain), online blog containing recommendations and maps to commute by bike in Madrid. It also includes events and an exchange platform |
| COLLABORATION PLATFORMS   | • ICS Iniziativa Car Sharing (Italy), is a PPP to support local cities with carsharing common services. Each City/Province identified a local company (public/private owned) to run the operations according to required standards. available in 12 cities, 22,500 users, 556 cars |
| BUSINESS SUPPORT SCHEMES  | • The Clean Vehicles Plan (Plan Véhicules Propres, France) is the result of collaboration between the Ministries of Ecology, Research and Industry and has as principal objectives to provide an additional incentive to businesses to encourage the promoting of alternative energy vehicles (5000€) |

Figure 17: Examples of existing interventions in the sustainable transport area
26 ideas were generated during the carpooling workshop, based on the analysis carried out in the previous steps and the brainstorming exercises. The ideation session lasted 1h30 and followed the exercises presented in section 2.2.

The figure below presents the first results of the ideation session.

![Figure 18: Ideation session with ENTRUST partners](image)

![Figure 19: Ideas generated during the carpooling workshop](image)
CLASSIFY IDEAS

The ideas generated during the ideation session were classified according to the potential type of policy intervention. The “Intervention Wheel” was used to streamline our policy ideas into specific policy interventions with related, practical functions.

Policy formulation was not the ultimate goals of this step. The objective was to build a structured map of the mix of policy options generated. Figure 20 shows an example of the first map of ideas.

<table>
<thead>
<tr>
<th>POLICY INTERVENTION TYPE</th>
<th>Description</th>
</tr>
</thead>
</table>
| REGULATORY FRAMEWORKS             | • Government strategy to establish rules or principles of behaviour or practice  
• Create a carpooling ranking during air pollution period |
| PLANNING & INFRASTRUCTURE         | • Authorise car-poolers to drive on bus lanes in cities  
• Reserve a lane for car-poolers in the highway  
• Create specific rest area for area car-poolers (free coffee, Wi-Fi, massage, etc.)  
• Set up branding spots to meet drivers and car-poolers in cities  
• Create special parking spots for car-poolers in parks, train stations, airports, |
| FISCAL MEASURES                   | • Set up a preferential tax rate on revenue from carpooling |
| SERVICE PROVISION                 | • Create “Match riders” services to expand for increasing daily carpooling  
• Provide your police record when subscribing to the carpooling platform  
• Offer more flexibility in the carpooling journey between two big cities  
• Encourage carpooling platform to reward the best users  
• Propose “only girl” carpooling to reduce anxiety  
• Upload GPS system to announce car-pooler on user’s journey |
| COMMUNICATION & MARKETING         | • Education, public information campaigns and awareness raising  
• Create a challenges among companies for carpooling: “How many carpooling in my company?” Reward = publicity for the winner  
• Create MOOC to learn how to use carpooling platform  
• Offer cool stickers for car-poolers and drivers  
• Propose TV ads to inform about carpooling |
| GUIDELINES                        | • Include carpooling in mobility plans of companies  
• Impose drivers and car-poolers to sign a chivism charter |
| COLLABORATION PLATFORMS           | • Create a “carbon watching” App that inform you about your personal GHG emission and the solutions (car pooling, green mobility, sustainable behaviour, etc.)  
• New business models “sell car to group of people practising car pooling” Implement the ranking of drivers and car-poolers on the platforms (security, respect of speed limit, conviviality). Best drivers are better listed on the platform? |
| BUSINESS SUPPORT SCHEMES          | • Encourage companies to promote carpooling programmes among employees  
• Force companies to pay for a certain amount of the daily carpooling of their employee |

Figure 20: Classification of carpooling ideas according to the potential type of policy intervention

SELECT THE BEST IDEAS + COMMUNITY ASSESSMENT

Ideas were first prioritised before moving on to the next step, which was focused the community assessment.

The following criteria was applied:

- The potential impact of the policy recommendation on people’s behaviour
- The capacity of the policy recommendation to drive society toward a sustainable energy transition
- The potential capacity of the policy recommendation to be accepted by citizens

A list of 9 ideas on carpooling were presented to the eco-neighbourhood community of Le Trapeze, France, for feedback and assessment.
Augmenter les démarches d’autopartage

<table>
<thead>
<tr>
<th>Idea</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposer un prix d’abonnement nominale selon le revenu (étudiant, famille, faible revenu ...).</td>
<td></td>
</tr>
<tr>
<td>Permettre aux autopartages de rouler sur les voies de bus en ville.</td>
<td></td>
</tr>
<tr>
<td>Offrir aux autopartages une zone de stationnement facile à tarifs réduits dans les gares/parkings/aéroports/parcs industriels pour faciliter le transport intermodal.</td>
<td></td>
</tr>
<tr>
<td>Diversifier les modèles disponibles en autopartage: taille, design, etc.</td>
<td></td>
</tr>
<tr>
<td>Faire participer l’entreprise au financement de l’abonnement d’autopartage de ses employés.</td>
<td></td>
</tr>
<tr>
<td>Offrir des subventions aux villes moyennes pour encourager la mise en œuvre de système d’autopartage.</td>
<td></td>
</tr>
<tr>
<td>Mutualiser les différentes cartes de transport dans un « pass » unique (métro, vélo, autopartage)</td>
<td></td>
</tr>
<tr>
<td>Accumuler des points lors de l’utilisation d’autopartage à débourser (tickets de métro/bus, minutes supplémentaires pour les vélos, monnaies locales, etc.).</td>
<td></td>
</tr>
<tr>
<td>Accompagner l’utilisateur dans l’usage de la plateforme et de la voiture: ligne d'appel, MOOC, vidéos visuelles dans les stations d’autopartage de voitures et éventuels formateurs.</td>
<td></td>
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</tbody>
</table>

Figure 21: Ideas selected and presented to the community of Le Trapeze, France

Figure 22: Carpooling workshop in the community of Le Trapeze, France
3.3 In order to prioritise the different policy options, the ENTRYST team used the following two criteria:

- The **sustainable benefit** of policy options:
  - The potential capacity of the policy recommendation to change people’s behaviours
  - The capacity of the policy recommendation to place citizens at the centre of the energy system
  - The conformity of the policy recommendation with the concept of “Energy justice.” This concept aims at “providing all individuals, across all areas, with safe, affordable and sustainable energy” (Heffron & McCauley, 2017)
  - Respect for sustainable development principles

In particular, the first two criteria were assigned a weight of 2.0; the third criterion held a weight of 1.0, and the fourth criterion was assigned a weight of 1.5.

- The **cost of implementation** of policy options: An estimated cost of implementation was carried out at macro level for each policy option.

**Prioritised set of potential policy options according to three approaches**

- **Provide fiscal advantages for businesses to actively encourage carpooling programmes for their employees** (Hybrid approach)
- **Develop a carpooling app for short-distance rides as part of the public transport options** (up to 100 km) (Hybrid approach)
- **Develop a public app-based or dynamic ridesharing platform for daily rides** (up to 100 km) (Hybrid approach)
- **Prioritise the passage of carpooling vehicles over single occupancy vehicles on peak pollution days** (Top-down approach)

Finally, the Policy Canvas framework was used as an initial way to develop each policy recommendation. The following policy options were finally proposed to be further investigated:
**Policy Toolkit Typology**

### Policy Recommendation

**Provide fiscal advantages for businesses to actively encourage carpooling programmes for their employees:**

The incentive programme could include:
- Reduced cost for carpoolers in parking lots.
- Preferred parking for carpoolers near building entrances, covered, etc.
- Carpooling platform: Teach the usage of these platforms, especially for less digitally savvy people.
- Prize drawings or rewards like coupon books for local restaurants.

### Approach

Hybrid

Financial support to businesses would come from the government, but the actual programmes would be carried out by the businesses.

### Context

To democratise car sharing and attract new users, it is necessary to inform and teach the ins and outs of car sharing.

### Objectives

- Increase the practice of carpooling among those who already drive to work.
- Cut air pollution.
- Reduce GHG emissions.
- Improve public health.

### Obstacles

- Difficulty to match schedules between employees (inflexibility).
- Potential for fraud, including registration of carpool partners who do not carpool.
- The extra time that carpooling takes and the loss of privacy.

### Acceptance

Low level of acceptance

### Assessment (Ex Ante Approach)

- Increase the number of employers carpooling to work.
- Increase the number of annual re-registration of carpoolers to the programme.
- Evolution of the carbon footprint of the company.

### Actors

- Local authorities
- Companies
- Employees

### Tools

- Business support scheme

### Cost of Implementation

Medium-high

### Sustainable Benefit

Medium

---

Figure 23: Policy recommendation on carpooling n°1: Provide fiscal advantages for businesses to actively encourage carpooling programmes for their employees.
Figure 24: Policy recommendation on carpooling n°2: Reserve a lane on highways for the use of carpools
Figure 25: Policy recommendation on carpooling n°3: Develop a carpooling app for short-distance rides as part of the public transport options

<table>
<thead>
<tr>
<th>POLICY RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a carpooling app for short-distance rides as part of the public transport options (up to 100 km)</td>
</tr>
<tr>
<td>Drivers using this platform set the route and the platform automatically determines the best pick-up and drop-off points. Drop-off points should be connected to other forms of public transportation such as bike stations, public transportation stops, and other transportation hubs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hybrid</td>
</tr>
<tr>
<td>Local authorities and companies could develop this service through a PPP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpooling service providers are mostly oriented for long distance rides. However, there is a need to make carpooling possible for short distances &amp; attractive for workers</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Make carpooling attractive for short distances</td>
</tr>
<tr>
<td>• Offer businesses an easy-to-implement tool to promote carpooling within their organisation</td>
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</tbody>
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<td>• Offer businesses an easy-to-implement tool to promote carpooling within their organisation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• App developers</td>
</tr>
<tr>
<td>• Drivers</td>
</tr>
<tr>
<td>• Passengers</td>
</tr>
<tr>
<td>• Companies/organisations</td>
</tr>
<tr>
<td>• Local authorities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service provision</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COST OF IMPLEMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBSTACLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Economies of scale: you need a large population of potential carpoolers to find a suitable match in terms of origin, work schedule, etc.</td>
</tr>
<tr>
<td>• Trust</td>
</tr>
<tr>
<td>• Security</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCEPTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level of acceptance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT (EX ANTE APPROACH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of passengers and drivers using the app</td>
</tr>
<tr>
<td>• Number of people carpooling to work</td>
</tr>
</tbody>
</table>
Figure 26: Policy recommendation on carpooling n°4: Create a carpooling ranking with occupancy requirements during peak pollution days
3  Energy policy proposals

This part presents the set of policy recommendations created with regards to the eight target areas. 44 policy recommendations promoting sustainable behaviours have been developed and included in the present deliverable. The set of policies include 19 top-down, 8 bottom-up, and 17 hybrid approaches and proposes the following mix of policy instruments: 7 regulatory frameworks, 4 planning& infrastructure, 5 fiscal measures, 10 service provision, 7 communication and marketing tools, 2 guidelines, 3 collaboration platforms, and 6 business support schemes.

For each of these recommendations, we elaborate on:

- **Context**: Includes the why behind the target behaviour.
- **Factors and barriers**: Includes a short summary of the predominant factors that influence the way people act every day.
- **Mix of policy options**: Includes the mix of policy options in summary form to address the identified factors. The type of approach, the type of intervention, the level of benefit and the level of implementation cost are assigned for each policy recommendation. Related developed policy canvases can be found in Appendix 3: Policy Canvas proposals.

3.1  **Transport**

As presented by the European Commission in the Winter Package in December 2016, Europe needs to advance in terms of energy efficiency, energy cleanliness, and innovation within the transport sector (European Commission, Energy Efficiency Directive Winter package 2016, 2016). The European Union’s 2030 climate goals include achieving the reduction of CO₂ emissions by at least 40% compared to 1990 levels. Transport continues to be one of the largest CO₂ emitters (about 23% of the global total) (Thomas M., 2015). and is the largest source of noise and air pollution in European cities (European Commission, 2017).

Worldwide, cities are the main drivers of mobility. This is due to passenger transport activity in urban and rural areas, as well as the freight activity required to meet the demand for goods of residents.

Travel decisions are an expression of a group of preferences meant to balance factors like time, reliability, cost and comfort. For most of people, these factors are not considered every time a trip is taken. However, this does not mean that opportunities to change habits are rare. As evidenced by the partners of the ENTRUST project, common challenges like traveling to/from rural areas, avoiding congestion, or dealing with delayed/infrequent services are all reasons to seek alternative travelling solutions.

The set of policy proposals related to the transport sector is presented in the following section. Note that the ones related to carpooling were presented in previous section 2.2.
3.1.1 Increasing the purchase and use of electric vehicles

**Policy goal:** Reduce CO\textsubscript{2} emissions, air pollution and energy dependency from the transport sector

**CONTEXT**

The electrification of transport is needed to bring down emissions, as currently 94% of energy demand in transport is met by oil. Therefore, making electric vehicles (EV) a more viable purchase choice for consumers is key to meeting the European Union’s 2030 climate goals of achieving the reduction of at least 40% of CO\textsubscript{2} emissions (compared to 1990 levels).

**FACTORS AND BARRIERS**

The option to purchase an EV on the market is relatively new. Consequently, many uncertainties exist around how citizens would respond to these policy recommendations. For instance, many consumers are unsure if they are eligible for subsidies, and therefore if they could afford an electric car. Driver anxiety regarding completing a journey before running out of battery plays into purchase concerns. Refuelling skills also influence people’s decision about whether or not to purchase an EV.

Certain factors such as making the technology more affordable, providing more accessible infrastructure, and maximising visual impact (branding) can encourage a person to purchase an EV. Action in the form of greater subsidies, incentives, and planning guidelines are needed to boost market demand, particularly as the sector is in a critical stage of development.

Within this context, the following policy options could be further investigated:

**POTENTIAL POLICY OPTIONS**

1. **Provide fiscal incentives for organisations (companies, charities, councils, associations, etc.) to buy electric vehicles for their automobile fleet** *(Figure 48)*
   
   Organisations buying a lot of cars could help to reduce air pollution through the purchase of EV fleet. Fiscal measures such as tax reductions or subsidies could encourage organisations to adopt an EV fleet.

   €\text{€\text{€ (LOW)}}

2. **Implement an incentive programme that allows electric vehicles to be exempt from road tolls** *(Figure 49)*
   
   The switch to an electric car could be expensive. People often question the economic interest of such behaviour. Incentives could encourage people to purchase EV.

   €\text{€\text{€ (MEDIUM)}}
3. **Provide fiscal advantages for organisations to build their own charging networks for electric vehicles** (Figure 50)
   The fear of running out of power during a journey could dissuade people from purchasing an EV. Improving the infrastructure could alleviate their concerns and encourage drivers to switch to electric vehicles. Providing fiscal advantages for organisations that build charging networks for electric vehicles can be financed via subsidies or tax reductions.

4. **Provide information (maps, apps) of the electric vehicle infrastructure** (Figure 51)
   Making electric vehicles more convenient could reduce drivers’ anxiety. In addition, information as real-time updates, available charging points can reduce driver’s anxiety and enhance user’s experience.

5. **Propose a European standard plug for fast charging via a norm** (Figure 52)
   Making electric cars a more convenient and easy option can boost the demand. A technical norm could be created to specify a common plug system to ease universal charging of EVs.

6. **Create “cradle to cradle” best practices in the design and manufacturing processes of electric vehicles** (Figure 53)
   The sustainable nature of electric cars is often questioned by people. Moreover, producing cars both electric and made from reusable materials (aligning with cradle-to-cradle standards), will benefit the whole value chain. A PPP could provide norms, best practices and guidelines that help electric car manufactures to recycle.

7. **Build electric vehicle parking spots at public transport stations in rural areas** (Figure 54)
   Public transport is primarily provided in urban areas and the lack of availability in rural areas can force rural residents, through lack of alternative options to take their cars increasing both congestion and pollution. If the infrastructure for e-cars were developed at public transport stations, rural residents might be more inclined to use public transport to travel to the city.
3.1.2 Increasing the practice of car sharing

**Policy goal:** Reduce CO₂ emissions, air pollution and energy dependency from the transport sector

**CONTEXT**

Car sharing is a membership-based service, often run by municipalities, private companies, or non-profit organisations (in the form of Public Private Partnership, PPPs), whereby individuals are able to access shared vehicles, parked throughout communities, for short-term use. Members typically pay an annual fee as well as an hourly rate per usage. Car sharing is most successful in densely populated areas, when it is offered as a complement to other forms of transit, and/or when it is located in areas that may not be strongly connected to existing transport options. In Paris, for example, the introduction of car sharing programmes, which make available electric-powered cars, has contributed to a 25% reduction in car use (IEA, 2016).

**FACTORS AND BARRIERS**

The factors identified include affordability (car sharing is cheaper than buying a personal car), as well as self-satisfaction, due to car sharing’s low impact on the environment and easy usage. However, attitudes and agency are all influenced by ‘range anxiety’. This includes concern over finding an available car and specified parking spot at the time needed, as well as concern regarding running out of battery (in the case of car-sharing programmes that operate with EVs). Insufficient consumer awareness, in terms of usage and payment methods, remains a critical barrier to adoption. Finally, the importance of regulations and planning guidelines, together with the essential collaboration between industry and municipalities, is key to promote car sharing.

Within this context, the following policy options could be further investigated:
POTENTIAL POLICY OPTIONS

1. **Offer the possibility for participants of a car-sharing service to book vehicles and park in non-dedicated spots** (Figure 55)

   The booking option aims to relieve the fear that some drivers may have in terms of not being able to find a car or parking spot when needed. Furthermore, the convenience of a car sharing service, namely the ability to park in more spaces, is key to progressively replacing personal cars.

   ![HIGH]

2. **Serious gaming – Cumulate “Smart Mobility” points when using hybrid car sharing vehicles** (Figure 56)

   The sense of freedom associated with the possession of a car still a strong deciding factor for individuals. To appear as a credible solution, car sharing should consider this facet of mobility by promoting intermodality. The points obtained in the “Serious gaming” could be converted into advantages such as discounted public transport tickets or the free rental of a bike for one day. Such incentive could encourage users in a virtuous green circle.

   ![MEDIUM]

3. **Propose car-sharing membership fee that is determined pro-rata according to income** (Figure 57)

   This measure enables students, the unemployed, and other low-income earners to access this service; evidence suggests that the average car sharing user’s profile is generally a 30-45 years old man with high education benefiting from higher incomes compared to the average income of inhabitants. This political measure is imbued with social justice. It seeks to enable a greater number of people such as students, unemployed, retired people to access this service.

   ![MEDIUM]

4. **Allocate specific parking spots for drivers of car-sharing services** (Figure 58)

   Finding a parking spot can be very difficult and time consuming especially in densely populated areas. Moreover, the cost associated with parking can be substantial. Provide car sharing specific parking spots could be a real game changer for the promotion of car sharing. It would be interesting to locate these parking slots near train stations, airports, business areas, bus stops, universities, etc.

   ![MEDIUM]
5. Include a range of car models within citywide car-sharing programmes (Figure 59)

The satisfaction of users’ experience is key to generalise a practice. In this perspective, car sharing services must find innovative ways to attract new users. The aim of this measure is to attract new categories of users such as: families, students, disabled persons, etc. For instance, a car equipped with baby seats or adjusted cars for wheelchair people are car models that could satisfy specific categories of users.

6. Subsidise the creation of electric car sharing programmes in medium cities. (Figure 60)

The development of electric car sharing services has so far, the prerogative of metropolis because of population densities and economies of scale and parking constraints. Democratise car sharing practice in medium cities is a political decision. Central government must support the development of car sharing in medium cities by providing subsidies/interesting loans. This financial measure could encourage the implementation of car sharing companies. It should be consistent with local policy measures such as: promotion of soft mobility, parking restriction and limitation of car pollution.

7. Offer training sessions to enhance car sharing practices hybrid (Figure 61)

To democratise car sharing and attract new users, it is necessary to inform and teach the basics of car sharing. The objective of such measure is to inform potential users about:

- The working of the car sharing platform. This type of training could be beneficial to people who are not familiar with digital technologies.
- Know-how to drive an electric car. The use of this type of vehicle could be taught during driving lessons at driving schools.
3.1.3 Encouraging the use of public transport

**Policy goal:** Reduce CO₂ emissions, air pollution and energy dependency from the transport sector

**CONTEXT**

Public transport plays a central role in transport systems, particularly in large cities where private vehicle ownership is not widespread. In general, public transport is significantly more energy efficient than private vehicle use, with bus and rail travel accounting for 18% of passenger-kilometres (p-km) in Europe (International Energy Agency, 2010).

**FACTORS AND BARRIERS**

Maximising global environmental benefit is not the main priority or rationales of citizens when using public transport. Citizens seek a mode that maximises comfort, reliability, speed, convenience, and cost. Public transport is often perceived as less attractive in terms of the quality and price of services provided. Meanwhile, current norms are that public transport tends to be for people with limited resources, being that as incomes rise, those with financial means switch to cars. More spatial guidelines, infrastructure and incentives are needed to boost market demand, particularly in both densely populated urban areas and rural areas.

Within this context, the following policy options could be further investigated:

**POTENTIAL POLICY OPTIONS**

1. **Provide fiscal advantages for businesses in dense urban areas to implement flexible working hours and/or teleworking** (Figure 62)

   Public transport can be very crowded during peak times, encouraging many people to take their car. This fiscal measure (subsidies or tax reductions) encourage companies to implement flexible working hours and/or teleworking, thereby reducing the congestion in public transport during peak times.

2. **Include spaces for bikes on the metro, trains and buses** (Figure 63)

   Public transport cannot take/drop users at their exact start/finish points of their journey. The first and last kilometres of a trip to reach a destination could dissuade users from choosing to take public transport over their own car. Addressing this gap
by developing the transport network into a multi-modal system, will encourage more people to take public transport.

3. Set a strategy to have a bus fleet that is 100% electric/biofuel/hybrid by 2025 (Figure 64)

Diesel-fuelled buses account for 50%-60% of the public transport in Europe and are responsible for around 6% of total EU emissions. Decarbonizing buses will help to reduce pollution and achieve climate goals.

4. Offer free or discounted public transport tickets to attendees of major entertainment events (Figure 65)

As individuals are increasingly expecting customised experiences, public transport must innovate to attract new customers. The objective of this measure is to appeal to non-users of public transport by offering them discounted public transport tickets when they purchase an entertainment ticket (such as to a concert, football game, amusement park, etc.). The economic shortfall could be offset by local public funds.

5. Increase security measures in public transport stations (Figure 66)

Safety is a concern for many travellers, meaning that many are reluctant to use public transport. According to this measure, the policy should:

- Ensure full coverage of CCTV and clearly identify any gaps;
- Create a “Warning” app/button that allows travellers to alert security services in real-time;
- Require police to use public transport to/from work, reassuring passengers and providing them greater security with their presence;
- Clearly identify to passengers if the station or vehicle is manned and where a passenger can seek assistance/find security personnel.

6. Offer a metro service that runs 24 hours a day on the weekends (Figure 67)

As individuals are increasingly expecting customised experiences, public transport must innovate to attract new customers. This policy not only encourages people to take public transport, but it also discourages people from driving while impaired.
Policy Toolkit Typology

**APPROACHES**
- Top-down
- Hybrid

**POLICY INSTRUMENTS**
- Regulatory frameworks
- Service provision
- Business support schemes

**IMPLEMENTATION COST**
- € Low
- €€€ Medium
- €€€€ Medium-high
- €€€€€ High

**SUSTAINABLE BENEFITS**
- LOW
- MEDIUM
- HIGH
3.2 Buildings

Buildings are key to a low-carbon future, as they are responsible for 40% of total EU energy consumption, and more than 50% of the EU’s emissions come from buildings (Eurostat, 2017). Indeed, the climate change targets set out under the Paris Agreement cannot be achieved without decarbonising the building sector.

In order to accelerate building retrofits across Europe and reduce the energy consumption of houses, the ENTRUST Policy Toolkit is looking for innovations in the following areas:

3.2.1 Reducing electricity usage through smart technologies

**Policy goal:** Make homes energy efficient and reduce energy consumption

**CONTEXT**

Smart meters and smart grids can reduce emissions in the European Union by up to 9%, with similar reductions in EU annual household energy consumption. This measure falls within the framework of the EU’s Third Liberalisation package, which aims at replacing at least 80% of the electricity meters by smart meters by 2020 (European Commission, 2016).

**FACTORS AND BARRIERS**

People’s perception of smart technologies is complex. In particular, the implementation of smart meters in households brings contradictory opinions. For instance, there is a lack of knowledge of how smart meter works, misperceptions of inconvenience, and concerns over the security of personal data. Understanding the data and how to appropriately use smart technologies is not an easy task for certain users. Moreover, the return on investment and whether a smart technology can reduce an individual’s energy bill is not clear.

Within this context, the following policy options could be further investigated:

**POTENTIAL POLICY OPTIONS**

1. Provide fiscal incentives to energy companies developing freemium services that enable the public to use smart technologies for their electricity bills (Figure 68)

The deployment of smart technologies in societies is questioned by citizens. Certain smart technologies such as smart meters may be rejected by citizens if their value is not understood. The users would access freely to a range of services developed by companies to enjoy the technology and possibly save energy and money. Municipality can be the beta tester of the services created before their roll out individual
households.

**€€€ MEDIUM**

2. **Create a programme to involve citizens in the co-design of smart technologies.** (Figure 69)

Certain smart technologies are rejected because of the lack of citizen’s involvement in the conception of the product. This involvement could be made possible through workshop sessions between companies and users which could encourage the uptake of smart technologies.

**€ LOW**

3. **Attribute the data ownership to final users and set up mechanism to control the protection of data** (Figure 70)

Invasion of privacy and data protection are two delicate topics which slow down smart technologies implementation. The attribution of data ownership to the final user and the establishment of a set up mechanism to control the protection of data could be a real game changer in the acceptance of such technologies.

**€ MEDIUM**

4. **Hold public “show case events” to popularise smart meters and energy efficient technologies** (Figure 71)

To democratise smart technologies, it is necessary to evince transparency. Organising meeting and exchange of experience activities between early adopters and other citizens would encourage discussion around the advantages and disadvantages of smart technologies. It could help reluctant citizens to get a sense of the potential impact of smart technologies on their personal life.

**€ LOW**
3.2.2 Initiating thermal refurbishments

**Policy goal:** Make homes energy efficient and reduce energy consumption

**CONTEXT**

Existing buildings represent significant energy-saving opportunities because their efficiency is often far below their potential. “Europe’s refurbishment rate has been around 0.3% for the last 20 years, despite concerted efforts to improve it over the past 10 years through the EU Climate and Energy Strategy” (Climate-KIC, 2017). In order to achieve its 2050 target for the building sector, the EU needs to reach a building refurbishment rate of around 3% per year, with the refurbishment including major retrofits.

**FACTORS AND BARRIERS**

Individual citizens will usually not seek to minimise their home’s impact on the environment through retrofitting. This is particularly accentuated in countries with low energy prices. The factors identified include anxiety about the economic resources needed, as well as the uncertainty regarding both their energy savings and their energy bill. Skills and ‘know how’ are also an issue in terms of knowing who to contact or learning about the existing subsidies. Policies seeking to address these challenges must ensure that households are sufficiently motivated to undertake the improvements themselves and that the tools, mechanisms, supply chains and infrastructure are in place to allow them to do this.

Within this context, the following policy options could be further investigated:

**POTENTIAL POLICY OPTIONS**

1. **Provide fiscal advantages for individuals to implement energy refurbishment** *(Figure 72)*

   Achieving EU renovation objectives requires ambitious financial support to encourage households engage in such projects. This measure could provide:
   
   - **Financial support such as loans, subsidies etc., could help initiate energy refurbishment and could be awarded on the basis of income for the purpose of social justice. If loans are preferred, they could be reimbursed via the energy saving achieved;**
   
   - **Financial support could be also focused on encouraging comprehensive renovation projects. In this case, fiscal advantages could be based on the scope/degree of energy refurbishments.**

   This recommendation could also result in reducing people’s energy bills while simultaneously boosting their comfort.
2. Facilitate energy refurbishments by creating a « one-stop-shop » that can provide all the relevant information to households (Figure 73)

A complicated administrative process to initiate energy refurbishments can dissuade households from undergoing such changes. Thus, a reduction in the number of contact points involved for customers throughout the process could encourage citizens to initiate energy refurbishment.

3. Promote “Energy Refurbishment Clubs” in neighbourhoods or communities (Figure 74)

Achieving the renovation objectives set by EU requires ambitious financial support to encourage households to engage in energy refurbishment projects. The purpose is of these “Energy Refurbishment Clubs” is to address renovation issues and lobby political actors. These associations would benefit from economies of scale when purchasing energy refurbishment services/materials for the community or neighbourhood.

4. Set up a quality norm/label for the energy refurbishment companies (Figure 75)

The inability to offer a guarantee to households in terms of energy savings is a barrier to household energy refurbishment. Such certification could encourage households that have doubts about initiating an energy renovation. A suitably certified company that has gained accreditation and displays a label must provide an estimation of the energy saving and guarantee the results (nonetheless it is necessary to determine an error rate).

5. Develop a school education programme related to energy and its challenges (Figure 76)

Teaching sustainable development is becoming a standard in European countries. Ensuring curriculum on energy related topics as the first step to raise people’s awareness, diffuse “best practices” and make citizens more aware of their roles and responsibilities in achieving sustainability goals.

**IMPLEMENTATION COST**

- € Low
- €€€ Medium
- €€€€ Medium-high

**SUSTAINABLE BENEFITS**

- LOW
- MEDIUM
- MEDIUM-HIGH
3.3 **Local Energy Production**

Total annual GHG emissions arising from the energy-supply sector continues to increase, while the combustion of fossil fuels is still the leading source for energy production on the market. However, the transition to a new energy supply and production has already begun.

Energy sources are moving towards renewables. By 2030, renewable sources are expected to account for 26% of electricity generation, partially replacing that from fossil fuels such as coal and oil. Moreover, worldwide electricity generation is expected to increase by 67% from 22,126 TWh in 2011, to 37,000 TWh in 2030 (International Renewable Energy Agency, 2014).

Achieving a low-carbon energy system requires structural transformation of the electricity sector due to the high penetration of renewables. The current challenge is figuring out how to drive innovation in the system itself and address critical issues such as intermittent generation, system capacity, and storage. New regulation, business structures, and market organisation are key to overcoming these obstacles (Swedish Agency For Growth Policy Analysis, 2014).

### 3.3.1 Promoting subscription to green energy suppliers

**Policy goal:** Produce/consume green energy and reduce energy dependency

**CONTEXT**

The European Commission recently acknowledged that green-energy cooperatives and suppliers have a major role to play in the energy transition. Renewable energy is essential for this transformation to take place as it contributes to all of the Energy Union objectives: the delivery of security of supply, a transition to a sustainable energy system with reduced greenhouse gas emissions, industrial development leading to growth and jobs and lower energy costs for the EU economy.

**FACTORS AND BARRIERS**

In some of the countries studied, such as Spain or France, people subscribing to green-energy cooperatives are seen as early adopters and innovators. Different legal contexts and a lack of support mechanisms position them far behind northern European countries like the Netherlands, Germany and Belgium (European Commission, 2015). In general, energy bills for green-energy cooperatives are slightly more expensive than that of traditional suppliers (Som Energia, 2017). Concerns regarding the intermittency of RES also discourages households from making the switch to green energy cooperatives.

Within this context, the following policy options could be further investigated:
1. Provide fiscal advantages for green energy cooperatives to operate and up-scale (Figure 77)

The development of energy cooperatives is not well-supported by governments. There is a lack of interest from traditional energy companies that have monopolised the sector. The measure supports the development and operation of green energy cooperatives. It could include feed-in-tariffs, subsidies such as tax cuts, etc. Only energy cooperatives that generate electricity from RES are eligible for these fiscal advantages.

2. Provide fiscal advantages for local communities to establish local energy cooperatives (Figure 78)

Communities do not want to engage in energy production projects because of the administrative burden and the high proportions of CapEX. Financial support as loans, subsidies etc., could enable local communities (citizens and small and medium enterprises (SMEs) to invest in (collective) renewable energy infrastructure (i.e. solar panels, wind turbines) and establish a local green energy cooperative. This measure could be complemented with support for the establishment of technical feasibility studies on renewable energy.

3. Provide financial assistance to create and develop “Energy Clubs” within local communities (Figure 79)

The non-commercial spirit of green energy cooperatives and the participation of volunteers is an important asset but also a weakness. Supplying an energy market demands technical knowledge, a professional organisation, and entrepreneurship. “Energy Clubs” are local bodies, often made up of a large workforce of volunteers, which offer personal advice about aspects of energy conservation & renewable energy. Information evenings & mentoring sessions are also held to promote the social dialogue with the support of local authorities. Financial assistance could motivate citizens engaged in local energy cooperatives to create “Energy Clubs” & education activities. This could be complemented with the provision of co-working spaces and meeting rooms in public buildings.
4. Implement a regulatory framework that provides consumers with information on the energy sources used (Figure 80)

Energy bills and energy letters from traditional suppliers are difficult to understand, and very often do not provide clear information about the source of energy used. The objective of the measure is to inform consumers about the energy sources and the GHG’s emissions of their energy provider. The possible impact of understanding energy bills and sources of energy consumption could indirectly lead citizens to join or establish local green energy cooperatives or reduce their energy consumption.

€ MEDIUM

5. Implement a regulatory framework that offers lower energy tariffs to citizens in communities directly affected by large scale renewable energy projects (Figure 81)

Local energy production can be slowed down by public acceptability. Although many people support the development of energy cooperatives, often have strong reservations about the real impact of these energy technologies at local level (wind, solar, etc.). To reduce these dilemmas, citizens impacted by the development of large scale local renewable energy initiatives (visual and noise impacts) could benefit from advantageous energy tariff by energy cooperatives. The financing of this measure could be shared between the companies and the local/regional authorities.

€ LOW

IMPLEMENTATION COST
€ Low  € Low-medium  €€ Medium  €€€€ Medium-high

SUSTAINABLE BENEFITS
LOW  MEDIUM
3.3.2 Enabling green energy self-consumption

**Policy goal:** Produce/consume green energy and reduce energy dependency

**CONTEXT**

Renewable energy self-consumption can facilitate consumer empowerment by allowing active participation in and profit from energy markets, as well as encouraging smarter consumption patterns. Indeed, it can also lower energy system costs *i.e.*, solar PV generation in sunny countries can help reducing grid peak demand for electricity driven by air conditioning. By generating and consuming electricity locally, system losses can be also reduced (European Commission, 2015).

**FACTORS AND BARRIERS**

When considering self-consumption as an option, people have concerns regarding whether or not it is profitable, if they can truly be independent from the grid, how much of a financial investment they must make, and how energy regulations will impact them, among other things. In addition, storage technologies are not competitive yet because they remain too expensive for the end-users. Changing traditional habits is challenging since people are not well informed about the potential of savings, and most of them just do not know how to make the switch.

Within this context, the following policy options could be further investigated:

**POTENTIAL POLICY OPTIONS**

1. **Implement a feed-in-tariff scheme for households/cooperatives to sell excess electricity back to the grid** (Figure 82)

   The implementation of self-consumption is at early stages in many European countries. Financial schemes should be set up to favour self-energy consumption. This financial incentive could apply to both renewable energy production systems owned by individual households or third parties and self-consumption projects developed by green energy cooperatives. Excess electricity can be sold to grid to generate income and reduce electricity bills, thereby making more attractive self-consumption models. The temporary nature of the feed-in tariff is crucial to ensure the acceptance and the viability of this measure.
2. Create a public web platform to inform citizens about energy self-consumption. (Figure 83)

Generally, people are not well-informed about energy-related issues, sustainable energy options or how they can be independent from large energy companies. This platform can include MOOCs, videos, blogs and social media that help to democratize self-energy consumption. Its contents could be created by universities and energy associations, which can diffuse “best practices” on this topic and share their expertise.

3. Use of public assets to stimulate demonstrations of self-consumption solutions and encourage new business models (Figure 84)

Demonstrators will be conceived of as socio-economic and technical pilots for innovation and market uptake. Such measure could then help co-creating potential effective business models and services to make on-site generation accessible to a larger number of consumers. New financial schemes such as leasing contracts for batteries, new ways of sharing costs (decreasing up-front investments) and new partnerships should be explored.

4. Create and implement win-win financing schemes for tenants and owners to adopt RE installations (Figure 85)

On average, the share of tenants in countries covered by the ENTRUST project is around 30%. The tenant-owner relationship is a real dilemma in terms of energy. This measure will promote the adoption of RE installations for self-consumption. A fair agreement should be found to satisfy both parties regarding the distribution of gains and costs over time. Authorities could play a role in guaranteeing this type of agreement.

5. Adopt a European Directive to redesign the network and promote the self-consumption of electricity (Figure 86)

The promotion of self-energy consumption cannot result only from bottom-up initiatives. It should also be supervised through a directive. The purpose of such regulation aims at integrating energy self-consumption in national energy mix. The Directive should provide an objective of self-energy consumption as well as a guideline for their integration in the energy network.
Policy Toolkit Typology

APPROACHES
- Top-down
- Bottom-up
- Hybrid

POLICY INSTRUMENTS
- Communication & marketing tools
- Regulatory frameworks
- Guidelines
- Collaboration platforms
- Fiscal measures

IMPLEMENTATION COST
- € Low
- €€ Low-medium
- €€€ Medium-high

SUSTAINABLE BENEFITS
- LOW
- MEDIUM
- MEDIUM-HIGH
- HIGH
Insights and Conclusion

Globally, we are experiencing a fundamental change in how energy is both sourced and consumed. In addition to the many existing technology-focused strategies, policies focused on changing human behaviour could help pivot human societies to a more sustainable lifestyle. Such behaviour-oriented policies have the potential to achieve great results, provided they meet certain conditions.

With this in mind, the ENTRUST partners set out to co-design this Policy Toolkit, which includes a set of policy recommendations aimed at reducing the environmental impact of energy consumption via behaviour changes.

As demonstrated in the Conceptual Framework, the policy cycle can aide policymakers of all types in their approach to creating policies. While the policy cycle is not without its faults—as it oversimplifies both the policy making process and related interactions—it does provide guidance and a structure. Each stage of the policy cycle (Agenda Setting, Policy Formulation, Policy Implementation, Policy Evaluation) is important to producing successful policies. Feedback, though not an official stage, is also crucial to the process. Furthermore, who is conducting each stage of the policy cycle matters, as does how each stage is getting conducted.

In recent decades, non-traditional actors, such as citizens, NGOs, companies and international organisations have started to play an increasing role in the policy process. These groups have a strong influence and impact on how policies are perceived and get evaluated post-implementation as well. There are three approaches to policy: top-down (led by a governmental body), bottom-up (driven by the governed), and hybrid (inclusive of both, top-down and bottom-up actors). While all approaches can be successful and a mix of approaches is often necessary, it is important to incorporate a varied range of stakeholders during the policy process if the policies are to have the maximum degree of citizen acceptance. This is especially true when policies impact citizens’ behaviours. This is because the context and social aspects of human behaviour are often disregarded.

There are several policy instruments that can be used to aide in policies’ effectiveness. Achieving the desired behaviour change generally implies using more than one policy instrument at a time. Even when the appropriate mix of policy instruments are used, policies may fail due to other factors. For energy behaviour-change, these factors tend to be: a lack of theoretical ground, ineffective measures, a lack of monitoring and feedback, and a lack of integration with other policies. These failures stress the importance of a solid approach throughout the entire process, and policymakers are encouraged to pay close attention to the policy cycle framework presented in this report.

The scope of the policy work presented focuses particularly on three high-consuming energy sectors: Transport, Buildings and Local Energy Production. These can be broken down further into eight target behaviours, which were explored in-depth via the 10-step methodology developed in this deliverable. This methodology was inspired by the Design Thinking principles, as they place great importance on citizen involvement. It was then complemented with the Individual Social Material (ISM) Methodology, and expanded upon by engaging citizens in the policy-design process.
Following the methodology, a series of workshops with the ENTRUST partners were held, where a key aspect was to incorporate a diversity of ideas and fresh sets of eyes. A total of 183 policy recommendations focusing on behaviour change within the three sectors and eight target behaviours emerged. Of those, 65 policy recommendations were then selected to present to citizens of the eco-neighbourhood known as Le Trapeze. The ideation and co-creation sessions enabled the community to shed light onto their most pressing issues. Finally, 44 policy recommendations were selected, according to the following criteria:

1. The level of sustainable benefit, including:
   - The potential capacity of the policy recommendation to change people’s behaviours;
   - The conformity of the policy recommendation with the new central place of citizens in the energy transition;
   - The conformity of the policy recommendation with the concept of Energy Justice;
   - Respect for sustainable development principles;
   - The level of acceptance of the policy recommendation as expressed by the citizens of Le Trapeze.

2. The level of implementation cost

These 44 policy recommendations promoting sustainable behaviours have further been developed in the Policy Canvas. This set of policies includes 19 with a top-down approach, 8 with a bottom-up approach, and 17 with a hybrid approach, as defined in this deliverable. There is also a wide array of policy intervention types covered: 7 are regulatory frameworks, 4 are planning and infrastructure related, 5 are fiscal measures, 10 are considered to be a form of service provision, 7 are communication and marketing interventions, 2 are guidelines, 3 are collaboration platforms, and 6 are classified as business support schemes.

It should be noted that all valuable findings, from the context analysis to the mapping of existing policies and behaviour factors will be included in the “Policy toolkit platform”, which will be developed in the next months in the framework of the Knowledge and Communication Platform (WP 7). This platform corresponds to the best exploitation profile of the Policy Toolkit results.

The policy recommendations formulated in this report have built upon the conclusions presented in ENTRUST D4.4 (Morrissey & al, 2016), aiming at creating a sense of collective interest while targeting the individual, social and material contexts of human behaviour.

There are four suggestions for future work:

First, the scope of the analysis was limited to three sectors and eight target behaviours, due to time and budget constraints. As such, a follow-up study could look into additional sectors, providing more insights into behaviour change with regards to the sustainable energy transition.

Second, the methodology could be carried forward with prototyping exercises, so that the policies could be refined and validated.
Third, the policies could be enhanced by investigating how they change depending upon a country-specific context.

Lastly, we invite policymakers willing to further investigate these policy options, to conduct a detailed impact assessment/cost-benefit analysis. This should include a detailed assessment of the barriers (economic, market failures, regulatory failures, social factors) it aims to overcome and a detailed analysis of the administrative, transaction and wider economic cost associated. The value potential of the opportunity can also play a role in assessing and ranking the impact of a policy option.

Finally, it is worth stressing that the innovativeness of the policy creation process targeting citizens’ behaviour is considered by the authors a key result of this task. Indeed, the policy recommendations were ideated throughout co-creation workshops with ENTRUST partners, and then validated by a (co-)neighbourhood community in France. The involvement of citizens increases their probability of success. Moreover, contrary to most of the energy policies that promote energy technologies, these policy recommendations focus on behaviour change and generally encourage various actors to cooperate in order to overcome existing roadblocks.

Involving citizens and energy communities in policymaking can be a long and arduous process. Engaging with a variety of stakeholders from the very beginning can ease this process.
Bibliography


Appendix 1: Application of ISM methodology to target behaviours

Increasing the purchase and use of electric vehicles

<table>
<thead>
<tr>
<th>INDIVIDUAL FACTORS</th>
<th>Emotions</th>
<th>Agency</th>
<th>Skills</th>
<th>Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Values, Beliefs, Attitudes</strong></td>
<td>- Pleasant surprise when driving</td>
<td>- Anxiety about completing journey (running out of battery)</td>
<td>- How to drive an automatic car</td>
<td>- Car buying habits (conservative drivers)</td>
</tr>
<tr>
<td>- The autonomy is not enough</td>
<td>- Quiet (E.V. engines are less noisy)</td>
<td>- Anxiety about how to reload the battery</td>
<td>- Where to reload the battery</td>
<td>- Refuelling routines</td>
</tr>
<tr>
<td>- Lack of knowledge</td>
<td>- Self-satisfaction due to low environmental impact</td>
<td>- Anxiety about breakdowns and finding the right mechanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Egg and chicken dilemma: when the right balance</td>
<td>- Trendy (E.V is the future)</td>
<td>in a reasonable amount of time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between numbers of EV and charging points will be</td>
<td>- Dangerous (no noise)/ security (autonomy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reached</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Scepticism about environmental performance of EVs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Reserved for the upper class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Costs & Benefits                                        |                                                               |                                                               |                                 |                                            |
| - Higher price compare to classic vehicles              |                                                               |                                                               |                                 |                                            |
| - Low running and maintenance costs compared to classic |                                                               |                                                               |                                 |                                            |
|     vehicle                                              |                                                               |                                                               |                                 |                                            |
| - Extra cost due to battery leasing                     |                                                               |                                                               |                                 |                                            |
| - Unclear payback time                                  |                                                               |                                                               |                                 |                                            |
| - 2nd hand EV market not developed                      |                                                               |                                                               |                                 |                                            |
| - Uncertainty about fuel & electricity prices           |                                                               |                                                               |                                 |                                            |
| - Incentives/subsidies for EV (depending on countries)  |                                                               |                                                               |                                 |                                            |
| - Low range of choices                                  |                                                               |                                                               |                                 |                                            |

Figure 27: ISM factsheet – Individual factors on EV

<table>
<thead>
<tr>
<th>SOCIAL FACTORS</th>
<th>Roles &amp; Identity</th>
<th>Tastes</th>
<th>Meanings</th>
<th>Networks &amp; Relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opinion Leaders</strong></td>
<td>- Car attachment « my car is me »</td>
<td>- Driving style</td>
<td>- Old fashioned models $\rightarrow$ Tesla/Electric F1</td>
<td>- Personal contact with EV drivers</td>
</tr>
<tr>
<td>- Celebrities (F1 drivers, actors)</td>
<td>- Innovator person</td>
<td></td>
<td>- Good image</td>
<td>- Studies</td>
</tr>
<tr>
<td>- Authorities (Minister of transport/environment)</td>
<td>- Green person</td>
<td></td>
<td></td>
<td>- Early adopters and well-educated people</td>
</tr>
<tr>
<td>- Taxi drivers</td>
<td></td>
<td></td>
<td></td>
<td>should be targeted first</td>
</tr>
<tr>
<td>- TV shows (top gear, auto-moto)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CEOs of car companies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Institutions**                                       |                                                               |                                                               |                                                 |                                              |
| - Manufacturing companies                              |                                                               |                                                               |                                                 |                                              |
| - Car hire market                                      |                                                               |                                                               |                                                 |                                              |
| - Car media                                            |                                                               |                                                               |                                                 |                                              |
| - Ministry of Transport/Environment                   |                                                               |                                                               |                                                 |                                              |
| - NGOs (WWF, 60 million of consumers)                  |                                                               |                                                               |                                                 |                                              |

| **Norms**                                              |                                                               |                                                               |                                                 |                                              |
| - None                                                 |                                                               |                                                               |                                                 |                                              |

Figure 28: ISM factsheet – Social factors on EV
### MATERIAL FACTORS

#### Rules & Regulations
- Financial support to buy EV
- Resale market is not existing today
- Guideline for setting the national charging network

#### Technologies
- EV
- Battery (performance = autonomy)
- Different charging point arrangements
- “Conflict minerals” illegal mining

#### Infrastructure
- Charging points
- Homes with charging points
- Parking lots with charging points
- Garages for EV

#### Objects
- Mobile apps to know where to reload the EV
- Eye-catching branding on charging points

#### Time & Schedules
- Recharging routines in home
- Time to reload the battery in charging points
- Schedule stop to reload battery

---

**Figure 29: ISM factsheet – Material factors on EV**

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### INDIVIDUAL FACTORS

#### Values, Beliefs, Attitudes
- Practical, economical considerations are more relevant than environmental concerns
  - Innovators
  - Curious people

#### Costs & Benefits
- Environmental benefits
- Easy to use
- Reserved parking in cities (depending on the city)
- Uncertainties when finding a vehicle or parking plot in cities
- Cheaper than buying your own car
- Not fulfilling one’s dream of owning own car
- Having to plan schedule around when car is available

#### Emotions
- Pleasant surprise when driving
- Self-satisfaction due to low impact on the environment
- Frustration if car is dirty/not available

#### Agency
- Anxiety about finding the car at the time you need and at the spot it should be
- Anxiety about running out of battery

#### Skills
- Know how to use the web platform to book the cars (Challenge for elders)
- Know how to drive an EV or manual

#### Habits
- Traditional transport habits
- Refuelling routines (new charging habits)
- Planning and securing car in advance

---

**Figure 30: ISM factsheet – Individual factors on car-sharing**
### SOCIAL FACTORS

<table>
<thead>
<tr>
<th>Opinion Leaders</th>
<th>Roles &amp; Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Car TV shows (Top Gear, etc)</td>
<td>- Innovators</td>
</tr>
<tr>
<td>- Mayors of cities</td>
<td>- 30-50 years old people</td>
</tr>
<tr>
<td>- Journalists</td>
<td>- Well-educated people</td>
</tr>
<tr>
<td></td>
<td>- Weekend usage</td>
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<table>
<thead>
<tr>
<th>Institutions</th>
<th>Tastes</th>
</tr>
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<tbody>
<tr>
<td>- City Hall</td>
<td>- Social network users</td>
</tr>
<tr>
<td>- NGOs and associations</td>
<td>- Cheap</td>
</tr>
<tr>
<td>- Close social circle</td>
<td></td>
</tr>
<tr>
<td>- Local newspaper</td>
<td></td>
</tr>
<tr>
<td>- University campuses</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Norms</th>
<th>Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Eco-friendly behaviour</td>
<td>- New infrastructure (that’s increasing)</td>
</tr>
<tr>
<td>- Personal branding</td>
<td>- Easy to use</td>
</tr>
<tr>
<td>- Social innovator (economy of use)</td>
<td>- Practical (best parking spots going to car shares)</td>
</tr>
<tr>
<td>- Unreliable (people will be late)</td>
<td></td>
</tr>
</tbody>
</table>

### MATERIAL FACTORS

<table>
<thead>
<tr>
<th>Rules &amp; Regulations</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Guideline for setting local parking spots</td>
<td>- Apps</td>
</tr>
<tr>
<td>- Local regulation for driving</td>
<td>- Smartphones</td>
</tr>
<tr>
<td>- Usage rules</td>
<td>- Car-sharing platforms</td>
</tr>
<tr>
<td>- Payment methods</td>
<td>- Eye-catching branding (EVs and parking spaces)</td>
</tr>
<tr>
<td></td>
<td>- Real-time maps of available EVs and parking spaces)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Time &amp; Schedules</th>
</tr>
</thead>
<tbody>
<tr>
<td>- EV fleet</td>
<td>- Subscribe to the platform</td>
</tr>
<tr>
<td>- Batteries</td>
<td>- Planning in advance your trip (to verify that there are vehicles or parking spots available)</td>
</tr>
<tr>
<td>- Charging points</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 31: ISM factsheet – Social factors on car-sharing

### Figure 32: ISM factsheet – Material factors on car-sharing
Encouraging the use of public transport

### INDIVIDUAL FACTORS

**Values, Beliefs, Attitudes**
- Public transport is more and more expensive (in some cities studied)
- Green transport: foster public transport is a good way to reduce pollution/GHG emissions
- Security concern: especially women, terrorism
- Uncomfort / crowded
- Delays

**Costs & Benefits**
- No problem for parking
- Not as expensive as other means of transport
- Quality of the public transport network
- Interconnection between different types of public transports (time gain)
- Some waiting time, but a lot of time can also be saved by not driving during rush hour
- « It does not drop you exactly where you want »
- Less frequency at night or weekends

### Emotions
- Unpleasant: especially during rush hour time
- Stress about getting on time, dirtiness
- Not feeling secure (thieves, etc)

### Agency
- Fear to be late
- Dislike of privacy being taken away (must register a card with your photo, connected to your bank account, etc)

### Skills
- Reloading the pass
- Selecting the best journey to get to where you want to go

### Habits
- Reload your pass/ having change
- Best option in cities with a good network

---

**Figure 33: ISM factsheet –Individual factors on public transport**

### SOCIAL FACTORS

**Opinion Leaders**
- Mayor of cities
- TV shows
- Commercials
- F1 drivers

**Institutions**
- Transport media
- Public transport companies
- Ministries of environment and transport
- NGOs, associations
- City authorities
- Police

**Roles & Identity**
- Undefined profile of users
- For people who live in urban areas

**Tastes**
- Preference for city dwellers
- Young people with no children

**Meanings**
- Evolution of the collective transport over time:
  - Better information systems
  - Take people’s comfort into account
  - Better management of interconnections
  - Innovative service to engage customers (free wifi, initiatives, concerts, etc)

**Networks & Relationships**
- Public transport employees
- Habitual users
- Transport companies: improving customer experience
- Social networks (Twitter, Instagram, etc)

---

**Figure 34: ISM factsheet –Social factors on public transport**
### MATERIAL FACTORS

<table>
<thead>
<tr>
<th>Rules &amp; Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Spatial guideline for developing the network</td>
</tr>
<tr>
<td>- Subsidies from authorities at local &amp; regional levels for people with scarce resources (students, families, unemployed, retired people)</td>
</tr>
<tr>
<td>- Internal regulation in public transport</td>
</tr>
<tr>
<td>- Rules of civism</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Buses, trains, metro</td>
</tr>
<tr>
<td>- Public network</td>
</tr>
<tr>
<td>- IT technologies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Information points in stations (maps)</td>
</tr>
<tr>
<td>- Ticket machines (payment issues)</td>
</tr>
<tr>
<td>- Websites (IT)</td>
</tr>
<tr>
<td>- Bus/metro/train stations – (accessibility issues)</td>
</tr>
<tr>
<td>- Network</td>
</tr>
<tr>
<td>- Counter for employees</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Timetables for interconnections</td>
</tr>
<tr>
<td>- Apps (smart platforms)</td>
</tr>
<tr>
<td>- Pass</td>
</tr>
<tr>
<td>- Tickets</td>
</tr>
<tr>
<td>- Eye-catching branding</td>
</tr>
</tbody>
</table>

### Time & Schedules

<table>
<thead>
<tr>
<th>Waiting time at stations/stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Delays</td>
</tr>
<tr>
<td>- Necessity to plan in advance your journey in order to optimise your time</td>
</tr>
<tr>
<td>- Longer journey than private transport</td>
</tr>
</tbody>
</table>

---

**Figure 35: ISM factsheet – Material factors on public transport**

---

### INDIVIDUAL FACTORS

<table>
<thead>
<tr>
<th>Values, Beliefs, Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Lack of knowledge about how smart meters work</td>
</tr>
<tr>
<td>- (Mis)perceptions of inconvenience (smart meters)</td>
</tr>
<tr>
<td>- Concern over the security of personal data</td>
</tr>
<tr>
<td>- Too digital for elder people</td>
</tr>
<tr>
<td>- Reduce individual impact on environment</td>
</tr>
<tr>
<td>- I should not have to pay more for smart products</td>
</tr>
<tr>
<td>- I support the development of smart technologies</td>
</tr>
<tr>
<td>- I should have more information about the advantages or energy savings</td>
</tr>
<tr>
<td>- Cynicism about the interests of large utilities (smart meters)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Pleasant surprise of the well performance of smart technologies: quality, life-time i.e. LEDs or reduce of noise in i.e fridges</td>
</tr>
<tr>
<td>- Doubtful of the public and personal advantages. No difference compared to the previous situation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Should I be able to change my less efficient household appliances (be consistent with my behaviour)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Technology and digital « know-how »</td>
</tr>
<tr>
<td>- Understanding the data and the right usage of smart meter/efficient technologies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Choose the cheapest product (price-based behaviour)</td>
</tr>
<tr>
<td>- Attachment to your current technologies</td>
</tr>
<tr>
<td>- Learn how to use the technology</td>
</tr>
</tbody>
</table>

---

**Figure 36: ISM factsheet – Individual factors on smart technologies**
### Social Factors

**Opinion Leaders**
- Energy utilities
- Newspapers
- Social networks (blogs, twitter)
- Stores

**Institutions**
- Forums about energy
- Consumers associations
- Local authorities
- The EU

**Norms**
- Not much talked about

**Roles & Identity**
- « Techie » people
- Concerned about green technologies

**Tastes**
- People concerned about energy efficiency/environment
- People who like technology

**Meanings**
- Increased concern about the use of smart technologies

**Networks & Relationships**
- Associations and Platforms favouring the use of smart technology, i.e. « We make energy Smart! » (ESMIG – European voice for European Energy Solution Providers)

---

### Material Factors

**Rules & Regulations**
- Data management regulation
- Regulation for DSOs to deploy smart meters to all customers
- Energy Efficiency/Performance or Appliance Labeling
- The EU’s Third Liberalization package (installation of smart meters in 80% of MS households by 2020)

**Technologies**
- Smart meters
- LEDs
- Smart appliances (fridges, washing-machines, driers, etc)

**Infrastructure**
- Smart technology manufacturers
- Smart grids

**Objects**
- Qualified installers
- Potential energy savings and bills reduction

**Time & Schedules**
- Peak hours of consumption
- Energy consumption profile

---

**Figure 37**: ISM factsheet – Social factors on smart technologies

**Figure 38**: ISM factsheet – Material factors on smart technologies
## Initiation of thermal refurbishments

### Individual Factors

<table>
<thead>
<tr>
<th>Values, Beliefs, Attitudes</th>
<th>Emotions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Expensive</td>
<td>- Anxiety about the realization of the work</td>
</tr>
<tr>
<td>- Complex</td>
<td>- Either general satisfaction once the refurbishment done</td>
</tr>
<tr>
<td>- Worthless (especially in country with a low energy price)</td>
<td>- or no much difference observed compared to before</td>
</tr>
<tr>
<td>- Not supported in their process</td>
<td></td>
</tr>
<tr>
<td>- Concern about energy and environment</td>
<td></td>
</tr>
<tr>
<td>- Powerless: decision is in the hand of the owner</td>
<td></td>
</tr>
<tr>
<td>- Tenants are less concerned: « it is not mine », « I will move soon »</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Costs &amp; Benefits</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>- High and long term investment</td>
<td>- Anxiety about the economic resources to invest/achieve the energy refurbishment</td>
</tr>
<tr>
<td>- Uncertainty about the energy savings and the energy bill reduction. Doubt about ROI</td>
<td></td>
</tr>
<tr>
<td>- Comfort improvement</td>
<td></td>
</tr>
<tr>
<td>- Opportunity to reduce bill</td>
<td></td>
</tr>
<tr>
<td>- Opportunity choice: people profit from an event (breakdown, storm, degradation) to engage energy refurbishments</td>
<td></td>
</tr>
<tr>
<td>- More difficult to re sell house/mortgage</td>
<td></td>
</tr>
</tbody>
</table>

### Social Factors

<table>
<thead>
<tr>
<th>Opinion Leaders</th>
<th>Roles &amp; Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>- TV programs « One week to renovate »</td>
<td>- Owners of houses and accomodations</td>
</tr>
<tr>
<td>- Magazine about decoration (« maison du monde »)</td>
<td>- « My home is me »</td>
</tr>
<tr>
<td>- DIY store</td>
<td></td>
</tr>
<tr>
<td>- Money saving expert</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Tastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Consumers association</td>
<td>- Attached to comfort consideration (Family?)</td>
</tr>
<tr>
<td>- Real estate agency</td>
<td>- Different socio-economic classes depending of the type of energy refurbishments engaged</td>
</tr>
<tr>
<td>- Ministry of housing</td>
<td></td>
</tr>
<tr>
<td>- Construction Union</td>
<td></td>
</tr>
<tr>
<td>- Artisan Union</td>
<td></td>
</tr>
<tr>
<td>- Renovate Europe</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norms</th>
<th>Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Perception/ visibility trend</td>
<td>- Energy refurbishment is not a priority. Even more when considering the high investment nature of the energy refurbishment</td>
</tr>
</tbody>
</table>

| Networks & Relationships | |
|--------------------------||
| - Personal contact with people who achieved energy renovation | |
| - Target owners and real estate agency | |
| - Consumer association | |

---

**Figure 39**: ISM factsheet – Individual factors on thermal refurbishment

**Figure 40**: ISM factsheet – Social factors on thermal refurbishment
# MATERIAL FACTORS

## Rules & Regulations
- Regulation about energy audit
- Incentives to engage energy refurbishment
- Advices from contructions companies/artisans
- Advices from information counter in France

## Objects
- Mapping about building energy losses → Energy audit to target the energy renovation
- Energy bills

## Technologies
- Triple/double glazing windows
- Roof/attic insulation technologies
- Heating and cooling equipment
- “White” equipments
- Home automation
- Passive design
- Smart materials (humidity control)

## Infrastructure
- Technologies providers
- Installation and maintenance services

## Time & Schedules
- Time for carrying out renovation
- Time to obtain subsidies/get reimbursed
- Planning renovation to be the least troublesome for people living in the house (because of energy renovation you are not able to live in your own house for a few days)

---

**Figure 41**: ISM factsheet – Material factors on thermal refurbishment

---

## INDIVIDUAL FACTORS

### Values, Beliefs, Attitudes
- Preserve the environment
- Energy cooperatives cannot deliver electricity to everyone (infrastructure constraints)—Germany has 1000+ energy cooperatives—uncertain legal framework has been main hindrance as of late
- Tired of the lobby of large energy companies
- Claim for the change of the current electricity sector (disconformed)
- (Mis)perceptions of inconvenience

### Costs & Benefits
- Energy bill is slightly more expensive
- Easy to contract
- Great customer service
- Environmental benefits: 100% RE sources
- Wind & solar power unpredictable
- No transparency in the cost associated with energy

### Emotions
- Distrust at the beginning but afterwards, they are surprised and pleased about how easy it is to subscribe to its services and the well performance and the customer service

### Agency
- Concerns about the true energy source of the electricity consumed
- Concerns about the fluctuation of the electricity price
- People feel « no choice » or « false choice »

### Skills
- None

### Habits
- Subscription to traditional large energy companies without consider other options
- Go with the flow

---

**Figure 42**: ISM factsheet – Individual factors on green energy suppliers

---

### Promoting subscription to green energy suppliers
### SOCIAL FACTORS

<table>
<thead>
<tr>
<th>Opinion Leaders</th>
<th>Roles &amp; Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social networks</td>
<td>Green and environmentally-concerned people</td>
</tr>
<tr>
<td>Newspapers</td>
<td>People concerned about green technologies</td>
</tr>
<tr>
<td>TV programs</td>
<td></td>
</tr>
<tr>
<td>Commercials</td>
<td></td>
</tr>
<tr>
<td>Faith leaders</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opinions of your close social circle</td>
</tr>
<tr>
<td>Forums about energy</td>
</tr>
<tr>
<td>Network regulation</td>
</tr>
<tr>
<td>Ministry of Energy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risky choice: intermittency of RE, higher price of RE</td>
</tr>
<tr>
<td>Not talked much</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Networks &amp; Relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy cooperative itself</td>
</tr>
<tr>
<td>Personal contact with someone who is subscribed to a green supplier</td>
</tr>
<tr>
<td>Energy associations/clubs</td>
</tr>
</tbody>
</table>

### MATERIAL FACTORS

<table>
<thead>
<tr>
<th>Rules &amp; Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity price</td>
</tr>
<tr>
<td>Taxes</td>
</tr>
<tr>
<td>Subsidies</td>
</tr>
<tr>
<td>Policies requiring certain % of energy coming from RE sources</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE technologies for electricity generation</td>
</tr>
<tr>
<td>Network</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE generation sources + traditional sources on back up</td>
</tr>
<tr>
<td>Distribution and transmission system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letters with the information of the % and source of energy used</td>
</tr>
<tr>
<td>Forecast of consumption/energy production</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time &amp; Schedules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to compare offers of different energy companies</td>
</tr>
<tr>
<td>Time to switch to energy supplier</td>
</tr>
<tr>
<td>Time to take part in the meeting of the cooperative</td>
</tr>
</tbody>
</table>

---

**Figure 43:** ISM factsheet – Social factors on green energy suppliers

**Figure 44:** ISM factsheet – Material factors on green energy suppliers
### Enabling green energy self-consumption

#### INDIVIDUAL FACTORS

<table>
<thead>
<tr>
<th>Values, Beliefs, Attitudes</th>
<th>Emotions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Potential long-term financial savings</td>
<td>- Fear of battery safety</td>
</tr>
<tr>
<td>- Environmentally-conscious</td>
<td>- Satisfaction from paying less in energy bill and being green</td>
</tr>
<tr>
<td>- Do-it-myself / independent attitude</td>
<td>- Annoyance if panels keep getting dirty</td>
</tr>
<tr>
<td>- Distrust in large energy companies</td>
<td></td>
</tr>
<tr>
<td>- Supporter of local initiatives</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Costs &amp; Benefits</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Potential to sell extra energy back to energy companies</td>
<td>- Powerless due to uncertain weather</td>
</tr>
<tr>
<td>- Environmental gain</td>
<td>- Rebound effect: using more energy because it's cheaper</td>
</tr>
<tr>
<td>- Switching cost</td>
<td></td>
</tr>
<tr>
<td>- Installation &amp; maintenance costs (investment barriers)</td>
<td></td>
</tr>
<tr>
<td>- Large scale-up of RE in Germany = self-consumers contribute less to fixed costs; RE subsidies redistribute money from the poor to more affluent</td>
<td></td>
</tr>
<tr>
<td>- Potential leasing costs for monthly battery usage</td>
<td></td>
</tr>
<tr>
<td>- Safety costs from using battery</td>
<td></td>
</tr>
</tbody>
</table>

#### SOCIAL FACTORS

<table>
<thead>
<tr>
<th>Opinion Leaders</th>
<th>Roles &amp; Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Green celebrities/leaders</td>
<td>- Citizen of the Earth</td>
</tr>
<tr>
<td>- Housing TV shows</td>
<td>- Trendsetter / early adopter</td>
</tr>
<tr>
<td>- Architectural &amp; design magazines</td>
<td>- Techie</td>
</tr>
<tr>
<td>- Faith leaders</td>
<td>- 'My home is me' mentality</td>
</tr>
<tr>
<td>- Kids</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Tastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Energy &amp; environment ministries</td>
<td>- Assumptions and preferences about house style and lifestyle</td>
</tr>
<tr>
<td>- NGOs</td>
<td></td>
</tr>
<tr>
<td>- Energy companies</td>
<td></td>
</tr>
<tr>
<td>- Schools</td>
<td></td>
</tr>
<tr>
<td>- Electricity network</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norms</th>
<th>Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Assumptions: flashy, hipster, admiration, concerned about the environment</td>
<td>- Self-consumers considered as tree-huggers/hippies</td>
</tr>
<tr>
<td></td>
<td>- Energy security: conservative demographic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Networks &amp; Relationships</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Contacts with other PV owners</td>
<td></td>
</tr>
<tr>
<td>- Energy supplier relationships</td>
<td></td>
</tr>
</tbody>
</table>
### Material Factors

#### Rules & Regulations
- Building & electricity regulations
- Network regulations/resale market for extra electricity
- Government grants/subsidies
- Feed-in-tariff

#### Technologies
- Panels/other equipment
- Batteries

#### Infrastructure
- Network
- RE providers
- Smart grids

#### Objects
- Mapping of the potential for green energy
- Package deal to include panel maintenance
- Energy bill to reinforce action

#### Time & Schedules
- Time to install and switch system
- Battery charging time
- Maintenance time
- Planning electricity use around weather patterns

---

**Figure 47: ISM factsheet – Material factors on self-consumption**
Appendix 2: Complete list of policy ideas

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Topic</th>
<th>Intervention wheel categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer States subsidies for citizens switching to electric vehicles</td>
<td>Electric vehicles</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Set up tax relief/subsidies for companies switching for an electrical car fleet</td>
<td>Electric vehicles</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Raise the fuel tax to promote electric vehicles</td>
<td>Electric vehicles</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Create an electric resale market with guarantee from the manufacturers</td>
<td>Electric vehicles</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Implement no highway charges for electric vehicles</td>
<td>Electric vehicles</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Offer a larger range of models (bigger, more aesthetically pleasing)</td>
<td>Electric vehicles</td>
<td>Service provision</td>
</tr>
<tr>
<td>Promote Taxi-EV vehicles (how? Tax relief/subsidies/administrative)</td>
<td>Electric vehicles</td>
<td>Service provision</td>
</tr>
<tr>
<td>Set up Government subsidies to train electric car mechanics</td>
<td>Electric vehicles</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Increase visual impact of charging points (source ISM example)</td>
<td>Electric vehicles</td>
<td>Planning</td>
</tr>
<tr>
<td>Explore alternative charging networks: coffee, parking, home, library (source ISM example)</td>
<td>Electric vehicles</td>
<td>Planning</td>
</tr>
<tr>
<td>Provide better information – maps and apps of the network of charging points (source ISM example)</td>
<td>Electric vehicles</td>
<td>Service provision</td>
</tr>
<tr>
<td>Develop a specific car scrappage scheme to tackle bias about the recycling dimension</td>
<td>Electric vehicles</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Restrict access to city centre for polluting vehicles</td>
<td>Electric vehicles</td>
<td>Legislation</td>
</tr>
<tr>
<td>Standardise the electric plug system across EU</td>
<td>Electric vehicles</td>
<td>Service provision</td>
</tr>
<tr>
<td>Offer 15 minutes free parking in city centre for electric cars</td>
<td>Electric vehicles</td>
<td>Service provision</td>
</tr>
<tr>
<td>Institute no restriction for electric vehicles during peak pollution days</td>
<td>Electric vehicles</td>
<td>Legislation</td>
</tr>
<tr>
<td>Switch the public car fleet for electric vehicles</td>
<td>Electric vehicles</td>
<td>Legislation</td>
</tr>
<tr>
<td>Develop greater “cradle to cradle” practices in design and manufacturing processes (inspired by Ara project/ fair phone)</td>
<td>Electric vehicles</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Provide dedicated lanes for electric vehicles in road and cities</td>
<td>Electric vehicles</td>
<td>Legislation</td>
</tr>
<tr>
<td>Offer special toll tariff for electric vehicles</td>
<td>Electric vehicles</td>
<td>Legislation</td>
</tr>
<tr>
<td>Increase link of electric parking vehicles to public transport (tackle rural-urban bias)</td>
<td>Electric vehicles</td>
<td>Planning</td>
</tr>
<tr>
<td>Support R&amp;D innovation for electric vehicles</td>
<td>Electric vehicles</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Develop a EU guides for community initiatives</td>
<td>Electric vehicles</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Develop a EU roadmap for electric vehicles</td>
<td>Electric vehicles</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Develop a “made in France/EU” labelling for electric vehicles/batteries via a label</td>
<td>Electric vehicles</td>
<td>Service provision</td>
</tr>
<tr>
<td>Develop new communication channel to promote electric vehicles (YouTube, blog, Instagram, snapchat, etc. )</td>
<td>Electric vehicles</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create “Match rider” services to expand for increasing daily carpooling</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Set up a preferential tax rate on revenue from carpooling</td>
<td>Carpooling practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Authorise car-poolers to drive on bus lanes in cities</td>
<td>Carpooling practices</td>
<td>Planning</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Topic</td>
<td>Intervention wheel categories</td>
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<tr>
<td>Reserve a lane for carpoolers in the highway</td>
<td>Carpooling practices</td>
<td>Planning</td>
</tr>
<tr>
<td>Create a carpooling ranking during air pollution period - 5*: 4 people in the car can drive</td>
<td>Carpooling practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Encourage companies to promote carpooling programmes among employees</td>
<td>Carpooling practices</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create a challenge among companies for carpooling “How many carpooling in my company?” Reward + publicity for the winner</td>
<td>Carpooling practices</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Include carpooling in mobility plans of companies</td>
<td>Carpooling practices</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Require drivers and carpoolers to sign a civic charter</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Require police clearance when subscribing to the carpooling platform</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Offer more flexibility in the carpooling journey between two big cities</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create a “carbon watching” App that inform you about your personal GHG emission and the solutions (car-pooling, green mobility, sustainable behaviour, etc.) to reduce your impact</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create specific rest area for area car-poolers (free coffee, Wi-Fi, massage, etc.)</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Encourage carpooling platform to reward the best users</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Include carpooling option in existing mobility application (City mapper for instance, RATP, etc.)</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create a carpooling multiplayer card by fuel companies (Total, BP, ENI, Etc.) that reward you with extra goodies when filling the tank: free coffee, meal, fuel, etc.</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Set up branding spots to meet drivers and car-poolers in cities</td>
<td>Carpooling practices</td>
<td>Planning</td>
</tr>
<tr>
<td>Create special parking spots for car-poolers in parks, train stations, airports, big companies, rural areas</td>
<td>Carpooling practices</td>
<td>Planning</td>
</tr>
<tr>
<td>Force companies to pay for a certain amount of the daily carpooling of their employee</td>
<td>Carpooling practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Propose “female only” carpooling to reduce anxiety</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>New business model for concessionaire “sell car to group of people practising car-pooling”</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Implement the ranking of drivers and car-poolers on the platforms (security, respect of speed limit, conviviality). Best drivers are better listed on the platform</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Upload GPS system to announce car-pooler on user’s journey</td>
<td>Carpooling practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose TV adds to inform about carpooling</td>
<td>Carpooling practices</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create MOOC to learn how to use carpooling platform</td>
<td>Carpooling practices</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Offer stickers for car-poolers and drivers</td>
<td>Carpooling</td>
<td>Communication</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Topic</td>
<td>Intervention wheel categories</td>
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<tr>
<td>Communicate about time gains (compared to people stick in traffic jams)</td>
<td>Public transport</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Propose better information system in stations to inform users</td>
<td>Public transport</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create entertainments in stations</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Require police to use the metro to reassure people</td>
<td>Public transport</td>
<td>Legislation</td>
</tr>
<tr>
<td>Offer the possibility to have shops in stations</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Increase accessibility for disabled person (propose a law (Top down) or a label/norm (hybrid))</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose on-board work stations in the public transport</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Offer 24h metro in the weekends</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create a combi ticket for all mode of public transport</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create a “warning App” to tackle a security problem</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Develop charging spots for your phone in public transport</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose a metro/public bus tour for tourists</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Increase the intramodality of public transport especially in rural areas</td>
<td>Public transport</td>
<td>Planning</td>
</tr>
<tr>
<td>Offer a preferential tariff for low income people (students, unemployed people) and family</td>
<td>Public transport</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Include a public transport ticket in the entertainment ticket (concert, football game, amusement park, etc.)</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Improve the network by increasing its density, its frequency and its accessibility</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose to buy a public transport ticket at a less expensive price than usual when booking entertainment tickets (concert, football game, amusement park, etc.)</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Implement Tax reduction for private companies that subside X% of the cost for workers’ public transport.</td>
<td>Public transport</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Implement flexible working hours within companies to avoid congestion in public transport.</td>
<td>Public transport</td>
<td>Planning</td>
</tr>
<tr>
<td>Provide free Wi-Fi connection.</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Introduce 1st class public transport.</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Favour multi modal transport by including areas for bikes in trains, buses, etc.</td>
<td>Public transport</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create public spaces inside public transport infrastructure to favour cultural exchange and meetings.</td>
<td>Public transport</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Invest in electric and eco-friendly public transport fleet.</td>
<td>Public transport</td>
<td>Legislation</td>
</tr>
<tr>
<td>Make parking unattractive and more expensive.</td>
<td>Public transport</td>
<td>Legislation</td>
</tr>
<tr>
<td>Discourage people from buying cars by facilitating teleworking for example.</td>
<td>Public transport</td>
<td>Legislation</td>
</tr>
<tr>
<td>Improve cleanliness and furniture maintenance by increasing quality standards</td>
<td>Public transport</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Offer public funding to reduce the risk perception/costs to initial investment. The amount of the incentives could be based on the income level</td>
<td>Energy refurbishment</td>
<td>Fiscal measures</td>
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<tr>
<td><strong>Recommendations</strong></td>
<td><strong>Topic</strong></td>
<td><strong>Intervention wheel categories</strong></td>
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<tr>
<td>Offer an integrated plan for deep renovations (step by step) with a “unique counter”</td>
<td>Energy refurbishment</td>
<td>Planning</td>
</tr>
<tr>
<td>Offer renovation subsidies given the ambition of the energy refurbishments needed (the calculation should be based on the energy saving expected)</td>
<td>Energy refurbishment</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Promote Energy Refurbishment Clubs - building/community engagement policies (economies echelle)</td>
<td>Energy refurbishment</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose a regulation of X% of old public building renovated for 2030</td>
<td>Energy refurbishment</td>
<td>Legislation</td>
</tr>
<tr>
<td>Set up the same legal framework for old and new buildings</td>
<td>Energy refurbishment</td>
<td>Legislation</td>
</tr>
<tr>
<td>Provide public software (app) to plan your work (time/budget/subsidies/Co2 emissions/ESCs)</td>
<td>Energy refurbishment</td>
<td></td>
</tr>
<tr>
<td>Introduce energy-related topics to national school curriculum – e.g. home economics, engineering etc. (schools, universities, quartiers)</td>
<td>Energy refurbishment</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Develop new business models related to energy refurbishment. For instance, the energy savings could refund the government that subsidies the renovation work</td>
<td>Energy refurbishment</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Include energy renovation considerations in every renovation work of a building</td>
<td>Energy refurbishment</td>
<td>Planning</td>
</tr>
<tr>
<td>Discuss energy topic in every joint ownership meetings</td>
<td>Energy refurbishment</td>
<td>Planning</td>
</tr>
<tr>
<td>Develop “one stop shop” for energy refurbishments solutions/subsidies at local level</td>
<td>Energy refurbishment</td>
<td>Service provision</td>
</tr>
<tr>
<td>Increase renovation rate</td>
<td>Energy refurbishment</td>
<td>Legislation</td>
</tr>
<tr>
<td>Set up a quality norm/label for the energy refurbishment builders</td>
<td>Energy refurbishment</td>
<td>Legislation</td>
</tr>
<tr>
<td>Develop a regulation by sectors instead of the classic “old-new” buildings classifications</td>
<td>Energy refurbishment</td>
<td>Legislation</td>
</tr>
<tr>
<td>Provide a guideline including subsidies, energy companies that can carry out refurbishments and schemes</td>
<td>Energy refurbishment</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Communication campaigns to give more visibility to the topic. The campaign could insist on the comfort and health benefits of the energy refurbishment</td>
<td>Energy refurbishment</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Propose refurbishment school projects</td>
<td>Energy refurbishment</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Open tour in renovated building to demonstrate the benefits of energy refurbishments</td>
<td>Energy refurbishment</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Offer special tariff to citizen based on their income</td>
<td>Local green cooperatives</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Propose a preferential ratio for the green certificates produced by the local green cooperatives</td>
<td>Local green cooperatives</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Propose lower taxes on the energy provided by local green cooperatives</td>
<td>Local green cooperatives</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Topic</td>
<td>Intervention wheel categories</td>
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<tr>
<td>Sustainable economic benefit for communities engaged in energy production and provision projects.</td>
<td>Local green cooperatives</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Energy clubs to discuss about the topic at the local level</td>
<td>Local green cooperatives</td>
<td>Service provision</td>
</tr>
<tr>
<td>Energy watch – Public information on energy suppliers and energy prices.</td>
<td>Local green cooperatives</td>
<td>Legislation</td>
</tr>
<tr>
<td>“New Deal” for the EU to promote the energy transition and renew the existing infrastructure.</td>
<td>Local green cooperatives</td>
<td>Legislation</td>
</tr>
<tr>
<td>Inform consumers about the mix of their energy supplier and the GHGs associated</td>
<td>Local green cooperatives</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Make the energy mix of your suppliers public and available on the energy bill</td>
<td>Local green cooperatives</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Define a subsidy programme to encourage the creation of energy cooperatives</td>
<td>Local green cooperatives</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Create a one stop website comparing offers, facilitating the switch of energy supplier</td>
<td>Local green cooperatives</td>
<td>Service provision</td>
</tr>
<tr>
<td>Improve storage system</td>
<td>Local green cooperatives</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose a retraining programme focused on renewable energy for coal workers</td>
<td>Local green cooperatives</td>
<td>Service provision</td>
</tr>
<tr>
<td>Create an independent and transparent body “Energy watch” that inform citizens about the prices and the subsidies granted to the different energy sources</td>
<td>Local green cooperatives</td>
<td>Legislation</td>
</tr>
<tr>
<td>Propose cross border local grids</td>
<td>Local green cooperatives</td>
<td>Legislation</td>
</tr>
<tr>
<td>Provide guidelines to citizens who want to get engaged into energy cooperative</td>
<td>Local green cooperatives</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Realise a feasibility study about the potential of local green cooperatives in cities</td>
<td>Local green cooperatives</td>
<td>Planning</td>
</tr>
<tr>
<td>Offer a label “We fight climate change” to cities engaged in local energy cooperatives. It could be given to companies that invest in the local green energy cooperatives</td>
<td>Local green cooperatives</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Offer a special tariff for people impacted (noise, visual impact, etc.) by the local green energy cooperative to tackle the NIMBY issues</td>
<td>Local green cooperatives</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Encourage employees to car share for professional displacements</td>
<td>Car sharing practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Offer a “prize points” recompense programme</td>
<td>Car sharing practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Get drivers’ ED to teach with car share autos</td>
<td>Car sharing practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Receive an automatic enrolment upon receiving driving licence</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Offer a preferential/free tariff during high pollution days</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose car sharing model for disabled people</td>
<td>Car sharing</td>
<td>Service provision</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Topic</td>
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<tr>
<td>Enable car sharing users to park everywhere/Offer a service to reallocate cars</td>
<td>Car sharing practices</td>
<td>Other</td>
</tr>
<tr>
<td>Increase parking spots for car sharing</td>
<td>Car sharing practices</td>
<td>Other</td>
</tr>
<tr>
<td>Link car sharing companies to the carbon market to force them to green their fleet car</td>
<td>Car sharing practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Propose preferential tariff for students, jobless and family</td>
<td>Car sharing practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Offer preferential tariff during week day</td>
<td>Car sharing practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Provide a “godfather” system for subscription. Both users, the new and the elders receive a preferential tariff for their next rides</td>
<td>Car sharing practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Offer the possibility to pay with your cell phones</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Provide a robot assistant to help user on the platform</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Provide a free test/ 1 month free subscription to young drivers</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose a phone booking service on the platform</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Provide an app that help you to schedule your journey in advance (book a vehicle, spot the recharging station, etc.)</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Organise an electric car-sharing race to demonstrate the autonomy of the battery and the speed of recharging</td>
<td>Car sharing practices</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create a social network of car-sharing</td>
<td>Car sharing practices</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Propose car sharing with baby seat (How? A law as an option when booking the car)</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Rank the car and your driving experiences</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Provide lessons to learn how to drive an automatic car during driving classes</td>
<td>Car sharing practices</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Use VAO bus</td>
<td>Car sharing practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Offer the possibility for carsharing to book vehicles</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Offer the possibility for carsharing to park everywhere in cities</td>
<td>Car sharing practices</td>
<td>Legislation</td>
</tr>
<tr>
<td>Simplify subscription to car-sharing</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Pile “points” using car sharing vehicles that could be spent for public transport tickets, additional minutes using “city bike”, local currency, etc.</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose a pro-rated membership based on income (students, low income...)</td>
<td>Car sharing practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Possibility to ride car sharing on preferential lanes</td>
<td>Car sharing practices</td>
<td>Legislation</td>
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<tr>
<td>Provide carsharing parking in train stations/airports to facilitate intermodal transport</td>
<td>Car sharing practices</td>
<td>Other</td>
</tr>
<tr>
<td>Provide carsharing parking in technology parks, business areas, universities, coworking spaces</td>
<td>Car sharing practices</td>
<td>Other</td>
</tr>
<tr>
<td>Diversify the models available: bigger cars for families, cool style, etc.</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Propose corporative deals to encourage the use of carsharing</td>
<td>Car sharing practices</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Subsidies for medium cities to encourage the implementation of carsharing companies</td>
<td>Car sharing practices</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Offer the possibility to merge different transport cards in a city (including the carsharing)</td>
<td>Car sharing practices</td>
<td>Service provision</td>
</tr>
<tr>
<td>Offer local training to use the platform and the car: visual videos in the carsharing stations + eventual trainers</td>
<td>Car sharing practices</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Develop freemium services for smart technologies. The users would access freely to a range of services developed by companies to save energy initially. The users could pay to have the complete service</td>
<td>Smart technologies</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Involve citizen/user in the co-design of smart technologies</td>
<td>Smart technologies</td>
<td>Planning</td>
</tr>
<tr>
<td>Standardise smart meter technologies via a norm. Merge the meters for gas and electricity</td>
<td>Smart technologies</td>
<td>Service provision</td>
</tr>
<tr>
<td>Attribute the data ownership to the final users. Develop business associated at this data. For instance, the user can sell its data to the energy suppliers/DSO</td>
<td>Smart technologies</td>
<td>Legislation</td>
</tr>
<tr>
<td>Hotline to help users that are not familiar with internet</td>
<td>Smart technologies</td>
<td>Service provision</td>
</tr>
<tr>
<td>Develop show home to popularise smart meters and energy efficient technologies</td>
<td>Smart technologies</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Develop the profile of prosumer</td>
<td>Smart technologies</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Improve the recyclability of technologies like LED</td>
<td>Smart technologies</td>
<td>Service provision</td>
</tr>
<tr>
<td>Improve the skills of SMB in the building sector in order to provide effective advices and services</td>
<td>Smart technologies</td>
<td>Guidelines</td>
</tr>
<tr>
<td>Create an independent agency that informs people of the potential risk of electromagnetic waves, often referred to as electro sensitivity</td>
<td>Smart technologies</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Clarify the legal framework about data</td>
<td>Smart technologies</td>
<td>Legislation</td>
</tr>
<tr>
<td>Training session for smart technologies by companies</td>
<td>Smart technologies</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Provide real information of CO2 values “older appliance VS new appliances”</td>
<td>Smart technologies</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Offer a feed-in tariffs for users reselling their extra energy on the network</td>
<td>Energy self - consumption</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Offer temporary feed-in tariffs for users reselling their extra energy on the network</td>
<td>Energy self - consumption</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Topic</td>
<td>Intervention wheel categories</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Provide panels at a preferential cost for state housing</td>
<td>Energy self-conservation</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Create MOOCs, videos, Blogs, Social Media</td>
<td>Energy self-conservation</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create new Business Models (leasing contract)</td>
<td>Energy self-conservation</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Implement passive solar house design</td>
<td>Energy self-conservation</td>
<td>Legislation</td>
</tr>
<tr>
<td>Set up energy provision requirements for new buildings</td>
<td>Energy self-conservation</td>
<td>Legislation</td>
</tr>
<tr>
<td>Create an individual carbon taxes</td>
<td>Energy self-conservation</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Set up governmental subsidies for battery</td>
<td>Energy self-conservation</td>
<td>Fiscal measures</td>
</tr>
<tr>
<td>Propose systemic education. For instance: training for low income youth to install/maintain panels</td>
<td>Energy self-conservation</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Create a 50%-50% scheme investments from the tenants and the owners</td>
<td>Energy self-conservation</td>
<td>Legislation</td>
</tr>
<tr>
<td>Redesign the network to better integrate the energy self-consumption</td>
<td>Energy self-conservation</td>
<td>Planning</td>
</tr>
<tr>
<td>Promote the energy and economic gains associated with energy self-consumption (How? Preferential tax rate on the economic gains?)</td>
<td>Energy self-conservation</td>
<td>Communication and marketing</td>
</tr>
<tr>
<td>Propose energy self-consumption consumption show house</td>
<td>Energy self-conservation</td>
<td>Communication and marketing</td>
</tr>
</tbody>
</table>
Appendix 3: Policy Canvas proposals

1. *Transport*

**Increasing the Purchase and Use of Electric Vehicles**

<table>
<thead>
<tr>
<th>POLICY RECOMMENDATION</th>
<th>APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide fiscal incentives for organisations (companies, charities, councils, associations, etc.) that buy electric vehicles for their automobile fleet</td>
<td>Top-down</td>
</tr>
<tr>
<td>Fiscal measures as tax reductions or subsidies could encourage companies to adopt an E.V fleet</td>
<td>The State is the best suited authority to implement tax reduction/subsidies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>OBJECTIVES</th>
<th>OBSTACLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars are the main source of pollution in cities. Companies buying a lot of cars could help to reduce the exhaust by buying electric cars.</td>
<td>• Reduce city air pollution coming from company car users • Familiarise company drivers with E.V</td>
<td>• Potential backlash from car dealers who do not sell e-cars • Financial costs of taxes/subsidies • Potential backlash from companies that do not want to buy E.V.s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTORS</th>
<th>TOOLS</th>
<th>ACCEPTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• National authorities • Businesses • Car dealers</td>
<td>Fiscal measures</td>
<td>High level of acceptance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT (EX ANTE APPROACH)</th>
<th>COST OF IMPLEMENTATION</th>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Percentage of companies using the tax relief/subsidy • Number of electric cars on the road</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

*Figure 48: Policy recommendation on electric vehicles n°1: Provide fiscal incentives for organisations that buy electric vehicles for their automobile fleet*
Figure 49: Policy recommendation on electric vehicles n°2: Implement an incentive programme that allows electric vehicles not to pay tolls at highways
**Policy Recommendation**

Provide fiscal advantages for organisations to build their own charging stations for electric vehicles

This can be done via subsidies or tax reductions

**APPROACH**

Hybrid
Both governments and organisations can participate in the funding of the economic schemes

**CONTEXT**

Cars are a strong source of urban pollution. Improving the infrastructure could encourage drivers to switch to electric vehicles

**OBJECTIVES**

- Reduce the pollution impact due to car exhaust
- Encourage drivers to make the switch to E.V.
- Encourage the expansion of the electric car infrastructure

**OBSTACLES**

- Businesses not willing to pay for new infrastructure
- Citizens do not want tax money to be spent on infrastructure for something that will benefit only a small percentage of citizens

**ACTORS**

- Local businesses
- Local/national authorities
- Car dealers
- Drivers

**TOOLS**

Collaboration platforms

**ACCEPTANCE**

High level of acceptance

**ASSESSMENT (EX ANTE APPROACH)**

- Number new charging networks built
- Increase E.V. on the road
- Increase in business (even from non-e-car drivers—consumers voting with their wallets)

**COST OF IMPLEMENTATION**

Medium-high

**SUSTAINABLE BENEFIT**

Medium

*Figure 50: Policy recommendation on electric vehicles n°3: Provide fiscal advantages for organisations that build charging networks for electric vehicles*
Figure 51: Policy recommendation on electric vehicles n°4: Provide information (maps, apps) of the electric vehicle infrastructure
**Figure 52: Policy recommendation on electric vehicles n°5: Propose a European standard plug for fast charging via a norm**

<table>
<thead>
<tr>
<th>POLICY RECOMMENDATION</th>
<th>APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propose a European standard plug for fast charging via a norm</td>
<td>Top down</td>
</tr>
<tr>
<td>A technical norm could be created to specify the feature of the plug system</td>
<td>The State is best suited to issue standards and norms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTEXT</th>
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</thead>
<tbody>
<tr>
<td>Cars are a strong source of urban pollution so, making electric cars a more convenient and easy option can boost the demand</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
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</thead>
<tbody>
<tr>
<td>• Expand e-car infrastructure</td>
</tr>
<tr>
<td>• Make it easier for e-car drivers to charge their cars wherever they go</td>
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<table>
<thead>
<tr>
<th>ACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• E-car manufacturers</td>
</tr>
<tr>
<td>• Certifying body</td>
</tr>
<tr>
<td>• Local/national authorities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOOLS</th>
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</thead>
<tbody>
<tr>
<td>Regulatory framework</td>
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<table>
<thead>
<tr>
<th>COST OF IMPLEMENTATION</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
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<table>
<thead>
<tr>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBSTACLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Norms are time consuming and costly to implement</td>
</tr>
<tr>
<td>• E.V. manufacturers may be against the fiscal costs they would incur by changing their plug system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCEPTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level of acceptance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT (EX ANTE APPROACH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purchasing ratio of electric vehicles after the implementation measure</td>
</tr>
</tbody>
</table>
Figure 53: Policy recommendation on electric vehicles n°6: Develop “cradle to cradle” practices in the design and manufacturing processes of electric vehicles
Figure 54: Policy recommendation on electric vehicles n°7: Build electric vehicle parking spots at public transport stations in rural areas
Increasing the Practice of Car Sharing

**POLICY RECOMMENDATION**
Offer the possibility for participants of electric car-sharing service to book vehicles and park in non-dedicated spots.

The booking option aims to relieve the fear that some drivers may have in terms of not being able to find a car or parking spot when needed. Furthermore, the convenience of a car sharing service, namely the ability to park in more spaces, is key to progressively replacing personal cars.

**CONTEXT**
On average the use rate of car does not exceed 5% of your time during a day. Consequently, the uselessness of a car could represent an important cost that intimate that car sharing is a sustainable alternative.

**OBJECTIVES**
- Revamp mobility
- Reduce the number of cars
- Increase the spending power of households

**OBSTACLES**
- The potential economical impact for car industries
- The logistic associated with recharging the electrical car sharing

**ACCEPTANCE**
High level of acceptance

**ASSESSMENT (EX ANTE APPROACH)**
- The utilisation rate of car sharing vehicles
- The impact on the car industry

**TOOLS**
Service provision

**COST OF IMPLEMENTATION**
Low

**SUSTAINABLE BENEFIT**
High

*Figure 55: Policy recommendation on car sharing n°1: Offer the possibility for car sharers to book vehicles and to park everywhere in a city*
Figure 56: Policy recommendation on car sharing n°2: Serious gaming – Cumulate “Smart Mobility” points when using car sharing vehicles
Figure 57: Policy recommendation on car sharing n°3: Propose a pro-rated membership based on income
Figure 58: Policy recommendation on car sharing n°4: Allocate specific parking spots for drivers of car-sharing services

<table>
<thead>
<tr>
<th>POLICY RECOMMENDATION</th>
<th>APPROACH</th>
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<tbody>
<tr>
<td>Allocate specific parking spots for drivers of electric car-sharing services</td>
<td>Top-down</td>
</tr>
<tr>
<td>For instance, it would be interesting to locate them near train stations, airports, business areas, bus stops, universities, etc.</td>
<td>Governments authorities are in charge of planning city infrastructure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>OBJECTIVES</th>
<th>OBSTACLES</th>
</tr>
</thead>
</table>
| To appear as a credible alternative to personnel cars, car sharing should be massively rolled out. Their usage should go over the only downtown of cities | • Develop intermodality of transport  
• Reduce the number of cars | • The autonomy of electric car sharing  
• The infrastructure cost associated with the installation of the recharging stations  
• People habit |

<table>
<thead>
<tr>
<th>ACTORS</th>
<th>COST OF IMPLEMENTATION</th>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
</table>
| • Infrastructure companies  
• National and local authorities | Low-medium | Medium |

<table>
<thead>
<tr>
<th>TOOLS</th>
<th>ACCEPTANCE</th>
<th>ASSESSMENT (EX ANTE APPROACH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning and infrastructure</td>
<td>High level of acceptance</td>
<td>• The utilisation rate of car sharing vehicles in these areas</td>
</tr>
</tbody>
</table>
Figure 59: Policy recommendation on car sharing n°5: Include a range of car models within citywide car-sharing programmes

<table>
<thead>
<tr>
<th>POLICY RECOMMENDATION</th>
<th>APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include a range of car models within citywide electric car-sharing programmes</td>
<td>Hybrid</td>
</tr>
<tr>
<td>The aim is to attract new categories of users such as: families, students, disabled persons, etc. For instance, a car equipped with baby seats or adjusted cars for wheelchair people are car models that could satisfy specific category of users. Furthermore, the aesthetic design of the cars could be submitted to the vote of subscribers</td>
<td>This measure could result from an economic agreement between car manufacturers and local authorities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>OBJECTIVES</th>
<th>OBSTACLES</th>
<th>ACCEPTANCE</th>
<th>ASSESSMENT (EX ANTE APPROACH)</th>
<th>COST OF IMPLEMENTATION</th>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>The satisfaction of users’ experience is key to generalise a practice. In this perspective, car sharing service must innovate to attract new users</td>
<td>• Attract new category of users • Social justice</td>
<td>• The cost associated with the development of new cars models</td>
<td>Low level of acceptance</td>
<td>• The utilisation rate of these specific car sharing vehicles</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTORS</th>
<th>TOOLS</th>
<th>COST OF IMPLEMENTATION</th>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Car sharing companies • Citizens • Local authorities</td>
<td>Service provision</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 60: Policy recommendation on car sharing n°6: Subsidise the creation of electric car sharing programmes in medium cities.
Figure 61: Policy recommendation on car sharing n°7: Offer training sessions to enhance car sharing practices
### Encouraging the use of public transport

<table>
<thead>
<tr>
<th>POLICY RECOMMENDATION</th>
<th>APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide fiscal advantages for businesses to actively encourage carpooling programmes for their employees:</td>
<td>Hybrid</td>
</tr>
<tr>
<td>The incentive programme could include:</td>
<td>Financial support to businesses would come from the government, but the actual programmes would be carried out by the businesses:</td>
</tr>
<tr>
<td>• Reduced cost for carpoolers in parking lots.</td>
<td></td>
</tr>
<tr>
<td>• Preferred parking for carpoolers: near building entrances, covered, etc.</td>
<td></td>
</tr>
<tr>
<td>• Carpooling platform: Teach the usage of these platforms, especially for less digitally savvy people</td>
<td></td>
</tr>
<tr>
<td>• Prize drawings or rewards like coupon books for local restaurants</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>To democratis car sharing and attract new users, it is necessary to inform and teach the inner of car sharing</td>
<td>• Increase the practice of carpooling among those who already drive to work</td>
</tr>
<tr>
<td></td>
<td>• Cut air pollution</td>
</tr>
<tr>
<td></td>
<td>• Reduce GHG emissions</td>
</tr>
<tr>
<td></td>
<td>• Improve public health</td>
</tr>
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<table>
<thead>
<tr>
<th>ACTORS</th>
<th>TOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local authorities</td>
<td>Business support scheme</td>
</tr>
<tr>
<td>Companies</td>
<td></td>
</tr>
<tr>
<td>Employees</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBSTACLES</th>
<th>ACCEPTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Difficulty to match schedules between employees (inflexibility)</td>
<td>Low level of acceptance</td>
</tr>
<tr>
<td>• Potential for fraud, including registration of carpool partners who do not carpool</td>
<td></td>
</tr>
<tr>
<td>• The extra time that carpooling takes and the loss of privacy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT (EX ANTE APPROACH)</th>
<th>SUSTAINABLE BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase the number of employers carpooling to work</td>
<td>Medium</td>
</tr>
<tr>
<td>• Increase the number of annual re-registration of carpoolers to the programme</td>
<td></td>
</tr>
<tr>
<td>• Evolution of the carbon footprint of the company</td>
<td></td>
</tr>
</tbody>
</table>

Figure 62: Policy recommendation on public transport n°1: Provide fiscal advantages for businesses in dense urban areas to implement flexible working hours and/or teleworking
**Figure 63: Policy recommendation on public transport n°2: Include spaces for bikes on the metro, trains and buses**
Figure 64: Policy recommendation on public transport n°3: Set a strategy to have a bus fleet that is 100% electric/biofuel/hybrid by 2025
Figure 65: Policy recommendation on public transport n°4: Offer a free discounted public transport tickets to attendees of major entertainment event
Figure 66: Policy recommendation on public transport n°5: Increase security measures in public transport stations
Figure 67: Policy recommendation on public transport n°6: Offer a metro/bus service that runs 24 hours a day on the weekends
2. **Buildings**

Reducing electricity usage through smart technologies

---

**Figure 68:** Policy recommendation on adopt smart technologies n°1: Provide fiscal incentives to energy companies developing freemium services that enable the public to use smart technologies for their electricity bills
Figure 69: Policy recommendation on adopt smart technologies n°2: Create a programme to involve citizens in the co-design of smart technologies
Figure 70: Policy recommendation on adopt smart technologies n°3: Attribute the data ownership to final users and set up mechanism to control the protection of data
Figure 71: Policy recommendation on adopt smart technologies n°4: Hold public “show case events” to popularise smart meters and energy efficient technologies
## Initiating thermal refurbishments

### Policy Toolkit Typology

**Policy Recommendation**

Provide fiscal advantages for individuals to implement energy refurbishments

- Financial support as loans, subsidies etc., could help initiate energy refurbishment and could be based on income for the purpose of social justice. If loans are preferred, they could be reimbursed via the energy saving achieved.
- Financial support could be also focused on encouraging deep renovation projects. In this case, fiscal advantages could be based on the scope/degree of energy refurbishments

**Approach**

Bottom-up

Through this measure, individuals are empowered to implement energy efficient changes, hence leading the process.

**Context**

In Europe, buildings are responsible for 40% of the energy consumption and 36% of CO2 emissions. Achieving EU renovation objectives requires ambitious financial support to encourage households engage in such projects. This could also reduce people's energy bills while simultaneously boosting their comfort.

**Objectives**

- Initiate deep & efficient energy renovation
- Reduce energy consumption
- Reduce the EU energy dependency
- Reduce fuel poverty
- Increase temperature comfort homes/buildings

**Obstacles**

- Capacity of the construction sector to provide deep- and energy-efficient renovation
- Possible social injustice: “only for rich people”
- Economic resources to fund this investment plan

**Acceptance**

High level of acceptance

**Assessment (ex ante approach)**

- Number and degree of the renovations
- Social analysis to define the typical households resorting to this measure
- Energy saved compared to BAU
- ROI
- Amount of energy saved compared to BAU

**Tools**

Fiscal measures

**Cost of Implementation**

Medium-high

**Sustainable Benefit**

Medium-high

---

**Figure 72:** Policy recommendation on energy refurbishment n°1: Provide fiscal advantages for individuals to implement energy refurbishment
Figure 73: Policy recommendation on energy refurbishment n°2: Facilitate energy refurbishments by creating a «one-stop-shop» that can provide all the relevant information to households
Figure 74: Policy recommendation on energy refurbishment n°3: Promote “Energy Refurbishment Clubs”
Figure 75: Policy recommendation on energy refurbishment n°4: Set up a quality norm/label for energy refurbishment companies
Figure 76: Policy recommendation on energy refurbishment n°5: Develop a school education programme related to energy and its challenges
3. **Local energy production**

Promoting subscription to green energy suppliers

![Policy Recommendation Diagram]

**Policy Recommendation**

Provide fiscal advantages for green energy cooperatives to operate and up-scale

Such a measure supports the development and operation of green energy cooperatives. It could include feed-in-tariffs, subsidies such as tax cuts, etc. Only energy cooperatives that generate electricity from RES are eligible for these fiscal advantages.

**Approach**

Top-down

Governments participate in the funding of these economic schemes.

**Context**

The development of energy cooperatives is not well-supported by governments. There is a lack of interest from traditional energy companies who have monopolised the sector. Moreover, cumbersome regulation/administrative processes slow down the development of energy cooperatives.

**Objectives**

- Encourage the creation of energy cooperatives in Europe
- Help to guaranty their economic stability and ensure their durability over time
- Support their development

**Obstacles**

- The cost associated with the implementation of the measure
- Governments’ investment and commitment
- The stability of the energy network could be jeopardised by the development of numerous green cooperatives

**Acceptance**

Highly accepted by communities

**Assessment (Ex ante approach)**

- Number of new green energy cooperatives created and sustained
- Number of citizens subscribed to green energy cooperatives
- Price of electricity delivered by cooperatives vs traditional utilities

**Cost of Implementation**

Medium

**Sustainable Benefit**

Medium

---

*Figure 77: Policy recommendation on green energy suppliers n°1: Provide fiscal advantages for green energy cooperatives to operate and up-scale*
**Policy Recommendation:**
Provide fiscal advantages for local communities to establish local energy cooperatives

Financial support as loans, subsidies etc., could enable local communities (citizens and small and medium enterprises (SMEs)) to invest in (collective) renewable energy infrastructure (i.e. solar panels, wind turbines) and establish a local green energy cooperative. This measure could be complemented with support for the establishment of technical feasibility studies on renewable energy.

**Context:**
Communities do not want to engage in energy production projects because of the administrative burden and the high proportions of Capex

**Objectives:**
- Engage more communities on local energy projects
- Encourage the use of renewable energy sources
- Reduce GHG emissions
- Promote a more decentralised network

**Actors:**
- Communities
- Energy companies
- Governments
- Local authorities

**Tools:**
Fiscal measure

**Cost of Implementation:**
Medium-high

**Sustainable Benefit:**
Medium

**Approach:**
Bottom-up
The ability of local communities to establish their own energy cooperatives means that they get to drive the process

**Obstacles:**
- Investments required to promote local green energy cooperatives
- Lack of citizen commitment
- Different legal contexts
- Lack of support mechanisms

**Acceptance:**
Highly accepted by communities

**Assessment (Ex Ante Approach):**
- Number of local energy projects led by communities
- Number of new energy cooperatives
- Number of citizens subscribed to an energy cooperative
- GHG emissions saved compared to BAU

*Figure 78: Policy recommendation on green energy suppliers n°2: Provide fiscal advantages for local communities to establish local energy cooperatives*
**Policy Recommendation**

Provide financial assistance to create and develop “Energy Clubs” within local communities

“Energy Clubs” are local bodies, often made up of a large workforce of volunteers, which offer personal advice about aspects of energy conservation & renewable energy. Information evenings & mentoring sessions are also held to promote the social dialogue with the support of local authorities. Financial assistance could motivate citizens engaged in local energy cooperatives to create “Energy Clubs” & education activities. This could be complemented with the provision of co-working spaces and meeting rooms in public buildings.

**Approach**

Bottom-up

“Energy Clubs” are created and led by citizens.

**Context**

The non-commercial spirit of green energy cooperatives and the participation of volunteers is an important asset but also a weakness. Supplying an energy market demands technical knowledge, a professional organisation, and entrepreneurship.

**Objectives**

- Enhance the discussion about energy topics
- Increase the number of people engaged on energy cooperatives
- Inform citizens about the non-traditional energy providers and their different options
- Decentralise the energy system

**Obstacles**

- The lack of people’s commitment that could result into the creation of green energy cooperatives
- The different legal contexts and lack of support mechanisms
- The lack of information/awareness on energy issues

**Acceptance**

Highly accepted by communities

**Assessment (Ex Ante Approach)**

- Number of actions started up by “Energy Clubs”
- Sustainable measures at local level

**Cost of Implementation**

Low-medium

**Sustainable Benefit**

Medium

Figure 79: Policy recommendation on green energy suppliers n°3: Provide assistance to create and develop “Energy Clubs” within local communities
Figure 80: Policy recommendation on green energy suppliers n°4: Implement a regulatory framework that provides consumers with information on the energy sources used.
Figure 81: Policy recommendation on green energy suppliers n°5: Implement a regulatory framework that offers lower energy tariffs to citizens in communities directly affected by large scale renewable energy projects.
# Enabling green energy self-consumption

## POLICY RECOMMENDATION

**Implement a feed-in-tariff scheme for households / cooperatives to sell excess electricity back to the grid**

This financial incentive could apply to both particular renewable energy production systems owned by individual households or third parties and self-consumption projects developed by green energy cooperatives. Excess electricity can be sold to grid to generate income and reduce electricity bills, thereby making more attractive self-consumption models. The temporary nature of the feed-in tariff is crucial to ensure the acceptance and the viability of this measure.

## APPROACH

**Top-down**

The features of the feed-in tariff are defined by government for equity and efficiency reasons.

## CONTEXT

The implementation of self-consumption is at early stages in certain European countries. Financial schemes should be set up to favour self energy consumption.

## OBJECTIVES

- Engage citizens on energy self-consumption
- Support the development of renewable energy installations at homes
- Decentralise the energy system

## OBSTACLES

- High up-front investments for citizens
- The stability of the network to integer local energy generation

## ACCEPTANCE

Highly accepted by communities

## ACTORS

- Governments
- Citizens
- Local authorities
- Local cooperatives

## TOOLS

Fiscal measure

## ASSESSMENT

**EX ANTE APPROACH**

- Number of renewable energy installations at homes
- ROI of technologies installed at homes
- The evolution of GHG emissions of the energy sector

## COST OF IMPLEMENTATION

Medium-High

## SUSTAINABLE BENEFIT

High

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**Figure 82**: Policy recommendation on self-consumption n°1: Implement a feed-in-tariff scheme for households/ cooperatives to sell excess electricity back to the grid
Figure 83: Policy recommendation on self-consumption n°2: Create a public web platform to inform citizens about energy self-consumption

POLICY RECOMMENDATION
Create a public web platform to inform citizens about energy self-consumption

It can include MOOCs, videos, blogs and social media that help to democratisate self-energy consumption. The content of the platform could be created by universities and energy associations, which can diffuse “best practices” on this topic and share their expertise.

APPROACH
Hybrid
This measure involves multiple types of organisations but keeps citizens as the central focus.

CONTEXT
Generally, people are not well-informed about energy-related issues, sustainable energy options or how they can be independent from large energy companies.

OBJECTIVES
- Inform about self energy consumption
- Promote self energy consumption
- Decentralise the energy system

ACTORS
- Citizens
- Local authorities
- Communities
- Energy associations
- Universities

TOOLS
Communication & marketing

OBSTACLES
- Countries’ regulation that slows down the development of self energy consumption
- The high investment associated with the development of the platform

ACCEPTANCE
Low acceptance by the community

ASSESSMENT (EX ANTE APPROACH)
- People participating in MOOCs
- Number of videos uploaded
- Number of renewable energy installations at homes

COST OF IMPLEMENTATION
Low-Medium

SUSTAINABLE BENEFIT
Low
**POLICY RECOMMENDATION**

Use of public assets to stimulate demonstrations of self-consumption solutions and encourage new business models

Demonstrators will be conceived of as socio-economic and technical pilots for innovation and market uptake. Such a measure could then help co-create potential effective business models and services to make on-site generation accessible to a larger number of consumers. New financial schemes such as leasing contracts for batteries, new ways of sharing costs (decreasing up-front investments) and new partnerships should be explored.

**APPROACH**

Hybrid

This measure involves both private and public actors working together.

**CONTEXT**

The upgrading of technologies is necessary to cover the needs of consumers. Nonetheless, the development of business models is at least as important.

**OBJECTIVES**

- Promote self energy consumption
- Change peoples’ perception on self-consumption
- Create market opportunity
- Decentralise the energy system

**OBSTACLES**

- The current maturity of technologies
- The long term nature of the investment
- The uncertainty about the ROI period

**ACTORS**

- Energy companies
- Citizens
- Public authorities

**ACCEPTANCE**

Highly accepted by communities

**ASSESSMENT (EX ANTE APPROACH)**

- Number of leasing contracts for RE installations at homes
- ROI for citizens
- The implementation rate of self energy technologies

**TOOLS**

Collaboration platform

**COST OF IMPLEMENTATION**

Medium-high

**SUSTAINABLE BENEFIT**

Medium-high

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Figure 84: Policy recommendation on self-consumption n°3: Use of public assets to stimulate demonstrations of self-consumption solutions and encourage new business models
Figure 85: Policy recommendation on self-consumption n°4: Create and implement win-win financing schemes for tenants and owners to adopt RE installations

POLICY RECOMMENDATION
Create and implement win-win financing schemes for tenants and owners to adopt RE installations
This measure will promote the adoption of RE installations for self-consumption. A fair agreement should be found to satisfy both parties regarding the distribution of gains and costs over time. Authorities could have a role by guaranteeing this type of agreement.

CONTEXT
On average, the share of tenants in countries covered by the ENTRUST project is around 30%. The tenant-owner relationship is a real dilemma in terms of energy.

OBJECTIVES
- Overcome the tenant-owner dilemma
- Change peoples' perceptions on self-consumption
- Decentralise the energy system

ACTORS
- Government
- Energy companies
- Tenants
- Owners of buildings/apartments

TOOLS
Guidelines

OBSTACLES
- Countries’ regulation
- The fair distribution of the costs and benefits. Time scales are different for the tenant and the owner

ACCEPTANCE
Not presented to communities

ASSESSMENT (EX ANTE APPROACH)
- ROI
- Number of installations for self-consumption
- Number of win-win agreements signed

COST OF IMPLEMENTATION
Low

SUSTAINABLE BENEFIT
Medium
Figure 86: Policy recommendation on self-consumption n°5: Set up a European Directive to redesign the network and promote the self-consumption of electricity
Appendix 4: ENTRUST Policy Toolkit

In this appendix, we include the ENTRUST Policy Toolkit, a separate document that explains the most important aspects to keep in mind.

It is structured in two parts:

**Part 1. GUIDELINES FOR POLICY MAKERS TO CO-DESIGN POLICIES TARGETING ENERGY BEHAVIOUR CHANGE**

This part is a brief how-to guide for policymakers who want to identify policy options, based on sector specific circumstances. It outlines a step-by-step methodology to explore opportunities in the energy sector; understand the multiple factors that influence the way people act every day; map existing policy interventions to address these factors; identify gaps and new ideas; engage stakeholders; and prioritise and develop the best policy mix.

**Part 2. POLICY ASSESSMENT AND RECOMMENDATIONS**

This part presents the mix of policy recommendations with regards to the eight target areas. 44 policy recommendations promoting sustainable behaviours are included in the present report. The set of policies include 19 top-down, 8 bottom-up, and 17 hybrid approaches and proposes the following mix of policy instruments: 7 regulatory frameworks, 4 planning and infrastructure, 5 fiscal measures, 10 service provision, 7 communication and marketing tools, 2 guidelines, 3 collaboration platforms, and 6 business support schemes.
ENTRUST POLICY TOOLKIT

FOR POLICYMAKERS AND PRACTITIONERS WHO SEEK TO ENGAGE PEOPLE AND INFLUENCE THEIR BEHAVIOUR

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University College Cork

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What is the ENTRUST policy toolkit?

The ENTRUST policy toolkit is designed for policymakers and practitioners whose work ultimately seeks to engage people and influence their behaviour in order to deliver improved outcomes. It presents a set of policy recommendations aimed at reducing the environmental impact from energy consumption. The toolkit covers both the supply and demand sides of the energy sector. That is, Transport, Buildings, and Local energy production. Eight key objectives are outlined. These were identified with the collaboration of local community stakeholders.

- Increasing the purchase and use of electric vehicles
- Increasing the practise of car sharing
- Encouraging automobile commuters to carpool
- Encouraging the use of public transport
- Reducing electricity usage through smart technologies
- Initiating thermal refurbishments
- Promoting subscription to green-energy suppliers
- Enabling green energy self-consumption
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**Introduction**

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INTRODUCTION

Influencing how people behave, whether it be choosing to take public transport rather than driving one’s car, retrofitting one’s home with energy-saving appliances, or installing solar panels on one’s roof can be challenging.

When it comes to changing human behaviour in the energy sector, there are a number of barriers to consider. The energy sector is diverse and spans a wide range of different assets in power generation, heating and cooling, buildings, transport, and industry. One aspect that makes behaviour change difficult is that energy infrastructure has a long lifespan - a nuclear power plant, for example, is built to last around 50 years. Another aspect preventing change is the rapid development of new technologies reducing energy consumption automatically, limiting the incentives for humans to change. A long-term policy guidance is then required if a sustainable and cost-effective transition towards a low-carbon energy sector is to occur.

With this in mind, the ENTRUST partners set out to co-design a policy toolkit that proposes to policymakers a mix of policy options aimed at reducing the environmental impact of energy consumption through behaviour change. This guideline outlines a summary of the steps taken in the development of policy options and the main results. For more information on the ENTRUST Policy Toolkit, we invite readers to review Deliverable 4.5 “Policy toolkit typology”.

It is structured in two parts:

**Part 1. GUIDELINES FOR POLICY MAKERS TO CO-DESIGN POLICIES TARGETING ENERGY BEHAVIOUR CHANGE**

This part is a brief how-to guide for policymakers who want to identify policy options, based on sector specific circumstances. It outlines a step-by-step methodology to explore opportunities in the energy sector; understand the multiple factors that influence the way people act every day; map existing policy interventions to address these factors; identify gaps and new ideas; engage stakeholders; and prioritise and develop the best policy mix. This methodology has been specifically designed by the ENTRUST partners and applied to develop the present work.

**Part 2. POLICY ASSESSMENT AND RECOMMENDATIONS**

This part presents the mix of policy recommendations with regards to the eight target areas. 44 policy recommendations promoting sustainable behaviours have been developed and included in the present report. The set of policies include 19 top-down, 8 bottom-up, and 17 hybrid approaches and proposes the following mix of policy instruments: 7 regulatory frameworks, 4 planning & infrastructure, 5 fiscal measures, 10 service provision, 7 communication and marketing tools, 2 guidelines, 3 collaboration platforms, and 6 business support schemes.

For each of these, we elaborate on:
**CONTEXT:** Includes the why behind the target behaviour.
**FACTORS and BARRIERS:** Includes a short summary of the predominant factors that influence the way people act every day.
**MIX OF POLICY OPTIONS:** Includes the mix of policy options in summary form to address the identified factors.

The policy options included in this guideline are presented in more detail in Deliverable 4.5 “Policy toolkit typology”.


GUIDELINES FOR POLICY MAKERS TO CO-DESIGN POLICIES TARGETING ENERGY BEHAVIOUR CHANGE

The methodology presented hereafter has been specifically developed by the ENTRUST partners. It is inspired by the Design Thinking approach and has been complemented by applying insights from behavioural science thinking, as well as by engaging citizens in the policy-design process.

The 10 steps outlined below depict the process our researchers followed throughout this deliverable. They were designed with policymakers in mind, and are to be implemented consecutively. However, policymakers could pick one or a few of the tools and use them – to a certain extent –by themselves or in a different order. The 10 steps are meant to be applicable to any country or region, with different focal points to accommodate for local circumstances.
1. SELECT A FOCUS AREA/TARGET BEHAVIOUR

“If you want to change a behaviour, first specify that target behaviour” (GSR Behaviour Change Knowledge Review, 2008). In this first step the core team should select the focus area/target behaviour. As an illustration, this is a specific behaviour (e.g. purchasing electric vehicles) undertaken by a group of people (e.g. citizens). Note that this is not necessarily the same as a policy goal. For instance, a policy goal might be ‘to reduce CO₂ emissions, air pollution and energy dependency from the transport sector’, but from the users’ perspective this could involve taking public transport, carpooling to work, or commuting by bike. All of these are different behaviours, with different contexts and influences, and each would need to be targeted differently.

2. ANALYSE CONTEXT DATA AND IDENTIFY BARRIERS

Carry out a context analysis per country/region for the target behaviour, covering the latest technical, political, environmental, and socio-economic issues faced by individuals. The context analysis serves as the starting point for a structured policy design process, as it helps to identify the existing behaviour-specific barriers that need to be addressed (step 3). Both qualitative and quantitative evidence should be collected.

3. MAP “ISM” BEHAVIOUR FACTORS

Apply the ISM methodology to understand the different contexts—the Individual, Social and Material—and the multiple factors, that influence the way people act every day.

THE INDIVIDUAL CONTEXT
This refers to the factors held by the individual that affect his/her choices and modify his/her behaviour. Examples of individual factors are: values, beliefs and attitudes; costs and benefits; emotions; agency; skills and habits.

THE SOCIAL CONTEXT
This includes the factors that exist beyond the individual in his/her close ecosystem. These influences include understandings that are shared amongst groups. Examples of social factors are: opinion leaders; institutions; norms; roles and identity; tastes; meaning; networks and relationships.

THE MATERIAL CONTEXT
This corresponds to the external factors present in the wide environment, which both shape and constrain human behaviour. Examples of material factors are: rules and regulations; technologies; infrastructure; objects; times and schedules. Use the ISM tool to identify the 18 factors that influence behaviours within the three ISM contexts (see figure on next page).
An example illustrating the insights and ideas that can be gained from using the ISM tool is provided in Deliverable 4.5 "Policy Toolkit" of the ENTRUST project.

### 4 MAP SECTOR-SPECIFIC POLICY OPTIONS

Once the different factors and barriers have been identified, policymakers can map existing policies and interventions that are being used to encourage the target behaviour. Eight types of policy interventions (adapted from Michie et al. 2011) specific to the energy transition are described below.

<table>
<thead>
<tr>
<th>POLICY INTERVENTION TYPE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REGULATORY FRAMEWORKS</strong></td>
<td>• Government strategy to establish rules or principles of behaviour or practice</td>
</tr>
<tr>
<td><strong>PLANNING &amp; INFRASTRUCTURE</strong></td>
<td>• Public investment and procurement in infrastructures</td>
</tr>
<tr>
<td><strong>FISCAL MEASURES</strong></td>
<td>• Using the tax system to reduce or increase the financial cost</td>
</tr>
<tr>
<td><strong>SERVICE PROVISION</strong></td>
<td>• Establishing and delivering support services</td>
</tr>
<tr>
<td><strong>COMMUNICATION &amp; MARKETING</strong></td>
<td>• Education, public information campaigns and awareness raising</td>
</tr>
<tr>
<td><strong>GUIDELINES</strong></td>
<td>• Creating documents that recommend or mandate best practice</td>
</tr>
<tr>
<td><strong>COLLABORATION PLATFORMS</strong></td>
<td>• Public Private Partnerships with businesses at a national, regional or city level • Industry collaboration platforms, value-chain and cross-sectoral initiatives</td>
</tr>
<tr>
<td><strong>BUSINESS SUPPORT SCHEMES</strong></td>
<td>• Financial support to businesses, for example direct subsidies, provision of capital, or financial guarantees • Technical support, advisory, or training to businesses</td>
</tr>
</tbody>
</table>
Desktop research can be practical for policymakers wanting to map sector-specific policies. Another valuable exercise at this stage would be interviewing industry stakeholders and other policymakers who have already implemented energy policy in other regions/countries. Inspiration could also come from innovative public sector supported mechanisms applied in other policy areas.

5 IDENTIFY GAPS AND IDEATE

In order to understand the context of future policy interventions it is necessary to identify gaps in existing interventions. Then organise an ideation workshop with the core team to work on how these gaps can be addressed. In other words, in addition to current efforts, what can be done to encourage the desired behaviour change? Some ideas will arise naturally and may already have been generated as part of the mapping of behaviours (step 3), whilst others may require more creative thinking. Brainstorming exercises carried out at this stage can enable greater creativity, outside-of-the-box thinking, and a more thorough understanding of key stakeholders.

6 MAP INDIVIDUAL SOCIAL AND MATERIAL (ISM) BEHAVIOUR FACTORS

An additional step towards contextualizing future policies entails determining the functional characteristics of each policy intervention. Classify the ideas generated during step 5 according to the type of policy intervention. This is a similar process to what was done in step 4, however, a layer of classification is added. It is advised to use the “Intervention Wheel” in this step. This tool is built on the Behaviour Change Wheel (Michie et al. 2011) and has been extended by including the type of policy interventions from step 4. The advantage to using the wheel in this step is that it helps policymakers to streamline their policy ideas into specific policy interventions with related, practical functions (education, coercion, training, enablement, incentivisation, etc.).

At this point, do not worry too much about the formulation of the policies. The objective is to build a structured map of the mix of policy options generated.

<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUCATION</td>
<td>• Increasing knowledge or understanding</td>
</tr>
<tr>
<td>PERSUASION</td>
<td>• Using communication to induce positive or negative feelings or stimulate action</td>
</tr>
<tr>
<td>INCENTIVISATION</td>
<td>• Using the tax system to reduce or increase the financial cost</td>
</tr>
<tr>
<td>COERCION</td>
<td>• Creating expectation of punishment or cost</td>
</tr>
<tr>
<td>TRAINING</td>
<td>• Imparting skills</td>
</tr>
<tr>
<td>RESTRICTION</td>
<td>• Increase target behaviour by reducing opportunity to engage in competing behaviours</td>
</tr>
<tr>
<td>ENVIRONMENTAL</td>
<td>• Changing the physical or social context</td>
</tr>
<tr>
<td>RESTRUCTURING</td>
<td></td>
</tr>
<tr>
<td>MODELLING</td>
<td>• Providing an example for people to aspire to or imitate</td>
</tr>
<tr>
<td>ENABLEMENT</td>
<td>• Increasing the means / reducing the barriers to increase capability or opportunity</td>
</tr>
</tbody>
</table>
7 SELECT BEST IDEAS

The ideation sessions described above can result in a large number of ideas for each target behaviour. To guide further analysis, ideas need to be prioritised before moving on to the next step, the community assessment.

The following criteria could serve as guidance for policymakers looking to prioritise ideas targeting energy behaviour:

• The potential impact of the policy recommendation on people’s behaviour
• The potential capacity of the policy recommendation to drive society toward a sustainable energy transition
• The potential capacity of the policy recommendation to be accepted by citizens

Make a list of the ideas to present to the community for feedback and assessment.

8 COMMUNITY ASSESSMENT

As in any strategic project, key stakeholders should be engaged in the project. Citizens should be involved in the design of the policies so as to ensure a fuller and more realistic picture of the drivers and barriers shaping people’s behaviour, as well as to assess the ideas generated in steps 5-7. In the ENTRUST project, a focus group consisted of community representatives from the Trapèze, an eco-neighbourhood in Boulogne, France.

Contributions from the community enabled the creation of several new policy options, helping to modify and refine numerous policies presented.

9 PRIORITISING

Identifying barriers preventing targeted behavior change policies and developing policy options to address these are key outcomes of working through the steps of this toolkit.

Prioritising proposed ideas can help put policies into perspective. Some useful criteria to prioritise policy options include their potential impact, pros and cons, cost-benefit analysis, practicality and feasibility (including time and resource constraints), to address existing gaps, and acceptance by the community.

The ENTRUST project used the following criteria to prioritise policy options:

- The **sustainable benefit** of a policy option:
  - The potential capacity of the policy recommendation to change people’s behaviours
  - The capacity of the policy recommendation to place citizens at the centre of the energy system
  - The conformity of the policy recommendation with the concept of “Energy justice.” This concept aims at “providing all individuals, across all areas, with safe, affordable and sustainable energy” (Heffron & McCauley, 2017)
  - Respect for sustainable development principles

In particular, the first two criteria were assigned a weight of 2.0; the third criterion held a weight of 1.0, and the fourth criterion was assigned a weight of 1.5.

- The **cost of implementation** of a policy option: a macro analysis was carried out.
Develop a Mix of Policy Options

Once a prioritised set of potential policy options is determined, the next and final step is to develop the proposed policies and structure them into potential policy packages. Consider the roles of government (central, regional and local), business and other stakeholders, such as community members, when classifying the different policies (top-down, bottom-up and hybrid approaches).

Use the “Policy Canvas” framework as an initial way to develop each policy recommendation. This tool is built on the same logic as the Business Model Canvas (Osterwalder & Pigneur, 2010) and aims to facilitate the policy-design process. The “Policy Canvas” framework can be described through nine building blocks: context, actors, tools, policy recommendation, approach, objectives, obstacles, acceptance and assessment. The “Policy Recommendations block” is the core of the canvas around which the other blocks are articulated.

**Policy Recommendation**: Provide fiscal advantages for local communities to establish local energy cooperatives.

**Approach**: Bottom-up.

**Context**: Communities do not want to engage in energy production projects because of the administrative burden and the high proportions of CapEx.

**Objectives**:
- Engage more communities on local energy projects
- Encourage the use of renewable energy sources
- Reduce GHG emissions
- Promote a more decentralized network

** Actors**:
- Communities
- Energy companies
- Governments
- Local authorities

**Obstacles**:
- Investments required to promote local green energy cooperatives
- Lack of citizen commitment
- Different legal contexts
- Lack of support mechanisms

**Acceptance**: Highly accepted by communities.

**Assessment** (Ex Ante Approach):
- Number of local energy projects led by communities
- Number of new energy cooperatives
- Number of citizens subscribed to an energy cooperative
- GHG emissions saved compared to BAU

**Cost of Implementation**: Medium-High.

**Sustainable Benefit**: Medium.
TRANSPORT
INCREASING THE PURCHASE AND USE OF ELECTRIC VEHICLES

CONTEXT
The electrification of transport is needed to bring down emissions, as currently 94% of energy demand in transport is met by oil. Therefore, making electric vehicles (EV) a more viable purchase choice for consumers is key to meeting the European Union’s 2030 climate goals of achieving the reduction of at least 40% of CO₂ emissions (compared to 1990 levels).

FACTORS AND BARRIERS
The option to purchase an EV on the market is relatively new. Consequently, many uncertainties exist around how citizens would respond to these policy recommendations. For instance, many consumers are unsure if they are eligible for subsidies, and therefore if they could afford an electric car. Driver anxiety regarding completing a journey before running out of battery plays into purchase concerns. Recharging skills also influence people’s decision about whether or not to purchase an EV.

Certain factors such as making the technology more affordable, providing more accessible infrastructure, and maximising visual impact (branding) can encourage a person to purchase an EV. Action in the form of greater subsidies, incentives, and planning guidelines are needed to boost market demand, particularly as the sector is in a critical stage of development.

Within this context, the following policy options could be further investigated:

POTENTIAL POLICY OPTIONS

1. Provide fiscal incentives for organisations (companies, charities, councils, associations, etc.) that buy electric vehicles for their automobile fleet.
   Organisations buying a lot of cars could help to reduce air pollution through the purchase of EV fleet. Fiscal measures such as tax reductions or subsidies could encourage organisations to adopt an EV fleet.
   €€€ (LOW)

2. Implement an incentive programme that allows electric vehicles to be exempt from road tolls.
   The switch to an electric car could be expensive. People often question the economic interest of such behaviour. This type of incentive could encourage people to purchase EV.
   €€€ MEDIUM

3. Provide fiscal advantages for organisations to build their own charging networks for electric vehicles.
   The fear of running out of power during a journey could dissuade people from purchasing a EV. Improving the infrastructure could alleviate their concerns and encourage drivers to switch to electric vehicles. These fiscal advantages can be financed via subsidies or tax reductions.
   €€€€ MEDIUM
4. Provide information (maps, apps) of the electric vehicle infrastructure.
Making electric vehicles more convenient could reduce drivers’ anxiety. In addition, information as real-time updates, available charging points can reduce driver’s anxiety and enhance user’s experience.

€ (MEDIUM)

5. Propose a European standard plug for fast charging via a norm.
A technical norm could be created to specify a common plug system to ease universal fast charging of EVs.

€ (MEDIUM)

6. Create “cradle to cradle” best practices in the design and manufacturing processes of electric vehicles.
The sustainable nature of electric cars is often questioned by people. Moreover, producing cars both electric and made from reusable materials (aligning with cradle-to-cradle standards), will benefit the whole value chain. A PPP could provide norms, best practices and guidelines that help electric car manufactures to recycle.

€ (LOW)

7. Build electric vehicle parking spots at public transport stations in rural areas.
Public transport is primarily provided in urban areas and the lack of availability in rural areas can force rural residents, through lack of alternative options to take their cars increasing both congestion & pollution. If the infrastructure for EVs were developed at public transport stations, rural residents might be more inclined to use public transport to travel to the city. Besides developing the electric charging stations, this measure reduces the anxiety (running out of power) of rural citizens who drive EV and increases the intermodality of transport.

€€€€€ (HIGH)
Car sharing is a membership-based service, often run by municipalities, private companies, or non-profit organisations (in the form of PPPs), whereby individuals are able to access shared vehicles, parked throughout communities, for short-term use. Members typically pay an annual fee as well as an hourly rate per usage. Car sharing is most successful in dense urban areas, when it is offered as a complement to other forms of transit, and/or when it is located in areas that may not be strongly connected to existing transport options. In Paris, for example, the introduction of car sharing programmes, which make available electric-powered cars, has contributed to a 25% reduction in car use (IEA, 2016).

FACTORS AND BARRIERS

The factors identified include affordability (car sharing is cheaper than buying a personal car), as well as self-satisfaction, due to car sharing’s low impact on the environment and easy usage. However, attitudes and agency are all influenced by ‘range anxiety’. This includes concern over finding an available car and specified parking spot at the time needed, as well as concern regarding running out of battery (in the case of car-sharing programmes that operate with EVs). Insufficient consumer awareness, in terms of usage and payment methods, remains a critical barrier to adoption. Finally, the importance of regulations and planning guidelines, together with the essential collaboration between industry and municipalities, is key to promote car sharing.

Within this context, the policy options below could be further investigated. Note that all policy options address car-sharing programmes that operate with EVs.

POTENTIAL POLICY OPTIONS

1. Offer the possibility for participants of an electric car-sharing service to book vehicles and park in non-dedicated spots.
   The booking option aims to relieve the fear that some drivers may have in terms of not being able to find a car or parking spot when needed. Furthermore, the convenience of a car sharing service, namely the ability to park in more spaces, is key to progressively replacing personal cars.
   € HIGH

2. Serious gaming - Cumulate “Smart Mobility” points when using electric car sharing vehicles.
   The sense of freedom associated with the possession of a car is still a strong deciding factor for individuals. To appear as a credible solution, car sharing should promote intermodality. The points obtained in the “Serious gaming” could be converted into advantages such as discounted public transport tickets or free rental of a bike for one day. Such incentive could encourage users in a virtuous green circle.
   € MEDIUM

3. Propose car-sharing membership fee that is determined pro-rata according to income.
   This political measure is imbued with social justice. It seeks to enable a greater number of people such as students, unemployed, retired people to access this service.
   € MEDIUM
4. Allocate specific parking spots for drivers of electric car-sharing services.
Finding a parking spot can be very difficult and time consuming especially in densely populated areas. Moreover, the cost associated with parking can be substantial. Provide car sharing specific parking spots could be a real game changer for the promotion of car sharing. It would be interesting to locate these parking slots near train stations, airports, business areas, bus stops, universities, etc.

5. Include a range of car models within citywide electric car-sharing programmes.
The satisfaction of users’ experience is key to generalise a practice. In this perspective, car sharing services must find innovative ways to attract new users. The aim of this measure is to attract new categories of users such as: families, students, disabled persons, etc. For instance, a car equipped with baby seats or adjusted cars for wheelchair people are car models that could satisfy specific categories of users.

6. Subsidise the creation of electric car sharing programmes in medium cities.
The development of electric car sharing services has been so far the prerogative of metropolis because of density factor and parking constraints. Democratise car sharing practice in medium cities is a political decision. Central government must support the development of car sharing in medium cities by providing subsidies/interesting loans. This financial measure could encourage the implementation of car sharing companies. It should be consistent with local policy measures such as: promotion of soft mobility, parking restriction and limitation of car pollution.

7. Offer training sessions to enhance electric car sharing practices.
To democratise car sharing and attract new users, it is necessary to inform and teach the basics of car sharing. The objective of such measure is to inform potential users about:
- The working of the car sharing platform. This type of training could be beneficial to people who are not familiar with digital technologies.
- Know-how to drive an electric car. The use of this type of vehicle could be taught during driving lessons at driving schools.

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**APPROACHES**
- Top-down
- Hybrid

**POLICY INSTRUMENTS**
- Communication & marketing tools
- Business support schemes
- Service provision
- Planning & infrastructure

**IMPLEMENTATION COST**
- € Low
- €€ Low-medium
- €€€ Medium
- €€€€ Medium-high

**SUSTAINABLE BENEFITS**
- LOW
- MEDIUM
- MEDIUM-HIGH
- HIGH
ENCOURAGING AUTOMOBILE COMMUTERS TO CARPOOL

CONTEXT
Carpooling is the sharing of car journeys so that more than one person travels in cars. Carpooling is considered as a more environmentally-friendly and sustainable way to travel, as sharing journeys reduces air pollution, carbon emissions and traffic congestion on the roads. Each vehicle used for one-way car sharing, can eliminate in particular as many as 11 cars from playing the streets and cutting greenhouse gas emissions by nearly 13 tonnes a year (Martin & Shaheen, 2016).

FACTORS AND BARRIERS
Individual citizens with the freedom to choose their own mode of transport will usually not seek to maximise global environmental benefits through carpooling although there are other reasons for choosing to carpool. The factors identified include affordability as well as increased flexibility when compared to public transport, in terms of travel time and distance covered. The majority of users at the moment tends to be young people. Information and communication technologies (ICT) have facilitated an evolution in new mobility services such as carpooling. As such, basic computer and technology skills could also be an issue for some, in terms of using the platform and payment methods. In addition, security is a great concern for drivers and riders who are carpooling together via an app, in terms of fear of the people you meet.

Within this context, the following policy options could be further investigated:

POTENTIAL POLICY OPTIONS
1. Provide fiscal advantages for businesses to actively encourage carpooling programmes for their employees.
The transportation sector is a significant emitter of GHGs. Carpooling eases traffic congestion, reduces greenhouse emissions and fossil fuel consumption.
The incentive programme could include:
- Reduced cost for carpoolers in parking lots.
- Preferred parking for carpoolers: near building entrances, covered, etc.
- Carpooling platform: Teach the usage of these platforms, especially for less digitally savvy people.
- Prize drawings or rewards like coupon books for local restaurants.

2. Reserve a lane on highways for the use of carpools.
Peak hour traffic congestion is an inherent result of the way modern societies operate. Carpooling offers quicker and more reliable rides, particularly during peak periods. Preferential lanes serve as a strong incentive to carpool. These lanes provide an alternative to traffic congestion.
Occupancy requirements for carpool lanes (minimum passengers per vehicle) will be set according to travel conditions, levels of existing congestion, times of the day and projected use of the lanes.
3. Develop a public app-based or dynamic ridesharing platform for daily rides (up to 100 km).
Carpooling service providers are mostly oriented for long distance rides. However, there is a need to make carpooling possible for short distances and attractive for workers. Drivers using this platform set the route and the platform automatically determines the best pick-up and drop-off points. In addition, drop-off points should be connected to other forms of public transportation such as bike stations, public transportation stops, and other transportation hubs.

4. Create a carpooling ranking with occupancy requirements during peak pollution days.
Swelling urban population and increased volume of motorised traffic in cities have resulted in severe air pollution affecting the surrounding environment and human health. Such measure enables more polluting vehicles to circulate if they match a certain occupancy rate during pollution peak. For instance, the more polluting car must have 4 people (including the driver) to be allowed on the road.

APPROACHES
- Top-down
- Hybrid

POLICY INSTRUMENTS
- Regulatory frameworks
- Service provision
- Business support schemes

IMPLEMENTATION COST
- € Low
- €€€€ Medium-high

SUSTAINABLE BENEFITS
- LOW-MEDIUM
- MEDIUM
- HIGH
ENCOURAGING THE USE OF PUBLIC TRANSPORT

CONTEXT
Public transport plays a central role in transport systems, particularly in large cities where private vehicle ownership is not widespread. In general, public transport is significantly more energy efficient than private vehicle use, with bus and rail travel accounting for 18% of passenger-kilometres (p-km) in Europe (International Energy Agency, 2010).

FACTORS AND BARRIERS
Maximising global environmental benefit is not the main priority or rationales of citizens when using public transport. Citizens seek a mode that maximises comfort, reliability, speed, convenience, and cost. Public transport is often perceived as less attractive in terms of the quality and price of services provided. Meanwhile, current norms are that public transport tends to be for people with limited resources, being that as incomes rise, those with financial means switch to cars.

More spatial guidelines, infrastructure and incentives are needed to boost market demand, particularly in both densely populated urban areas and rural areas.

Within this context, the following policy options could be further investigated:

POTENTIAL POLICY OPTIONS

1. Provide fiscal advantages for businesses in dense urban areas to implement flexible working hours and/or teleworking.

Public transport can be very crowded during peak times, encouraging many people to take their car. This fiscal measure (subsidies or tax reductions) encourage companies to implement flexible working hours and/or teleworking, thereby reducing the congestion in public transport during peak times.

2. Include spaces for bikes on the metro, trains and buses.

Public transport cannot take/drop users at their exact start/finish points of their journey. The first and last kilometres of a trip to reach a destination could dissuade users from choosing to take public transport over their own car. Addressing this gap by developing the transport network into a multi-modal system, will encourage more people to take public transport.

3. Set a strategy to have a bus fleet that is 100% electric/biofuel/hybrid by 2025.

Diesel-fuelled buses account for 50%-60% of the public transport in Europe and are responsible for around 6% of total EU emissions. Decarbonizing buses will help to reduce pollution and achieve climate goals.
4. Offer free or discounted public transport tickets to attendees of major entertainment events.

As individuals are increasingly expecting customised experiences, public transport must innovate to attract new customers. The objective of this measure is to appeal to non-users of public transport by offering them discounted public transport tickets when they purchase an entertainment ticket (such as to a concert, football game, amusement park, etc.). The economic shortfall could be offset by local public funds.

\[ \text{€€€ (LOW)} \]

5. Increase security measures in public transport stations.

Safety is a concern for many travellers, meaning that many are reluctant to use public transport. According to this measure, the policy should:

• Ensure full coverage of CCTV and clearly identify any gaps.
• Create a “Warning” app/button that allows travellers to alert security services in real-time.
• Require police to use public transport to/from work, reassuring passengers and providing them greater security with their presence.
• Clearly identify to passengers if the station or vehicle is manned and where a passenger can seek assistance/find security personnel.

\[ \text{€€€€ (MEDIUM)} \]

6. Offer a metro service that runs 24 hours a day on the weekends.

As individuals are increasingly expecting customised experiences, public transport must innovate to attract new customers. This policy not only encourages people to take public transport, but it also discourages people from driving while impaired.

\[ \text{€€€€€ (HIGH)} \]
BUILDINGS
Smart meters and smart grids can reduce emissions in the European Union by up to 9%, with similar reductions in EU annual household energy consumption. This measure falls within the framework of the EU’s Third Liberalisation package, which aims at replacing at least 80% of the electricity meters by smart meters by 2020 (European Commission, 2016).

People’s perception of smart technologies is complex. In particular, the implementation of smart meters in households brings contradictory opinions. For instance, there is a lack of knowledge of how smart meter works, misperceptions of inconvenience, and concerns over the security of personal data. Understanding the data and how to appropriately use smart technologies is not an easy task for certain users. Moreover, the return on investment and whether a smart technology can reduce an individual’s energy bill is not clear.

Within this context, the following policy options could be further investigated:

1. **Provide fiscal incentives to energy companies developing freemium services that enable the public to use smart technologies for their electricity bills.**
   
   The deployment of smart technologies in societies is questioned by citizens. Certain smart technologies such as smart meters may be rejected by citizens if their value is not understood. The users would access freely to a range of services developed by companies to enjoy the technology and possibly save energy and money. Municipality can be the beta tester of the services created before their roll out individual households.

   €€€ (MEDIUM)

2. **Create a programme to involve citizens in the co-design of smart technologies**
   
   Certain smart technologies are rejected because of the lack of citizen’s involvement in the conception of the product. This involvement could be made possible through workshop sessions between companies and users which could encourage the uptake of smart technologies.

   € (LOW)

3. **Attribute the data ownership to final users and set up mechanism to control the protection of data.**
   
   Invasion of privacy and data protection are two delicate topics which slow down smart technologies implementation. The attribution of data ownership to the final user and the establishment of a set up mechanism to control the protection of data could be a real game changer in the acceptance of such technologies.

   € (MEDIUM)
4. Hold public “show case events” to popularise smart meters and energy efficient technologies.

To democratise smart technologies, it is necessary to evince transparency. Organising meeting and exchange of experience activities between early adopters and other citizens would encourage discussion around the advantages and disadvantages of smart technologies. It could help reluctant citizens to get a sense of the potential impact of smart technologies on their personal life.

€  LOW

**APPROACHES**
- Top-down
- Bottom-up

**POLICY INSTRUMENTS**
- Communication & marketing tools
- Business support schemes
- Regulatory frameworks
- Collaboration platforms

**IMPLEMENTATION COST**
- € Low
- €€€ Medium

**SUSTAINABLE BENEFITS**
- LOW
- MEDIUM
EXISTING BUILDINGS

Existing buildings represent significant energy-saving opportunities because their efficiency is often far below their potential. “Europe’s refurbishment rate has been around 0.3% for the last 20 years, despite concerted efforts to improve it over the past 10 years through the EU Climate and Energy Strategy” (Climate-Kic, 2017). In order to achieve its 2050 target for the building sector, the EU needs to reach a building refurbishment rate of around 3% per year, with the refurbishment including major retrofits.

FACTORs AND BARRIERS

Individual citizens will usually not seek to minimise their home’s impact on the environment through retrofitting. This is particularly accentuated in countries with low energy prices. The factors identified include anxiety about the economic resources needed, as well as the uncertainty regarding both their energy savings and their energy bill. Skills and ‘know how’ are also an issue in terms of knowing who to contact or learning about the existing subsidies. Policies seeking to address these challenges must ensure that households are sufficiently motivated to undertake the improvements themselves and that the tools, mechanisms, supply chains and infrastructure are in place to allow them to do this.

POTENTIAL POLICY OPTIONS

1. Provide fiscal advantages for individuals to implement energy refurbishment.
   In Europe, buildings are responsible for 40% of the energy consumption and 36% of CO₂ emissions. Achieving EU renovation objectives requires ambitious financial support to encourage households engage in such projects. This measure could provide:
   • Financial support such as loans, subsidies etc., could help initiate energy refurbishment and could be awarded on the basis of income for the purpose of social justice. If loans are preferred, they could be reimbursed via the energy saving achieved.
   • Financial support could be also focused on encouraging comprehensive renovation projects. In this case, fiscal advantages could be based on the scope/degree of energy refurbishments
   This recommendation could also result in reducing people’s energy bills while simultaneously boosting their comfort.

2. Facilitate energy refurbishments by creating a “one-stop-shop” that can provide all the relevant information to households.
   A complicated administrative process to initiate energy refurbishments can dissuade households from undergoing such changes. Thus, a reduction in the number of contact points involved for customers throughout the process could encourage citizens to initiate energy refurbishment.
3. Promote “Energy Refurbishment Clubs” in neighbourhoods or communities.

Achieving the renovation objectives set by EU requires ambitious financial support to encourage households to engage in energy refurbishment projects. The purpose is of these “Energy Refurbishment Clubs” is to address renovation issues and lobby political actors. These associations would benefit from economies of scale when purchasing energy refurbishment services/materials for the community or neighbourhood.

€ (MEDIUM)

4. Set up a quality norm/label for the energy refurbishment companies.

The inability to offer a guarantee to households in terms of energy savings is a barrier to household energy refurbishment. Such certification could encourage households that have doubts about initiating an energy renovation. A suitably certified company that has gained accreditation and displays a label must provide an estimation of the energy saving and guarantee the results (nonetheless it is necessary to determine an error rate).

€ (MEDIUM)

5. Develop a school education programme related to energy and its challenges.

Teaching sustainable development is becoming a standard in European countries. Ensuring curriculum on energy related topics as the first step to raise people’s awareness, diffuse “best practices” and make citizens more aware of their roles and responsibilities in achieving sustainability goals.

€€€ (LOW)
LOCAL GREEN
ENERGY PRODUCTION
The European Commission recently acknowledged that green-energy cooperatives and suppliers have a major role to play in the energy transition. Renewable energy is essential for this transformation to take place as it contributes to all of the Energy Union objectives: the delivery of security of supply, a transition to a sustainable energy system with reduced greenhouse gas emissions, industrial development leading to growth and jobs and lower energy costs for the EU economy.

In some of the countries studied, such as Spain or France, people subscribing to green-energy cooperatives are seen as early adopters and innovators. Different legal contexts and a lack of support mechanisms position them far behind northern European countries like the Netherlands, Germany and Belgium (European Commission, 2015). In general, energy bills for green-energy cooperatives are slightly more expensive than that of traditional suppliers (Som Energia, 2017). Concerns regarding the intermittency of RES also discourages households from making the switch to green energy cooperatives.

Within this context, the following policy options could be further investigated:

1. Provide fiscal advantages for green energy cooperatives to operate and up-scale.
   The development of energy cooperatives is not well-supported by governments. There is a lack of interest from traditional energy companies that have monopolised the sector. The measure supports the development and operation of green energy cooperatives. It could include feed-in-tariffs, subsidies such as tax cuts, etc. Only energy cooperatives that generate electricity from RES are eligible for these fiscal advantages.

2. Provide fiscal advantages for local communities to establish local energy cooperatives.
   Communities do not want to engage in energy production projects because of the administrative burden and the high proportions of CapEx. Financial support as loans, subsidies etc., could enable local communities (citizens and small and medium enterprises (SMEs)) to invest in (collective) renewable energy infrastructure (i.e. solar panels, wind turbines) and establish a local green energy cooperative. This measure could be complemented with support for the establishment of technical feasibility studies on renewable energy.

3. Provide financial assistance to create and develop “Energy Clubs” within local communities.
   The non-commercial spirit of green energy cooperatives and the participation of volunteers is an important asset but also a weakness. Supplying an energy market demands technical knowledge, a professional organisation, and entrepreneurship. “Energy Clubs” are local bodies, often made up of a large workforce of volunteers, which offer personal advice about...
aspects of energy conservation & renewable energy. Information evenings & mentoring sessions are also held to promote the social dialogue with the support of local authorities. Financial assistance could motivate citizens engaged in local energy cooperatives to create “Energy Clubs” & education activities. This could be complemented with the provision of co-working spaces and meeting rooms in public buildings.

**€** [MEDIUM]

4. **Implement a regulatory framework that provides consumers with information on the energy sources used.**

Energy bills and energy letters from traditional suppliers are difficult to understand, and very often do not provide clear information about the source of energy used. The objective of the measure is to inform consumers about the energy sources and the GHG’s emissions of their energy provider. The possible impact of understanding energy bills and sources of energy consumption could indirectly lead citizens to join or establish local green energy cooperatives or reduce their energy consumption.

**€** [MEDIUM]

5. **Implement a regulatory framework that offers lower energy tariffs to citizens in communities directly affected by large scale renewable energy projects.**

Local energy production can be slowed down by pubic acceptability. Although many people support the development of energy cooperatives, often have strong reservations about the real impact of these energy technologies at local level (wind, solar, etc.). To reduce these dilemmas, citizens impacted by the development of large scale local renewable energy initiatives (visual and noise impacts) could benefit from advantageous energy tariff by energy cooperatives. The financing of this measure could be shared between the companies and the local/regional authorities.

**€** [LOW]

**APPROACHES**
- Top-down
- Bottom-up
- Hybrid

**POLICY INSTRUMENTS**
- Communication & marketing tools
- Business support schemes
- Regulatory frameworks
- Fiscal measures

**IMPLEMENTATION COST**
- € Low
- € Low-medium
- € Medium
- € Medium-high

**SUSTAINABLE BENEFITS**
- LOW
- MEDIUM
CONTEXT

Renewable energy self-consumption can facilitate consumer empowerment by allowing active participation in and profit from energy markets, as well as encouraging smarter consumption patterns. Indeed, it can also lower energy system costs i.e., solar PV generation in sunny countries can help reducing grid peak demand for electricity driven by air conditioning. By generating and consuming electricity locally, system losses can be also reduced (European Commission, 2015).

FACTORS AND BARRIERS

When considering self-consumption as an option, people have concerns regarding whether or not it is profitable, if they can truly be independent from the grid, how much of a financial investment they must make, and how energy regulations will impact them, among other things. In addition, storage technologies are not competitive yet because they remain too expensive for the end-users. Changing traditional habits is challenging since people are not well informed about the potential of savings, and most of them just do not know how to make the switch.

Within this context, the following policy options could be further investigated:

POTENTIAL POLICY OPTIONS

1. Implement a feed-in-tariff scheme for households/cooperatives to sell excess electricity back to the grid.

The implementation of self-consumption is at early stages in many European countries. Financial schemes should be set up to favour self-energy consumption. This financial incentive could apply to both renewable energy production systems owned by individual households or third parties and self-consumption projects developed by green energy cooperatives. Excess electricity can be sold to grid to generate income and reduce electricity bills, thereby making more attractive self-consumption models. The temporary nature of the feed-in tariff is crucial to ensure the acceptance and the viability of this measure.

2. Create a public web platform to inform citizens about energy self-consumption.

Generally, people are not well-informed about energy-related issues, sustainable energy options or how they can be independent from large energy companies. This platform can include MOOCs, videos, blogs and social media that help to democratise self-energy consumption. Its contents could be created by universities and energy associations, which can diffuse “best practices” on this topic and share their expertise.
3. Use of public assets to stimulate demonstrations of self-consumption solutions and encourage new business models.

Demonstrators will be conceived of as socio-economic and technical pilots for innovation and market uptake. Such measure could then help co-creating potential effective business models and services to make on-site generation accessible to a larger number of consumers. New financial schemes such as leasing contracts for batteries, new ways of sharing costs (decreasing up-front investments) and new partnerships should be explored.

€€€€€ (MEDIUM-HIGH)

4. Create and implement win-win financing schemes for tenants and owners to adopt RE installations.

On average, the share of tenants in countries covered by the ENTRUST project is around 30%. The tenant-owner relationship is a real dilemma in terms of energy. This measure will promote the adoption of RE installations for self-consumption. A fair agreement should be found to satisfy both parties regarding the distribution of gains and costs over time. Authorities could play a role in guaranteeing this type of agreement.

€ MEDIUM

5. Adopt a European Directive to redesign the network and promote the self-consumption of electricity.

The promotion of self-energy consumption cannot result only from bottom-up initiatives. It should also be supervised through a directive. The purpose of such regulation aims at integrating energy self-consumption in national energy mix. The Directive should provide an objective of self-energy consumption as well as a guideline for their integration in the energy network.

€ MEDIUM

APPROACHES

- Top-down
- Bottom-up
- Hybrid

POLICY INSTRUMENTS

- Communication & marketing tools
- Guidelines
- Regulatory frameworks
- Collaboration platforms
- Fiscal measures

IMPLEMENTATION COST

- € Low
- €€ Low-medium
- €€€€€ Medium-high

SUSTAINABLE BENEFITS

- LOW
- MEDIUM
- MEDIUM-HIGH
- HIGH
About the ENTRUST Project

ENTRUST is mapping Europe’s energy system (key actors and their intersections, technologies, markets, policies, innovations) and aims to achieve an in-depth understanding of how human behaviour around energy is shaped by both technological systems and socio-demographic factors (especially gender, age and socio-economic status). New understandings of energy-related practices and an intersectional approach to the socio-demographic factors in energy use will be deployed to enhance stakeholder engagement in Europe’s energy transition.

The role of gender will be illuminated by intersectional analyses of energy-related behaviour and attitudes towards energy technologies, which will assess how multiple identities and social positions combine to shape practices. These analyses will be integrated within a transitions management framework, which takes account of the complex meshing of human values and identities with technological systems. The third key paradigm informing the research is the concept of energy citizenship, with a key goal of ENTRUST being to enable individuals overcome barriers of gender, age and socio-economic status to become active participants in their own energy transitions.

Central to the project will be an in-depth engagement with five very different communities across Europe that will be invited to be co-designers of their own energy transition. The consortium brings a diverse array of expertise to bear in assisting and reflexively monitoring these communities as they work to transform their energy behaviours, generating innovative transition pathways and business models capable of being replicated elsewhere in Europe.

For more information see http://www.entrust-h2020.eu

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