H2020 - EEB - 2017 - 766464 – SCORES

Self Consumption Of Renewable Energy by hybrid Storage systems

D9.9 Potential social impact of the Project and users engagement

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1 Background

The SCORES project aim is to develop and demonstrate in the field a building energy system including new compact hybrid storage technologies, that optimizes supply, storage and demand of electricity and heat in residential buildings, increasing self-consumption of local renewable energy in residential buildings at the lowest cost. Combination and optimization of multi-energy generation, storage and consumption of local renewable energy (electricity and heat) bring new sources of flexibility to the grid and giving options for tradability and economic benefits, enabling reliable operation with a positive business case in Europe's building stock. SCORES optimizes self-consumption of renewable energy and defers investments in the energy grid.

This deliverable (D9.9) aims to ensure acceptance of the SCORES technology by market participants and end-users, individual behaviours and choices to be analysed in a socio-economic context within the European region.

This document was compiled by FENIX, whereas other project partners contributed their ideas on expected social impacts of the project technology. This document has also been reviewed by the partners within the SCORES program before publication.

2 References

Applicable Documents

	Document	Reference	Issue
AD-01	SCORES Grant Agreement	No. 766464	
AD-02	SCORES Consortium Agreement	No. 0100308813	

3 Terms, definitions and abbreviated terms

ACAFI	Atkinsson Compass Assessment for Investors
BEMS	Building Energy Management System
BACO	Best Available Charitable Option
CLC	Chemical Looping Combustion
CSR	Corporate Social Responsibility
EC	European Commission
GA	Grant Agreement
LEM	Local Economic Multiplier
MIF	Measuring Impact Framework
OASIS	Ongoing Assessment of Social Impacts
PCM	Phase Change Material
PVT	Photovoltaic and Solar Collectors
R&D	Research and Development
ROI	Return on Investment
SCBA	Social Cost-Benefit Analysis
SIA	Social Impact Assessment
SRA	Social Return Assessment
SROI	Social Return on Investment
TBL	Triple Bottom Line
WP	Work package

4 Executive summary

The main goal of this deliverable is to support acceptance of the SCORES technology by end-users, analyse individual behaviors and choices in a socio-economic context within the European region in the form of a social impact questionnaire. Apart from a thorough analysis of the results collected in the questionnaire and suggested recommendations to increase the effects of positive social impacts and decrease negative ones, the document comprises theoretical information on the term ‘social impact’ and ways of its measurement.

5 Theory of the social impact and its measurement

5.1 Necessity of social impact measurement

In the last decades, responsible corporate behavior has been a major topic of both academic and public discourse. Consequently, there have been developed tools for both the managing and reporting of the wide range of corporate responsibility activities.

Traditionally, it was believed that value must be either economic and created by for-profit organisations or social, which is created by non-profit or non-governmental organisations. (Weisbrod, 1988; Ben-Ner & Hoomissen, 1992). In alignment with this belief, it is not surprising to find that social impacts are often not explicitly included in valuation studies or are even ignored. Moreover, existing research puts most emphasis on the business case or the payback results of social initiatives for corporations, instead of an emphasis on the impact of social initiatives (Fry et al., 1982; Margolis & Walsh, 2003; Juholin, 2004; Aguilera et al., 2007). However, Emerson (2003) described the tendency of an increasing number of mainstream corporate CEOs discussing the social and environmental impacts of their corporations as a strategy for increasing the total value of their corporations.

Elkington (1999) had predictions of the evolution of win-win thinking in business providing support for a more active attitude towards corporate social responsibility (CSR). A similar integrated approach to CSR is the triple bottom line (TBL) concept. The TBL concept focuses on value creation across the three dimensions of sustainability; **the economic, social and environmental dimensions**. Although this concept has been widely used, the interpretation of value creation differs among users; some interpret TBL as a zero-sum game while others interpret TBL as an optimisation game of blended value (Emerson 2003). The idea behind the blended value is that ‘all corporations, whether for-profit or not, create value that comprises economic, social, and environmental value components; and this value is itself non-divisible and, therefore, a blend of these three elements’ (Ann et al., 1999; Elkington et al., 2006). Consequently, the challenge for any organisation, non-profit, non-governmental, or for-profit, is to optimise impacts on several dimensions instead of maximising impacts against any single dimension.

Over time, the movement towards a more integrated approach towards value creation by corporations has shifted from a more defensive to a more encompassing approach. Under numerous external pressures, originating from stakeholders such as consumers, rating agencies, and governments, corporations gradually changed their attitudes towards CSR. Whereas the 1970s were characterised by defensive attitudes, in the 1980s corporations started to work with environmental managers. It was not until the 1990s that the attention for CSR in process and product design grew, extending the involvement to marketing managers. In the 2000s CSR entered the board rooms and required the involvement of CEOs. Elkington et al. (2006) predict that in the future involvement will extend to CFOs, investment bankers, and venture capitalists.

It is important to note that the involvement of a wide variety of constituents within the corporation does not guarantee socially responsible behavior. The debate on the intentions of corporations in their engagement in CSR can be categorised in three perspectives. Whereas the first perspective faithfully pursues Friedman’s argument that a business its business is

business (Friedman 1970, Matten et al. 2003), the opposite perspective points to the good intentions of corporate leaders or CSR managers (e.g. Husted & Salazar, 2006; Porter & Kramer, 2006). The third perspective takes a middle way in that it attempts to integrate good intentions with financial gains, by pointing out the indirect benefits of CSR through employee satisfaction or corporate reputation (Margolish & Walsh 2003)**.**

Regardless of the perspective taken, it is reasonable to assume that corporations have an interest in social impact measurement for reporting and decision-making purposes. In the latter case, social impact measurement allows for a first step in the process towards optimising value on multiple dimensions. For corporations, but also for their investors, relatively standardised measurement and reporting guidelines have been developed that provide clear insight into the financial efficiency of a corporation. Measuring the impact upon the society, however, remains a much greater challenge.

5.2 Developments of organisations' performance measurement

Conventional performance measurement is often based on the so-called goal-attainment approach and does not usually consider social or environmental questions. The assumption that underlies the goal-attainment approach is that the goals of an organisation are identifiable and unambiguous (Forbes, 1998). An organisation's effectiveness is represented by the attainment or progress towards these organisational goals. Attaining organisational goals such as increasing production, increasing profit or reducing costs, can be researched by using conventional performance measurement methods. Including impact upon society along various dimensions - economic, environmental, social – of performance measurement complicates the ability to identify, measure and value these impacts. While generally accepted principles of financial accounting are established to measure and report on the economic impact at an organisational level, **comparable standards for measuring the impact upon society have yet to be developed** (Maas & Bouma, 2005). Consequently, current practice in performance measurement tends to focus on measuring only a part of the total impact that organisations have on society.

To develop this integrated blended value perspective accounting methods would have to integrate all three dimensions. Corporations traditionally have relied almost exclusively on financial measures of performance (Ittner & Larcker, 1998). New strategies and competitive realities demand new measurement systems for integrating social dimensions of corporate performance.

New information systems and processes capable of measuring the creation of value in this changed context are needed. One step forward is to look beyond the traditional financial, monetary and quantifiable measures of impacts of activities, and start to explore and incorporate methodologies borrowed from other disciplines, such as sociology. Corporations judge their success based on the tasks completed and milestones achieved – the amount of money invested, quantity of products distributed, and so on – rather than on how well their activities translate into changes on the ground (London, 2009). Impacts can be measured at different levels, the individual level, the corporation level, and the societal level. The integration of social impact into the processes of decision making, planning, and problem solving requires an innovative and interdisciplinary approach. Behind the scenes, scientists, practitioners, and

consultants develop improved (multidisciplinary) methodologies for assessing impacts against the double bottom line, the triple bottom line, or other concepts linked to multi-dimensional value creation.

5.3 Definition of social impact and social impact assessment

The lack of consensus on the definition of the social impact causes confusion and hampers the ability to study the phenomenon. Variations could be found between the various academic fields such as business and society studies, management accounting, and strategic management. An overview of several definitions can be found in Table 1.

Table 1 Social impact definitions

Author	Definition
Burdge & Vanclay, 1996	By social impacts we mean the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally act as a member of society.
Latané, 1981	By social impact, we mean any of the great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behaviour, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or actions of other individuals.
Freudenburg, 1986	Social impact refers to impacts (or effects, or consequences) that are likely to be experienced by an equally broad range of social groups as a result of some course of action.
Gentile, 2000	Social impacts are the wider societal concerns that reflects and respects the complex interdependency between business practice and society.
International Association for Impact Assessment, 2022	Social impacts are intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions.
The center for social impact, 2022	The net effect of an activity on a community and the well-being of individuals and families

Source: https://www.csi.edu.au/research/project/roadmap-social-impact/; https://www.researchgate.net/publication/226052913_Social_Impact_Measurement_Classification_of_Methods/link/5f986325299bf1b53e4b7ef6/download

According to the center for social impact (2022), social impact can be positive or negative, direct or indirect. Table 2 below illustrates examples of each social impact type.

Table 2 Social impact type examples

Positive impact	Negative impact
Improving youth outcome measured based on a holistic evaluation Improving a profitable coffee supply chain financial and social outcomes Increasing gender equality through financial inclusion	Persistently lower wages for a worker without healthcare insurance Increased pollution in city or ocean Persistent social isolation due to mental illness Long-term refugees
Direct impact	**Indirect impact**
Number of training provided to people with disabilities for future employment – direct impacts occur through direct interaction with a product a service	An organisation where people with disabilities work gets further sensitivity towards disabled people – the indirect impact is based described as being created by an organization due to their access to their products or services. While the organization may not have directly generated the impact, it was made possible through its outputs.

Source: https://www.sopact.com/en-us/social-impact#theoryofsocialimpact

Vanclay et. al (2000) claim a convenient way of understanding social impacts should be thinking about changes to one or more of the following:

- people's way of life – how they live, work, play and interact with one another on a day-to-day basis;
- their culture – shared beliefs, customs, values, and language or dialect;
- their community – its cohesion, stability, character, services and facilities;
- their environment – the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
- their health and wellbeing – where health is defined as "a complete state of mental, physical and social wellbeing, not merely the absence of disease or infirmity", and is applied to individuals and to the society in which they live; and finally,
- their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

5.4 Social impact measurement

5.4.1 Categorisation's absence

Even though categorization of social impact measurement methods is essential, a system to do so has not yet been developed. Multiple reasons could have contributed to this absence. Firstly, it is always difficult to measure and quantify social impacts. This is because of the qualitative nature of the social impact, which makes it hard to attach an objective value to the impact and to sum the various qualitative expressions of impact. Secondly, corporations can have a positive or negative impact upon society along several dimensions: the environmental,

economic, and social. Similarly, this can cause problems with adding the various impact dimensions. Thirdly, social impact includes short-term as well as long-term effects on society. Moreover, many components can contribute to economic, environmental, and social impact. Consequently, it is often hard to link activities and impact because of difficulties with attribution and causality questions. Currently, no widely accepted scientific approach to attribution and causality questions in impact measurement exists. Lastly, the greatest difficulty might be the challenges around finding a consensus on the definition of social impact. Whereas some researchers solely refer to social impact when it includes positive, negative, intended, and unintended effects, others solely refer to the intended positive effects (Boyne, 2002; Ebrahim, 2005). Moreover, the consensus is absent on the use of a counterfactual or benchmark, and whether social impact by definition requires data collection in a participatory manner.

5.4.2 Methods' overview

From the 1990s onwards, there have been developed several methods to measure social impact. A list of thirty quantitative (social) impact measurement methods is presented in Table 3. Quantitative methods are needed for corporations to make intangible results more tangible and to use social impact measurement for decision-making and control issues. This list is not intended to be exhaustive but provides an overview of social impact measurement methods.

Several methods have been developed by, or for, non-profit or governmental corporations. Examples are SROI, OASIS, SCBA, and LEM. Other methods are mainly developed for, and used by, for-profit corporations. Examples are SRA, ACAFI, TBL, MIF, and BACO. Although a method might initially have been developed for a certain kind of organisation, the method could be used and adapted by other kinds of organisations. The use of SROI is a good example of this phenomenon. This method was initially developed for a non-profit organisation and is currently increasingly used by profit corporations. Next to these quantitative impact measurement methods several corporations, non-government organisation's (NGO's) and associations developed guidelines or frameworks, often based on one or more existing methods, on how to measure social impact. A few examples are the 'guidance document for the oil and gas industry' (IPIECA 2008) and two guidelines developed by Shell (Shell 2008a, 2008b).

Table 3 Overview of social impact measurement methods

Number	Method's name	Method's short name
1.	Acumen Scorecard	-
2.	Atkinsson Compass Assessment for Investors	ACAFI
3.	Balanced Scorecard	BSc
4.	Best Available Charitable Option	BACO
5.	BoP Impact Assessment Framework	-
6.	Center for High Impact Philanthropy Cost per Impact	-
7.	Charity Assessment Method of Performance	CHAMP
8.	Foundation Investment Bubble Chart	-
9.	Hewlett Foundation Expected Return	-

10.	Local Economic Multiplier	LEM
11.	Measuring Impact Framework	MIF
12.	Millennium Development Goal scan	MDG-scan
13.	Measuring Impacts Toolkit	-
14.	Ongoing Assessment of Social Impacts	OASIS
15.	Participatory Impact Assessment	-
16.	Poverty Social Impact Assessment	PSIA
17.	Public Value Scorecard	PVSc
18.	Robin Hood Foundation Benefit-Cost Ratio	-
19.	Social Compatibility Analysis	SCA
20.	Social Costs-Benefit Analysis	SCBA
21.	Social Cost-Effectiveness Analysis	SCEA
22.	Social e-valuator	-
23.	Social Footprint	-
24.	Social Impact Assessment	SIA
25.	Social Return Assessment	SRA
26.	Social Return on Investment	SROI
27.	Socio-Economic Assessment Toolbox	SEAT
28.	Stakeholder Value Added	SVA
29.	Toolbox for Analysing Sustainable Ventures in Developing Countries	-
30.	Wellventure Monitor	-

Source:https://www.researchgate.net/publication/226052913_Social_Impact_Measurement_Classification_of_Methods/link/5f986325299bf1b53e4b7ef6/download

There is a need for a wide range of methods tailored to the requirements of different types of corporations, depending on their activities, objectives, and the aspects of impacts they want to measure. Next to this, there is no single tool or method that can capture the whole range of impacts or that can be applied by all corporations. The multitude of existing social impact measurement methods is confusing for managers when selecting methods or academics when analysing the progress in social impact measurement. Existing measurement methods do not show a common understanding of what to measure, why or for whom to measure, or how to measure.

5.5 Social impact assessment

We will now deepen into one of the methods mentioned above called social impact assessment (SIA). This method was chosen as a base one for this deliverable.

According to Wilson (2017), SIA is the process of identifying and managing the social impacts of industrial projects. It can also be applied to policies, plans and programmes. SIA is used to predict and mitigate negative impacts and identify opportunities to enhance benefits for local communities and broader society. Central to the principles and practice of SIA is the involvement of affected communities and other stakeholders in the process. SIA should inform decision-making by government and companies from the early stages of a project. Equally

important is the role of SIA in the ongoing management of social issues throughout the whole project cycle until decommissioning and closure. As such, the social management plan that derives from an SIA is extremely important. SIA is also an essential foundation for community agreements and in processes of free, prior and informed consent conducted with indigenous communities before the start of industrial development projects. SIA is an important tool to assess the social, economic and cultural impacts of industrial activities on indigenous communities. This is particularly relevant for the extractive industries, whose activities frequently encroach on the lands and waters that indigenous peoples depend on for their traditional livelihood activities. An SIA identifies potential impacts on indigenous titled lands and territories of customary resource use. As such, it helps to avoid potential negative impacts on critical natural resources, such as water and forests, as well as impacts on cultural resources, such as sacred sites. An SIA process also helps to identify ways that indigenous communities could benefit from a proposed development, for example, through infrastructure development, job creation or support for traditional enterprise, and should enable residents of that community to shape the way the development moves forward. SIAs are considered to be international good practice for managing the social impacts of extractive industry projects and are required by international financial institutions and corporate policies, often in the form of an integrated environmental and social impact assessment. These are then translated into management plans for implementation throughout the life of the project.

In practice, SIAs may differ in their detail from the outline provided in Table 4, but the phases of the assessment tend to be the same.

Table 4 The four phases of SIA

Phase 1: Understand the issues	❖ Gain a good understanding of the proposed project. ❖ Clarify all roles and responsibilities, including relationships to other studies being undertaken; identify relevant national laws and/or international guidelines. ❖ Identify the preliminary 'social area of influence' of the project, likely impacted and beneficiary communities (nearby and distant), and stakeholders ❖ Gain a good understanding of the affected communities by preparing a Community Profile (stakeholders; sociopolitical setting; local needs, interests, values, aspirations; gender analysis; historical experience; community assets/ weaknesses; optional opinion survey). ❖ Fully inform community members about the project; experience from similar projects; how to be involved in the SIA; procedural rights; access to grievance/feedback mechanisms. ❖ Devise inclusive participatory processes and deliberative spaces to help community members understand and evaluate impacts/benefits; make informed decisions; discuss desired futures; contribute to mitigation and monitoring plans; and prepare for change. ❖ Identify the social/human rights issues that have the potential to be of concern. ❖ Collate relevant baseline data for key social issues.
Phase 2: Predict, analyse and assess the likely impact pathways	❖ Determine the social changes/impacts likely to result from the project and its alternatives. ❖ Carefully consider the indirect (or second and higher order) impacts. ❖ Consider how the project will contribute to the cumulative impacts on host communities. ❖ Determine how the various affected groups and communities will likely respond. ❖ Establish the significance of the predicted changes (i.e. prioritise them) ❖ Contribute to design and evaluation of project alternatives, including no-go and other options.
Phase 3: Develop and implement strategies	❖ Identify ways of addressing potential negative impacts (e.g. avoid, mitigate, compensate). ❖ Develop and implement ways of enhancing benefits and project-related opportunities. ❖ Develop strategies to support communities in coping with change. ❖ Develop and implement appropriate feedback and grievance mechanisms. ❖ Develop an Impacts and Benefit Agreement (IBA) between communities and developer. ❖ Develop a social impact management plan to implement the IBA. ❖ Establish partnerships (government, industry, civil society) for implementation/monitoring. ❖ Develop and implement ongoing social performance plans
Phase 4: Design and implement	❖ Develop indicators to monitor change over time. ❖ Develop a participatory monitoring plan. ❖ Implement adaptive management and a social management system.

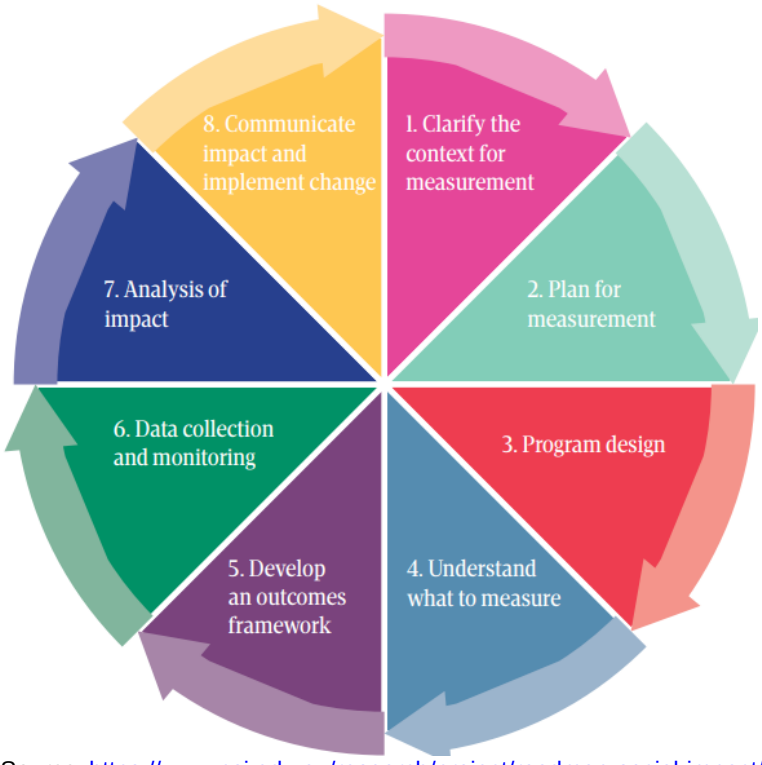
monitoring programmes	❖ Undertake evaluation and periodic review (audit).

Source: https://www.researchgate.net/publication/315550573_What_is_Social_Impact_Assessment

5.6 Impact assessment stages

The center for social impact provides the following eight stages in the impact assessment process, which are presented in Figure 1.

Figure 1 Circle of impact assessment stages



Source: https://www.csi.edu.au/research/project/roadmap-social-impact/

In turn, each stage has several steps, which are illustrated in Table 5 (Ramia et al, 2021).

Table 5 Impact assessment stages and steps

Number	Name stage	Steps in the stage
1	Clarify the context for measurement	❖ Understand your problem ❖ Know your vision, mission, goals and objectives ❖ Recognise whether and when you need to measure outcomes
2	Plan for measurement	❖ Understand the need for, and foster a culture of measurement ❖ Know who to engage, and in what capacity (stakeholder analysis) ❖ Unlock your resources
3	Program design	❖ Establish your theory of change ❖ Develop a logic model – inputs, activities outputs, and outcomes
4	Understand what to measure	❖ Develop evaluation questions ❖ Decide the type of evaluation you will conduct
5	Develop an outcomes framework	❖ Prioritise outcomes for measurement ❖ Identify indicators to measure outcomes ❖ Identify data sources to quantify indicators
6	Data collection and monitoring	❖ Quantitative method designs ❖ Qualitative method designs
7	Analysis of impact	❖ Assessing change and impact ❖ Skills and competencies for evaluation
8	Communicate impact and implement change	❖ Sharing your impact with stakeholders ❖ Using results for increased social impact

Source: https://www.csi.edu.au/research/project/roadmap-social-impact/

This deliverable will mainly focus on ‘Data collection and monitoring’ and ‘Analysis of impact’ stages for assessing the potential social impact of the SCORES project. There will be discussed each question of the questionnaire and analysed received answers in the section ‘Social impact questionnaire’.

5.7 Social impact themes

One of the most popular classifications of social impacts has been designed by the United Nations organisation (UN) and is called Sustainable Development Goals. There are 17 globally accepted goals that could be considered as Social Impact Themes. They are demonstrated in Figure 2 and Table 6.

Figure 2 UN Sustainable Development Goals

Source: https://sdgs.un.org/goals

Table 6 UN Sustainable Development Goals and their explanations

Number	Goal name	Goal explanation
1	No poverty	End poverty in all its forms everywhere
2	Zero hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3	Good health and well-being	Ensure healthy lives and promote well-being for all at all ages
4	Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5	Gender equality	Achieve gender equality and empower all women and girls.
6	Clean water and sanitation	Ensure availability and sustainable management of water and sanitation for all.
7	Affordable and clean energy	Ensure access to affordable, reliable sustainable and modern energy for all.
8	Decent work and economic growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9	Industry, innovation and infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10	Reduced inequalities	Reduce inequality within and among countries.
11	Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient and sustainable.
12	Responsible consumption and production	Ensure sustainable consumption and production patterns.

13	Climate action	Take urgent action to combat climate change and its impacts.
14	Life below water	Conserve and sustainability use the oceans, seas and marine resources for sustainable development.
15	Life on land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16	Peace, justice, and strong institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels.
17	Partnerships for the goals	Strengthen the means of implementation and revitalize the global partnership for sustainable development.

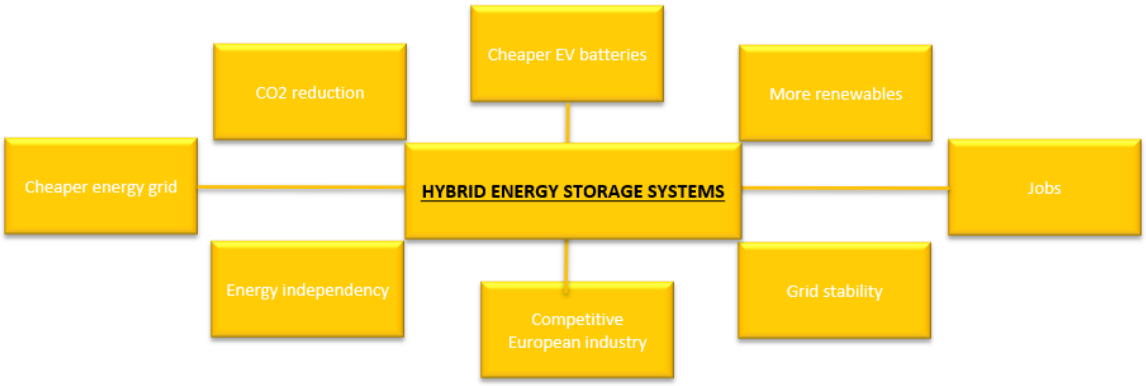
Source: https://sdgs.un.org/goals

6 Intended social impact of the SCORES technologies

The main goal of SCORES is to demonstrate in the field the integration, optimisation, and operation of a building energy system including new compact hybrid storage technologies, that optimize supply, storage, and demand of electricity and heat in residential buildings and that increase self-consumption of local renewable energy in residential buildings at the lowest cost.

Intended SCORES impact includes **CO2 reduction, energy self-sufficiency, competitive European industry, cheaper EV batteries, energy independence, more renewables, jobs creation, and grid stability.** These impacts are illustrated in Figure 3. As a result, according to this classification mentioned above, the SCORES technology contributes to the Goals 7 and 13: **'Affordable and clean energy'** and **'Climate action'**. Additionally, if the project's partners manage to exploit the project innovations successfully during and after the project's end, then the project may be potentially contributing to the Goals 8,9 and 17, which are **'Decent work and economic growth', 'Industry, innovation and infrastructure' and 'Partnerships for the goals'.**

Figure 3 Intended impacts of the SCORES project



SCORES hybrid energy system removes the technical barriers for better use of available energy sources in two ways:

At the local level increases and optimizes the self-consumption of local renewable generation. Bridges the gap between supply and demand for electricity and heat considering renewable energy.
At the global (energy grid) level introduces new sources of flexibility for the grids: SCORES will also increase the storage capacity of the grid as it enables homeowners to offer storage of energy in their homes to the grid operator in order to provide an additional source of grid-flexibility.

SCORES targets these objectives to overcome the main technical and non-technical barriers regarding the hybrid system:

- Develop the second life Li-ion batteries to be used for electricity storage in buildings;
- Develop compact thermal storage using a Phase Change Material (PCM) associated with air-to-air heat pumps for space heating;
- Integration and optimization of high-performance water-to-water heat pumps coupled with hybrid photovoltaic and solar collectors (PVT);
- Improvement and optimization of Chemical Looping Combustion (CLC) seasonal thermal storage;
- Development of an integrated Building Energy Management System (BEMS) that optimizes the operation of the different developed technologies with the energy supply from the grid and renewable sources and with the consumption profiles of heat and electricity.

SCORES contain five key technologies that are integrated into the final business solution and are expected to be proposed on the market. These technologies are:

- Electric driven heating with intraday PCM heat storage;
- PV/PVT collectors combined with water-to-water heat pump;
- 2nd life electrical batteries;
- Chemical Looping Combustion (CLS)
- Building Energy Management System (BEMS).

As for demonstration cases, SCORES demonstrates the integration, optimization and operation of the developed hybrid energy system in two buildings representative of different climate and energy system configurations for 3 cases:
Technical, economic and environmental performance of the building energy system goal:

- For residential buildings not connected to district heating: net energy reduction > 20 % with ROI < 10 years
- For residential buildings connected to district heating: net energy reduction > 30 % with ROI < 20 years

The impact is expected to be the following:

For residential buildings connected to district heating:

Demonstration of the economic viability of the overall storage systems with the return of investment of fewer than 20 years and proof of the potential for market penetration. Technologies that are reliable and operating for a minimum of 30 years. Provide compact systems (volume of storage limited to 1 m^3). Overall net energy gain of minimum 30%. Validated contribution to energy system flexibility.

For residential buildings not connected to district heating:

Demonstration of the economic viability of the overall storage systems when operating in real conditions in residential buildings with a return of investment period of 9 -10 years and proof of the potential for market penetration. Technologies that are reliable and ensure a minimum of 20 years of lifetime. Solutions compatible with existing building configurations – with compact systems using limited spaces in an existing building (volume of storage limited to 3 m3). Demonstration of an overall net energy reduction by 20%. Validated contribution to energy system flexibility.

7 Social impact questionnaire

7.1 Description and statistics

To collect the views of different stakeholders and identify their needs, habits, and preferences related to Hybrid Energy Storage systems, there was designed a **social impact questionnaire** that was promoted through all available channels such as social media, the project's website[1], and partners' network of connections. The questionnaire was designed in an application **Typeform**, the process of answer collection lasted from **August 2021 till April 2022**, see Annexes 1,2, and 3 to see the generated data from the Typeform application.

[1] http://www.scores-project.eu/social-impact

Since it was essential to embrace as much audience as possible, a short simple understandable questionnaire was designed to take no more than **2 minutes**. The questionnaire comprises 8 questions, 7 of which are multiple-choice and 1 – an open question. The key goal was to make respondents not get 'scared' of the difficult term 'Hybrid Energy Storage Systems' and to keep them interested till the end of the questionnaire. There was first provided the title page of the survey with an explanation of its purpose and the project's name followed by a conventional explanation of a Hybrid Energy Storage System (see Figures 4 and 5 below).

Figure 4 The title page of the questionnaire

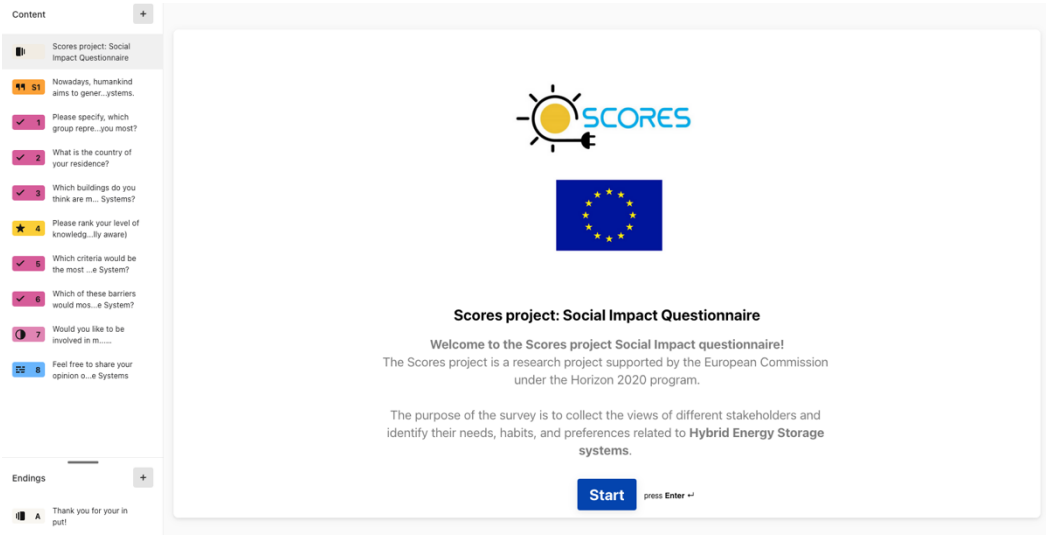
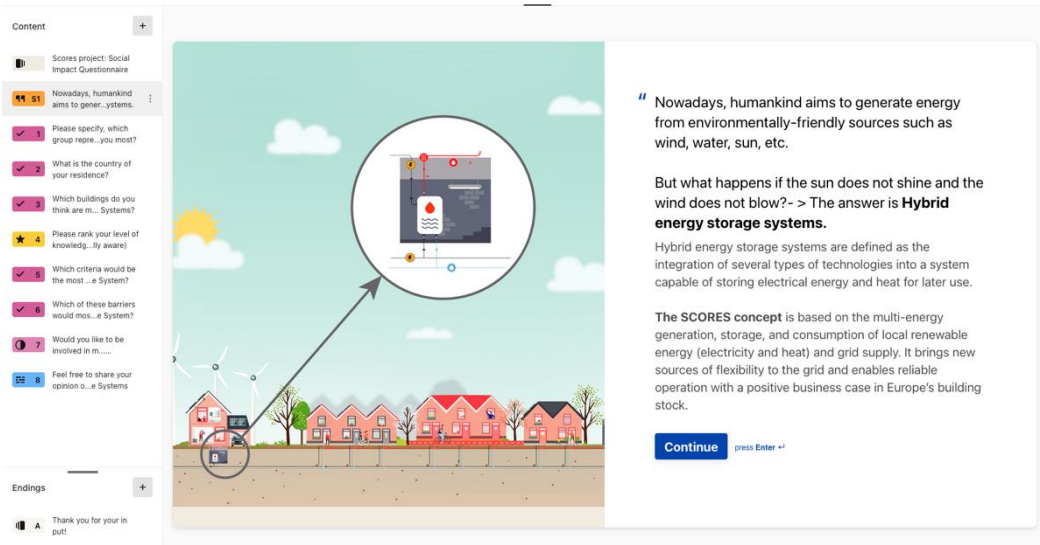


Figure 5 An explanation of the term 'Hybrid Energy Storage Systems' in the questionnaire



The report in Table 7 generated in the Typeform application (original is presented in Annex 2) shows that 218 people opened the questionnaire, 154 of which started answering the questions and only 85 completed all the questions. As a result, the overall completion rate was 55.2%, whereas the completion rate of desktop and mobile responses was 53.3% and 68.4% respectively.

Table 7 Questionnaire statistics

	Views	Starts	Responses	Completion rate	Average time to complete
All devices	218	154	85	55.2%	06:31
Desktop	180	135	72	53.3%	10:03
Mobile	38	19	13	68.4%	02:59

The largest loss of responders was after presenting the SCORES project. The report in Figure 6 shows that having read that, 29% of respondents decided not to proceed. Even though the term's explanation was presented in an easy way, 10% of responders quitted the questionnaire. This could be explained by the fact that they still found the explanation too complex to comprehend. 16% of participants left the survey after they were asked to provide details on which group of stakeholders they belong to; this could be connected to the fact that respondents did not want to share details about themselves.

As for the average time, according to the report it approximately took participants about 6,5 minutes to complete the questionnaire, which is significantly longer than was planned. The reason for that could be that responders spent time reading the term explanation. Additionally, after a careful investigation of the completion time, it was found out that some participant was fulfilling the questionnaire for about 7,26 hours, which has significantly changed the average completion time. Based on our calculations (see Annex 3), after eliminating extreme numbers, the average completion time was 3,9 minutes.

Figure 6 Views and drop-off statistics on the questionnaire

Questions	Views	Drop-off (?)
Scores project: Social Impact Questionnaire	218	-63 (29%)
Nowadays, humankind aims to generate energy from environmentally-friendly sources such as ...	155	-15 (10%)
Please specify, which group represents you most?	141	-22 (16%)
What is the country of your residence?	119	-4 (3%)
Which buildings do you think are most suitable for the integration of Hybrid Energy Storage Sy...	116	-4 (3%)
Please rank your level of knowledge regarding Hybrid Energy Storage systems (1 - is absolutely ...	112	-3 (3%)
Which criteria would be the most important for you when/if deciding to adopt/commercialize a...	109	-7 (6%)
Which of these barriers would most likely prevent you from adopting/commercializing a Hybrid...	103	-5 (5%)
Would you like to be involved in manufacturing, installing, or using Hybrid Energy Storage Syst...	98	-3 (3%)
Feel free to share your opinion on Hybrid Energy Storage Systems	91	-6 (7%)

7.2 Collection of answers

To collect as many answers to the questions as possible, the settings allowed to skip some questions. As a result, each question received a different number of responses. Additionally, to the analysis, there have also been included answers provided by people on Twitter and LinkedIn project pages. Questions on these social media profiles were published separately each week. Figures 7 and 8 illustrate how the questions looked on the project's social media. Screenshots of all questions posted on social media are presented in Annex 4.

Figure 7 Question 5 of the questionnaire on Twitter

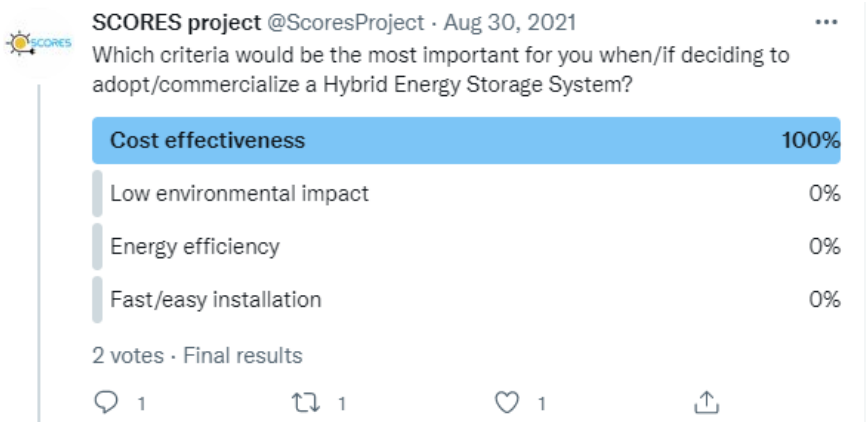


Figure 8 Question 5 of the questionnaire on LinkedIn

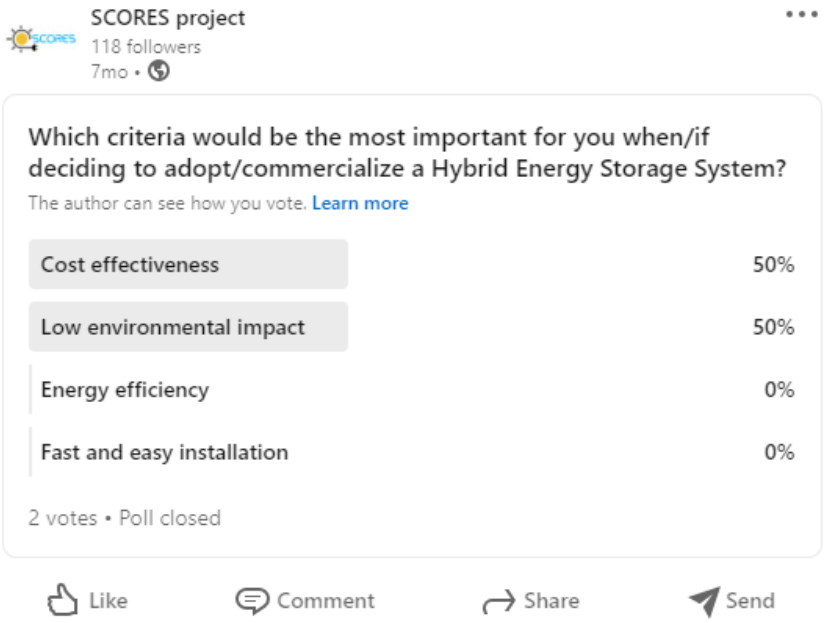


Table 8 shows the number of answers per question for Typeform, Twitter and LinkedIn.

Table 8 Collection of answers to the questionnaire

Question number	Typeform	Twitter	LinkedIn	Total	Comment
1	85	5	5	**95**	One answer is allowed
2	67	2	3	**72**	One answer is allowed
3	260	1	2	**263**	Several answers are allowed
4	85	5	24	**114**	One answer is allowed
5	239	2	2	**243**	Several answers are allowed
6	234	3	2	**239**	Several answers are allowed
7	85	4	2	**91**	One answer is allowed
8	22	0	0	**21**	Open question

Analysis oof these answers per question is presented in the following section.

7.3 Analysis per question

7.3.1 Question 1

The first question asked respondents about what stakeholders group they represent. For that purpose, it was essential for the questionnaire's authors to identify stakeholders of the technology.

One of the failings of many impact assessments is the inadequate participation of all stakeholders. Sometimes that arises from a failure to consider the full range of potentially interested and affected parties. Failure to include all stakeholders can lead to poor scoping of impacts.

According to the Grant agreement, it is required to ensure the acceptance of the SCORES technology by end-users and market participants. Market participants are mostly involved in delivering the technology to users, they comprise such groups as technology manufacturers, contractors involved in the installation, business owners, or developers. End-users predominantly include building owners and tenants. Additionally, there are research

institutions, researchers and policymakers, and public authorities. Figure 9 demonstrates stakeholder groups relative to the technology produced by the SCORES project.

Figure 9 Stakeholder groups relative to the SCORES technologies

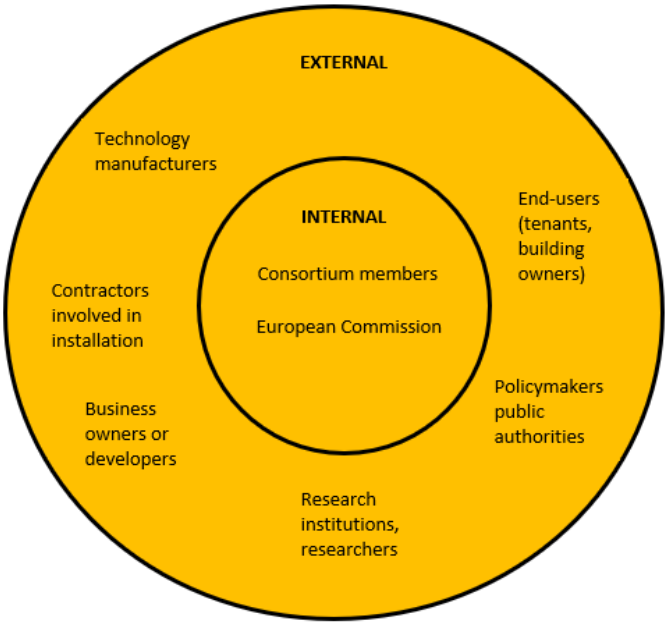
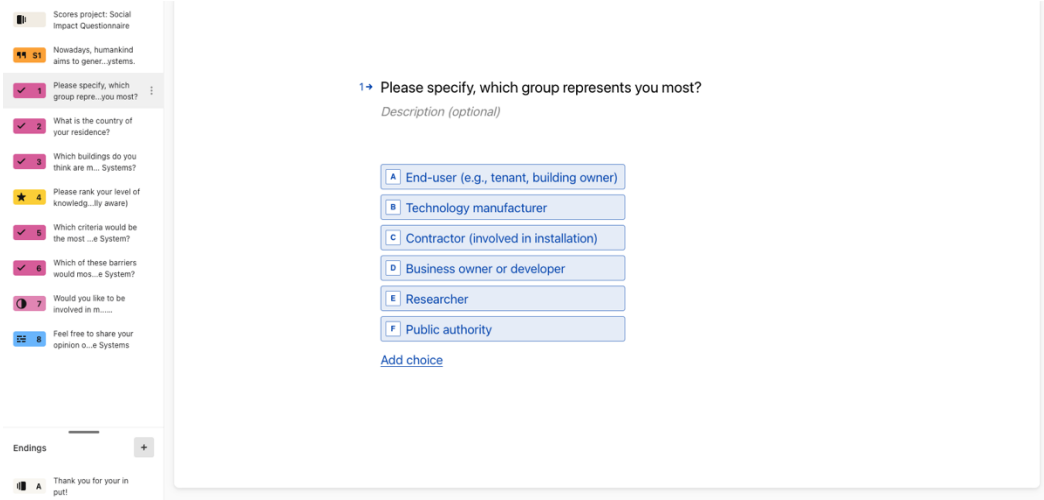


Figure 10 below illustrates how Question 1 looked in the questionnaire.

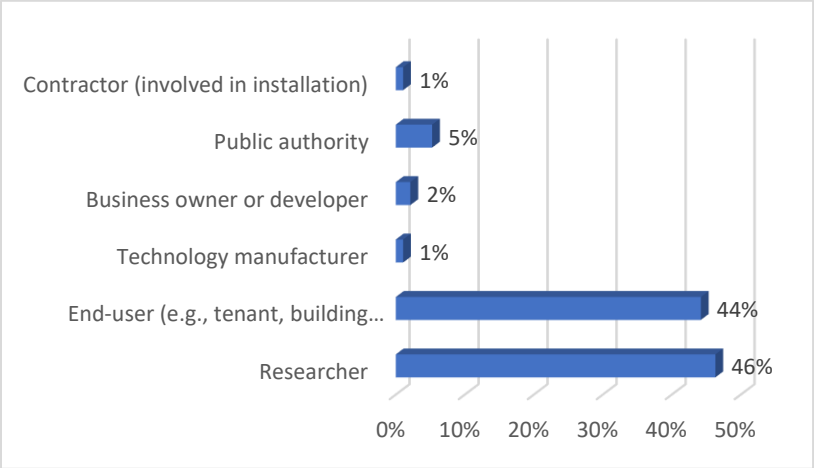
Figure 10 Question 1 in the questionnaire



Figures 11 demonstrates the distribution of answers to the question. It can be seen from the chart; most respondents represent **end-users and researchers** (44% and 46% respectively).

Therefore, this questionnaire predominantly provides opinions only from the side of end-users and researchers, the business part such as business owners, contractors, manufacturers is not considered within the questionnaire due to lack of participants from the side.

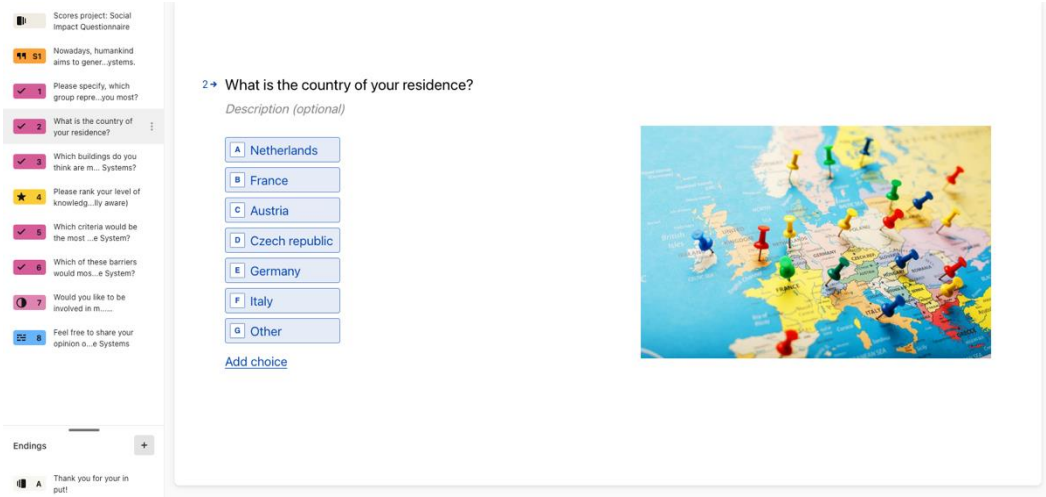
Figure 11 Distribution of answers to Question 1



7.3.2 Question 2

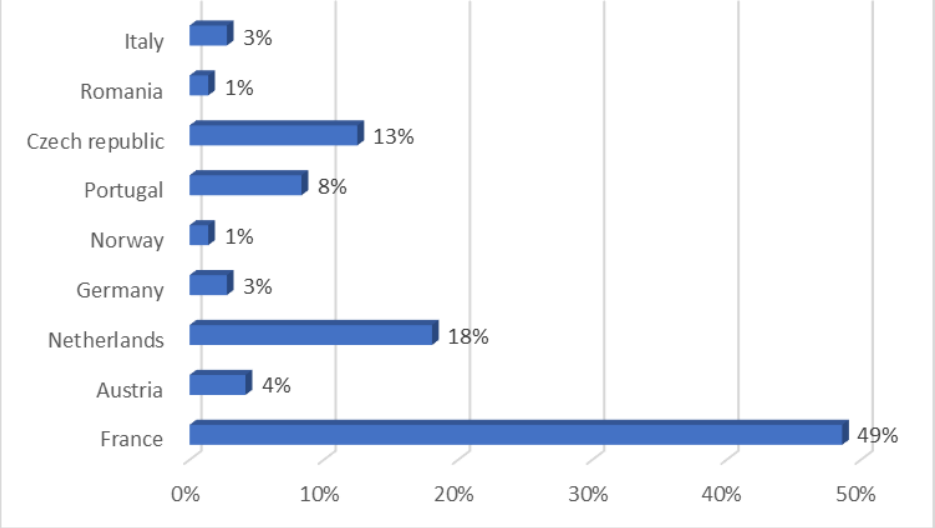
The aim of Question 2 demonstrated in Figure 12 was to ask what countries respondents reside in.

Figure 12 Question 2 in the questionnaire



The distribution of answers is shown in Figure 13. According to it, all the respondents are from **European countries**, most of them are from **France, the Netherlands, and the Czech Republic.**

Figure 13 Distribution of answers to Question 2



7.3.3 Question 3

Question 3 (Figure 14) tried to understand which buildings, based on respondents' opinions, are most suitable for installing Hybrid Energy Storage systems.

Figure 14 Question 3 in the questionnaire

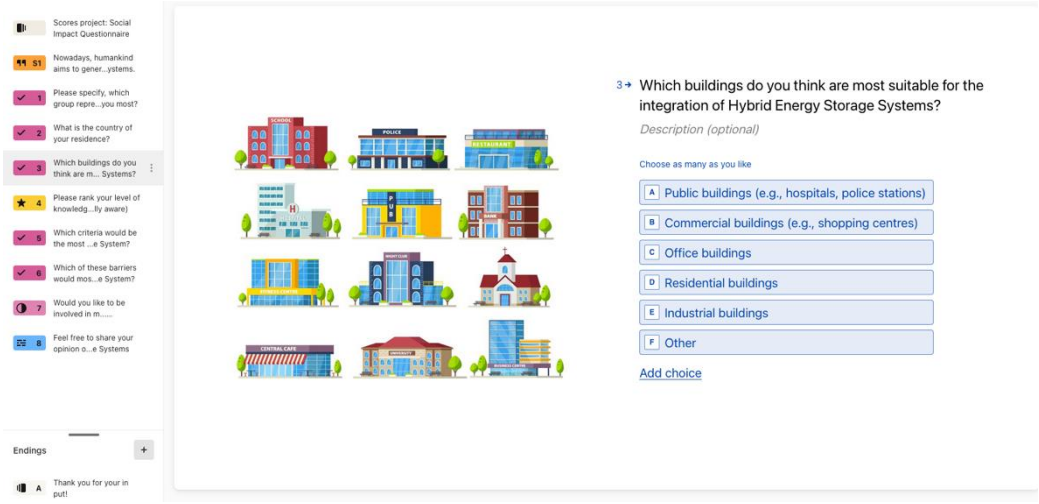
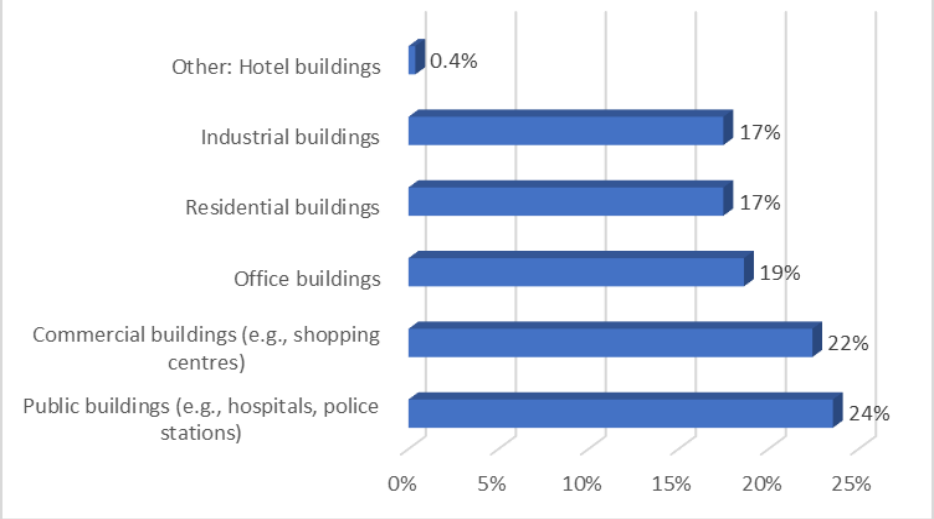


Figure 15 shows the responses' distribution was almost equal ranging from 17% to 24% per category, with the most popular category **Public buildings**. Additionally, some respondent used an opportunity to offer an answer and suggested Hotel buildings for the systems' installation.

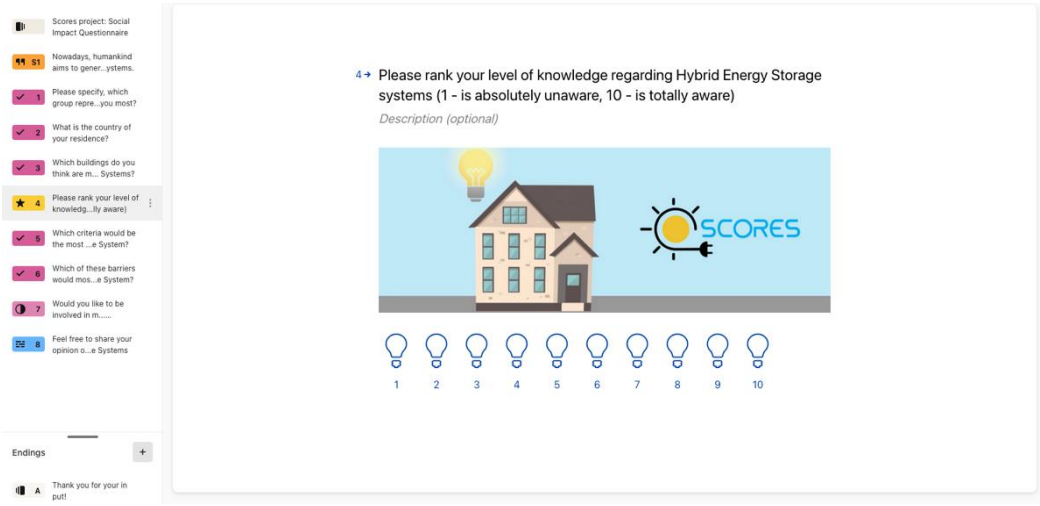
Figure 15 Distribution of answers to Question 3



7.3.4 Question 4

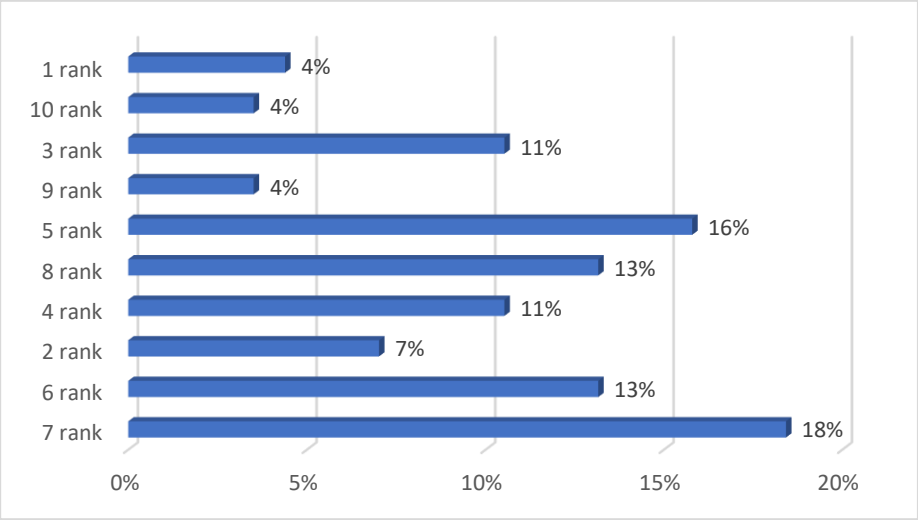
Question 4 (see Figure 16) aimed to understand how respondents assess their knowledge about Hybrid Energy Storage Systems on grades 1 to 10 (1 is absolutely unaware, 10 is totally aware).

Figure 16 Question 4 in the questionnaire



According to Figure 17, 60% of respondents assess their knowledge of the technology as **average and above average, bands from 5 to 8**. This could be explained by the fact that survey participants are predominantly end-users and researchers and not directly connected to technology development. Additionally, such a distribution of answers means that the topic has a lot of potential to be spead among people.

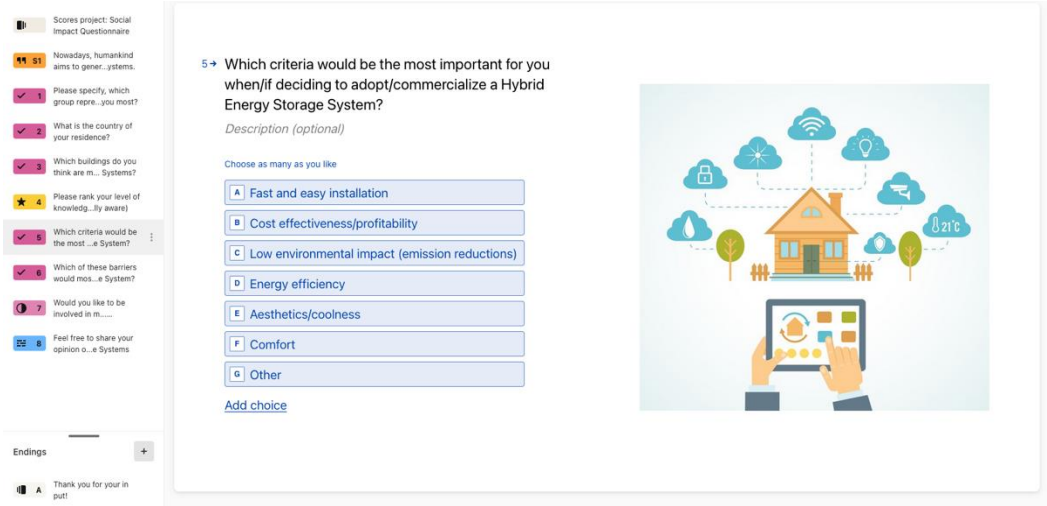
Figure 17 Distribution of answers to Question 4



7.3.5 Question 5

The purpose of Question 5 (see Figure 18) was to understand the most important criteria if deciding to adopt or commercialise the technology. Technology commercialisation is not relevant due to the fact that it is possible to analyse answers only from the side of end-users and reserachers.

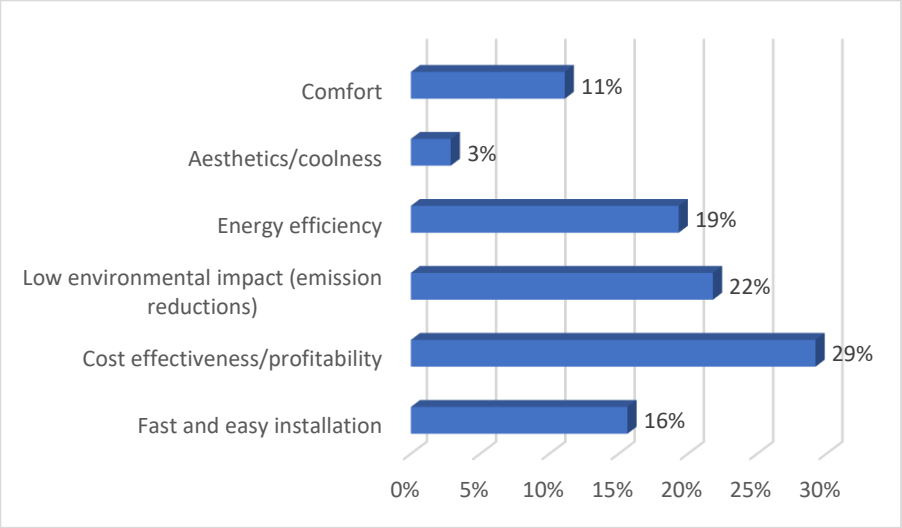
Figure 18 Question 5 in the questionnaire



As Figure 19 shows, **cost-effectiveness, low environmental impact, and energy efficiency are the three most popular answers.** As it can be seen from the description of the SCORES

technology, it takes into consideration all the above-mentioned qualities. 16% of respondents marked fast and easy installation as the most important criteria. Since SCORES is the research project that is working on the development of Hybrid energy storage systems, it cannot show off quick or easy installation. However, if the project's technology is successfully exploited in the future, with the time this criterion might be met. Undoubtedly, developers must keep in mind the importance of these criteria.

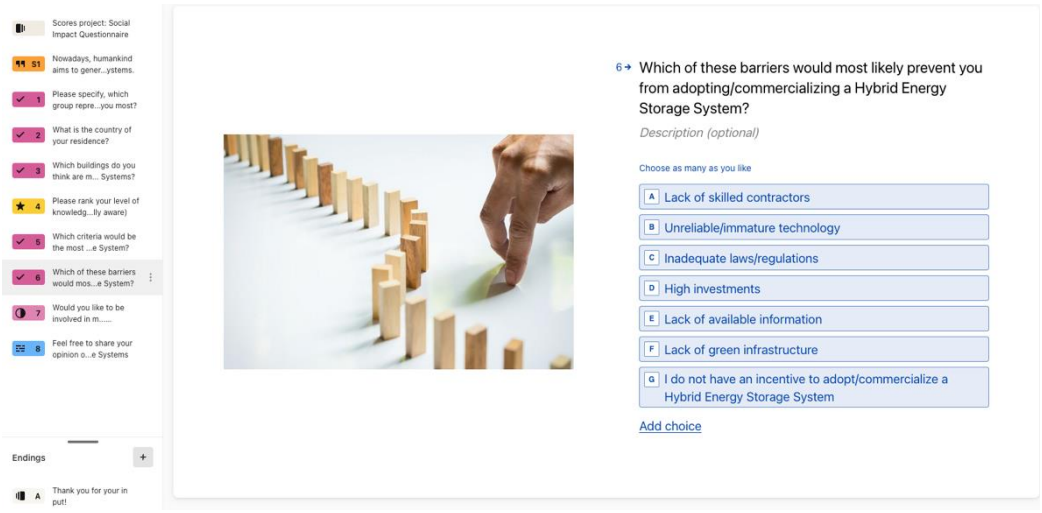
Figure 19 Distribution of answers to Question 5



7.3.6 Question 6

Figure 20 demonstrates Question 6, which aimed to investigate potential barriers that would prevent customers from adopting the technology.

Figure 20 Question 6 in the questionnaire



As Figure 21 illustrates, 70% of answers are distributed between **high investments, unreliable/immature technology, and lack of skilled contactors.**

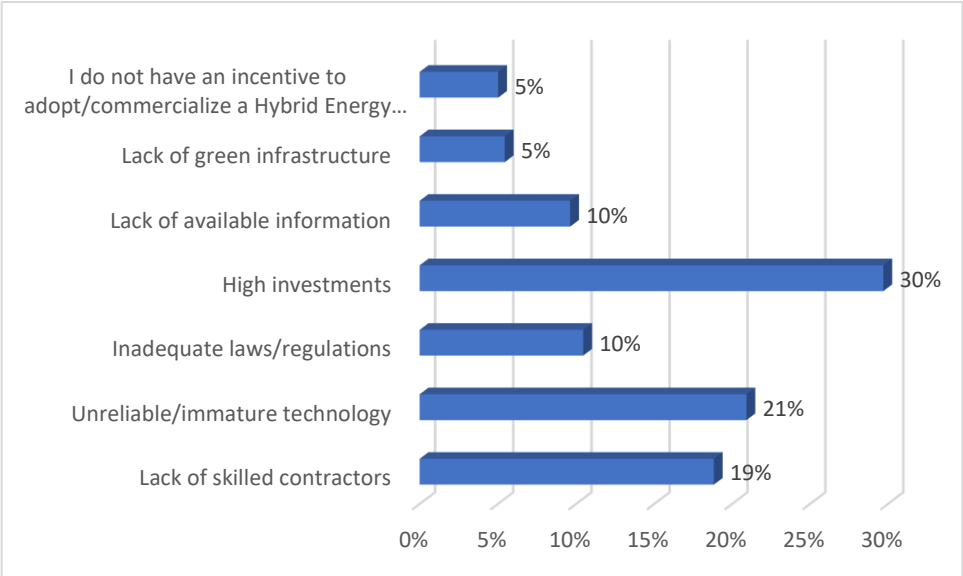
Due to the fact the technology of Hybrid Energy Storage Systems is complex and moreover still emerging, it is very difficult to avoid the issue of high investments. Undoubtedly, once the technology is on mass production, the price of it might decrease. However, the most efficient solution to avoid the barrier would be if the EC and governments of Member States prepare measures to make the technology affordable for their citizens.

Regarding the issue of unreliable or immature technology, undoubtedly, if the topic is popular in the community, then more research (Example: SCORES project) will follow that will accelerate the process of getting rid of the uncertainty on the technology. For this purpose, it is again authorities and the scientific community that should explain to regular citizens the necessity of the technology and its advantageous influence on humankind's future. Once the technology is affordable and validated, there should be introduced regulations enforcing using the Hybrid Energy Storage Systems in buildings due to the positive environmental effect.

As for the lack of skilled contractors, this issue will be solved in the long term once the technology gains popularity. Additionally, there should be funded educational programs and more research projects such as SCORES where partners practically learn how to establish the technology.

An issue of inadequate laws and regulations must be solved by the EC and Member States on a legislative level, read more about issues in **D2.6 Report on legislation and standardization issues.**

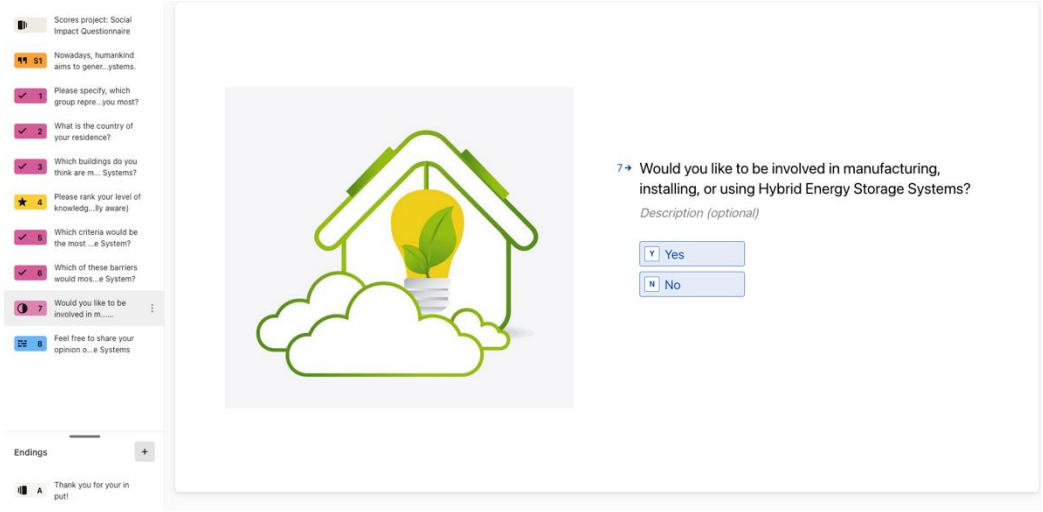
Figure 21 Distribution of answers to Question 6



7.3.7 Question 7

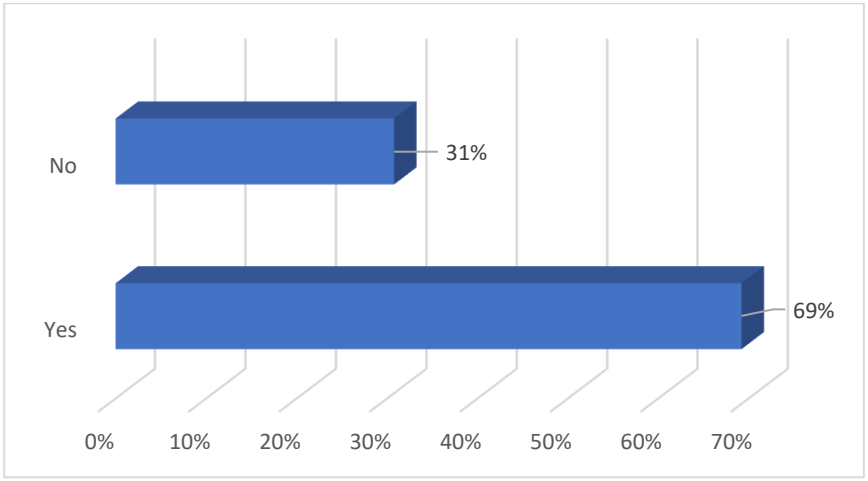
Question 7 is illustrated in Figure 22, its aim was to understand the respondents' interest of using Hybrid Energy Storage Systems.

Figure 22 Question 7 in the questionnaire



As Figure 23 illustrates, two thirds of respondents would want to use the technology. It should be noted that such a survey result implies that there should more measures applied to convince people to be willing use Hybrid Energy Storage Systems. This could be done via spreading information about the technology and its positive impacts on the society.

Figure 23 Distribution of answers to Question 7



7.3.8 Question 8

Question 8 was an open question that asked respondents to share their opinion on Hybrid Energy Storage systems. The collected answers are presented in Table 9. All the answers have been divided into three groups: positive (P), warning (W), and neutral (N). Out of 21 answers 12 – are positive, 6 – warning and 3 – neutral. **The majority of positive comments are encouraging saying that the technology is promising, absolutely necessary and should be definitely developed so life of future generations is not compromised**. As for warning comments, they mostly reflect concerns mentioned as barriers in Question 6. For example, that there is lack of public information on the technology and lack of skilled labour. Additionally, two people doubt the technology saying gains would not be worth the effort and the idea is only good on paper. To change such opinions there should be more information on the technology provided and explained.

Table 9 Collected answers to Question 8

Number	Answer
1P	It not an option, it is a necessity. the point is "how to make it sexy?" as the Financial benefit for the user is quite low, and the understanding of the necessity is very difficult to catch for a non involved Citizen.
2P	I think it is a must have for everyone. It should be common practice.
3P	Let's continue to develop it, integrated into an efficient energy management system
4P	It has a good potential
5P	With hybrid energy storage it will be possible to convince people that they can meet their needs without compromising future generations, as well as reducing their ecological footprint. Therefore, it is essential to guarantee system reliability to customers. That is, above all honesty!
6P	Crucial for 100% renewable energy. All the best for your project! Thank you
7P	That's what all buildings should have in the future. The initial investment is high compared to conventional systems. Greater incentives are needed to make technologies competitive.
8P	It is a very promising technology in line with the creation of RES communities.
9P	I see your proposed systems as future. We need systems like these where buildings can be independent from public energy resources with an impact on nature as low as possible.
10P	Seems to be a great option for intermittent renewable sources
11P	Required if it reduces carbon emissions

12P	Could be interesting to avoid costly or even non environmentally friendly solution
1W	The gains would not be worth the effort in many cases
2W	Interesting concept but no skilled labour in France. Each time there is something interesting they increase the price but their performance
3W	Hybrid energy storage systems are necessary to improve green energy use, but I think they might be difficult to industrialized because each situation is different.
4W	Good idea on the paper but...
5W	Should be the more efficient possible
6W	Public information is scarce and there has to be capacity building for professionals as this will be another system that might have problems if people are not well trained to design and install therm.
1N	Quite strange to ask our opinion without defining precise use cases or systems architecture.
2N	Is there a market today for these systems?
3N	Thank you

7.4 Successful model

In order for the SCORES technology or any Hybrid Energy Storage System to achieve success, it must be accepted by the society. For that purpose, positive social impacts must be enhanced and negative ones – eliminated.

To deal with the barriers, the authorities should solve an issue of high investments by making the technology affordable through co-sponsorship. Moreover, it is essential explaining to regular people that even though Hybrid Energy Storage Systems are more expensive compared to conventional technologies, they do not destroy the environment, which is vital for the humankind's survival. Inadequate laws and regulations barrier could also be eliminated by the authorities through introducing adequate regulations. The lack of information could be solved via introducing a common database on the technology that could be useful for business developers, owners, contractors. The lack of skilled labour could be solved by educational courses and the emergence of more research projects similar to SCORES. An example of an education program could be training series released by the SCORES project: a series of eight educational videos providing information about the project's technology.[2] Additionally, one of the SCORES partners, IPS, organised a Training course on thermal energy storage for

[2] https://www.youtube.com/playlist?list=PLLfOJJg-Lsm5pRV9VQplV8dEgq6TqsOGn

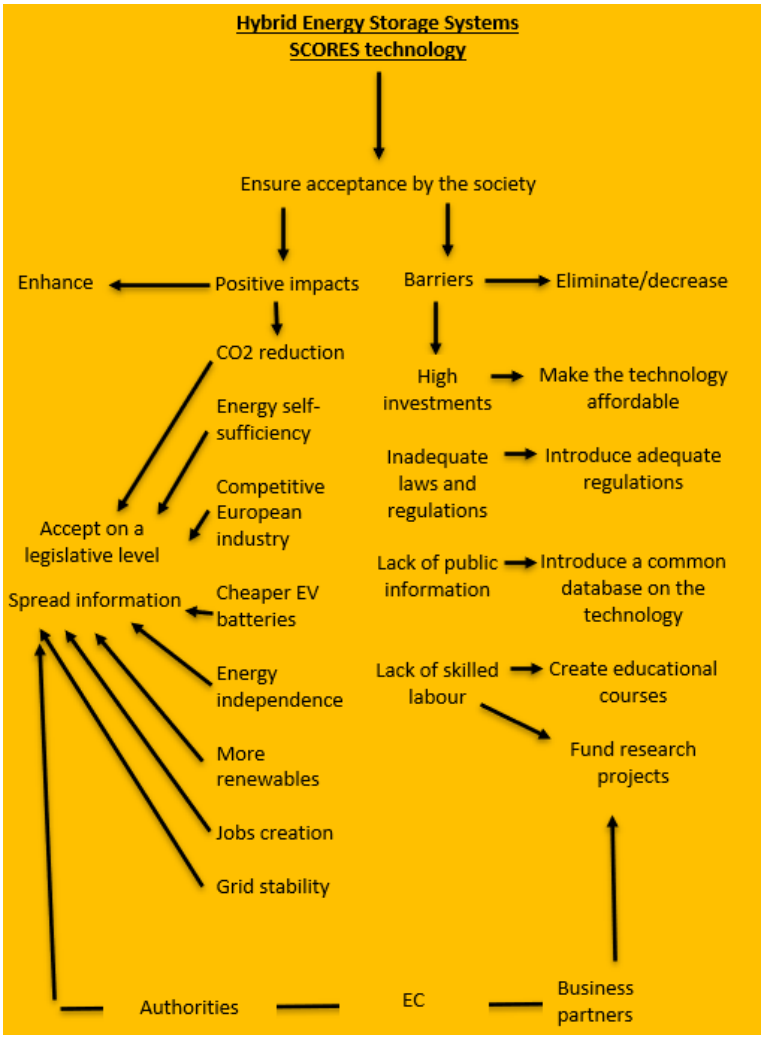
heating, cooling and DHW for buildings[3] and a Training demo sites seminar[4]. Another SCORES partner, EDF, organised a policy workshop[3]. Undoubtedly, such training activities will contribute to spreading awareness and information about the project's technology.

The positive impacts are CO2 reduction, energy self-sufficiency, competitive European industry, cheaper EV batteries, energy independence, more renewables, jobs creation, and grid stability. These impacts must be enhanced by spreading information about the technology to regular people in all possible ways, advancing it, and increasing installations. However, the most efficient adoption of the technology can be achieved if it is accepted on a legislative level, that should be the main goal of the developers. Figure 24 summarises the above-mentioned measures for increasing positive impacts and eliminating the negative ones.

The only way for SCORES technology to appear on the market is successful exploitation. For that reason, it is essential to find the social gap and manage to use it to its advantage just like Tesla, which found the potential for its production in absence of affordable electric cars. Please see **D9.7 Final Exploitation Plan and IPR Strategy** and **D2.5 New business models for the SCORES** for more information.

Figure 24 Successful model for the SCORES project

[3] http://www.scores-project.eu/documents/promo-material/flyers
[4] http://www.scores-project.eu/documents/promo-material/events



8 Conclusion

Nowadays social impact increasingly influences the success of new technologies. This deliverable studied the results of the social impact questionnaire conducted on potential acceptance by wide audience of Hybrid Energy Storage Systems developed within the SCORES project. The questionnaire comprised 8 easy understandable questions, answers to them have been thoroughly analysed in the deliverable followed by the building of 'successful model' based on elimination of barriers and increasing positive social impacts. Overall, the technology of the SCORES project is promising, provides vital for the humankind's existence social impacts, however, a lot of work in the field must be done to convince people and mainly, legislative structures, to start learning more about the technology and consider its enormous potential.

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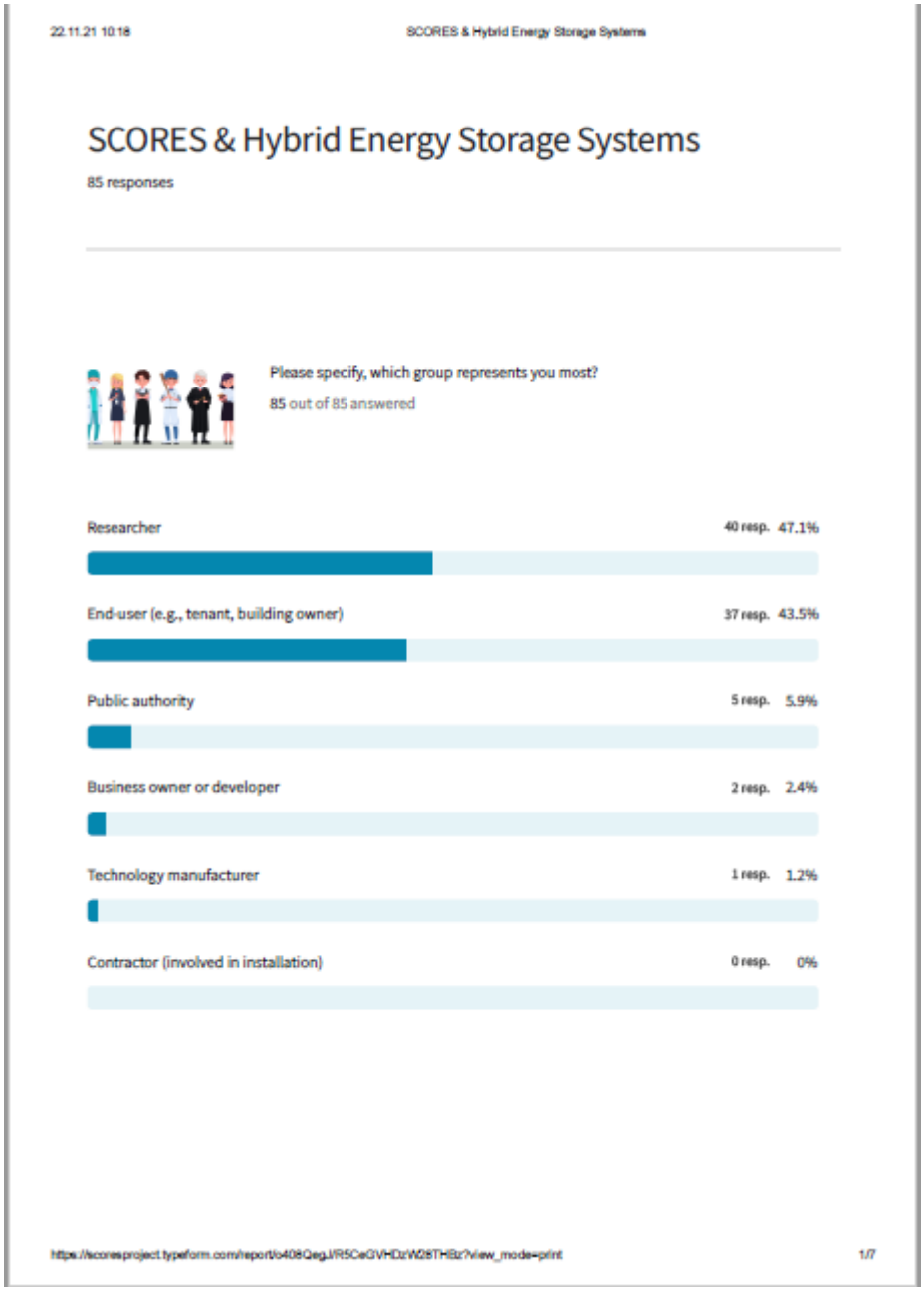
10 Annex 1 Generated report on the social impact questionnaire



22.11.21 10:18 SCORES & Hybrid Energy Storage Systems

SCORES & Hybrid Energy Storage Systems

85 responses

Please specify, which group represents you most?

85 out of 85 answered

Researcher	40 resp.	47.1%
End-user (e.g., tenant, building owner)	37 resp.	43.5%
Public authority	5 resp.	5.9%
Business owner or developer	2 resp.	2.4%
Technology manufacturer	1 resp.	1.2%
Contractor (involved in installation)	0 resp.	0%

https://scoresproject.typeform.com/report/o408Qeg/IR5CeGVHDz/W2ISTHBz?view_mode=print 1/7

What is the country of your residence?

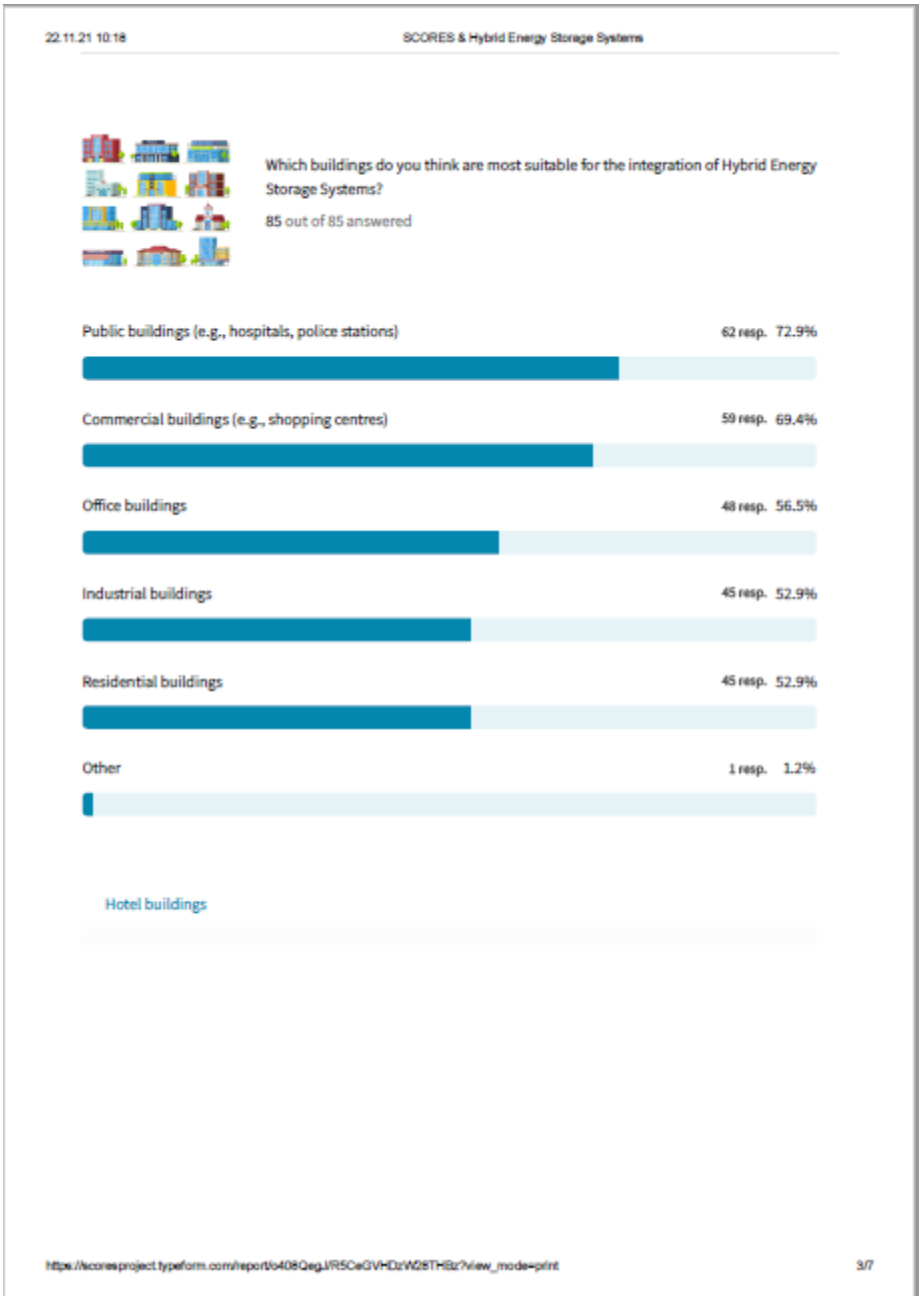
67 out of 85 answered

France	35 resp.	52.2%
Netherlands	12 resp.	17.9%
Czech republic	5 resp.	7.5%
Austria	3 resp.	4.5%
Germany	2 resp.	3%
Italy	2 resp.	3%
Other	8 resp.	11.9%

Portugal

Portugal

Portugal.



22.11.21 10:18 SCORES & Hybrid Energy Storage Systems

Which buildings do you think are most suitable for the integration of Hybrid Energy Storage Systems?

85 out of 85 answered

Public buildings (e.g., hospitals, police stations)	62 resp.	72.9%
Commercial buildings (e.g., shopping centres)	59 resp.	69.4%
Office buildings	48 resp.	56.5%
Industrial buildings	45 resp.	52.9%
Residential buildings	45 resp.	52.9%
Other	1 resp.	1.2%

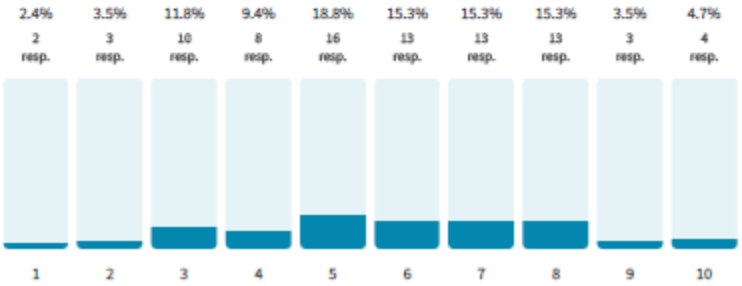
Hotel buildings

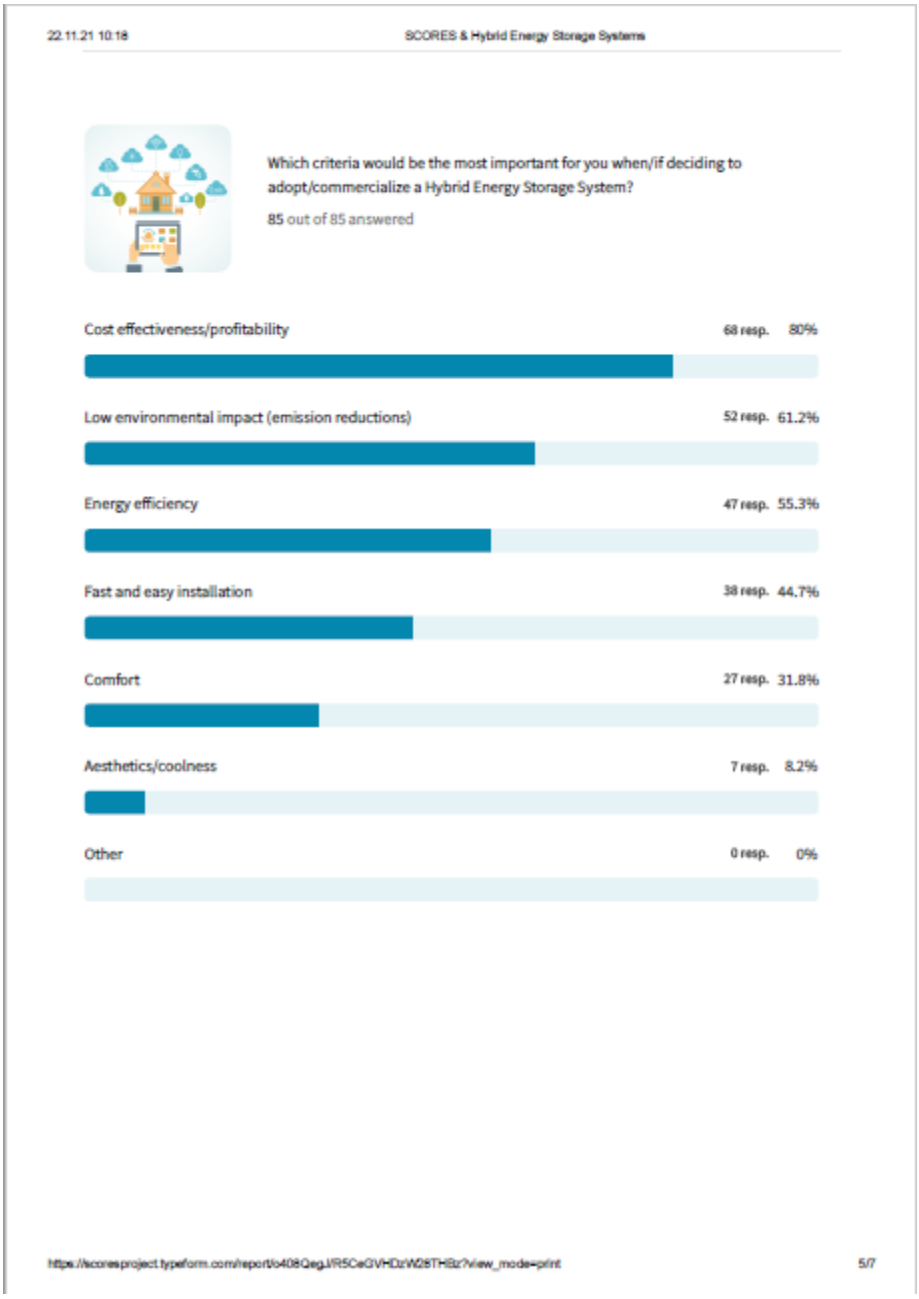
https://scoresproject.typeform.com/report/o408QegJ/R5CeQVHDzW28THBz?view_mode=print 3/7

Please rank your level of knowledge regarding Hybrid Energy Storage systems (1 - is absolutely unaware, 10 - is totally aware)

85 out of 85 answered

5.8 Average rating





22.11.21 10:18 SCORES & Hybrid Energy Storage Systems

Which criteria would be the most important for you when/if deciding to adopt/commercialize a Hybrid Energy Storage System?

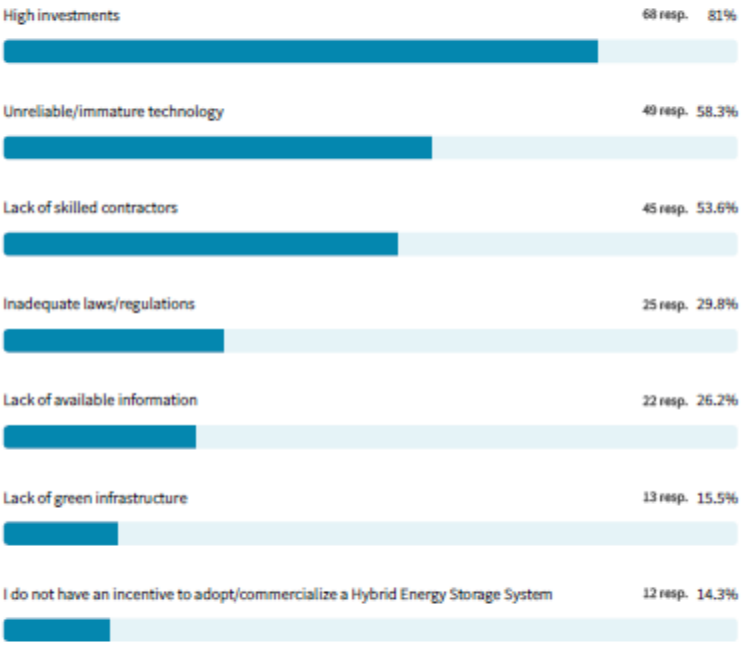
85 out of 85 answered

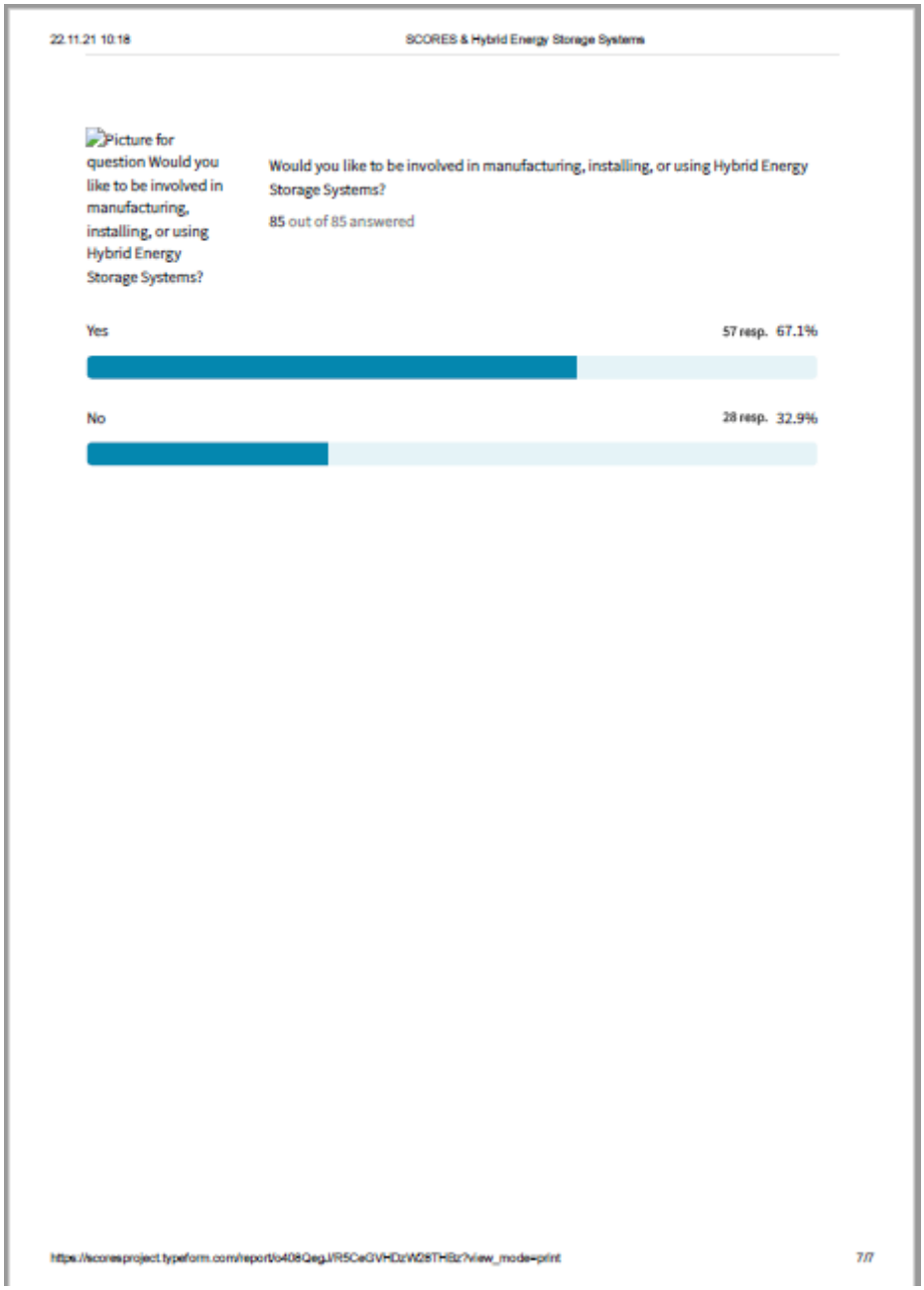
Cost effectiveness/profitability	68 resp.	80%
Low environmental impact (emission reductions)	52 resp.	61.2%
Energy efficiency	47 resp.	55.3%
Fast and easy installation	38 resp.	44.7%
Comfort	27 resp.	31.8%
Aesthetics/coolness	7 resp.	8.2%
Other	0 resp.	0%

https://scoresproject.typeform.com/report/o408Qeg/IR5CeGVHDzW28THBz?view_mode=print 5/7

Which of these barriers would most likely prevent you from adopting/commercializing a Hybrid Energy Storage System?

84 out of 85 answered





22.11.21 10:18 SCORES & Hybrid Energy Storage Systems

Picture for question Would you like to be involved in manufacturing, installing, or using Hybrid Energy Storage Systems?

Would you like to be involved in manufacturing, installing, or using Hybrid Energy Storage Systems?

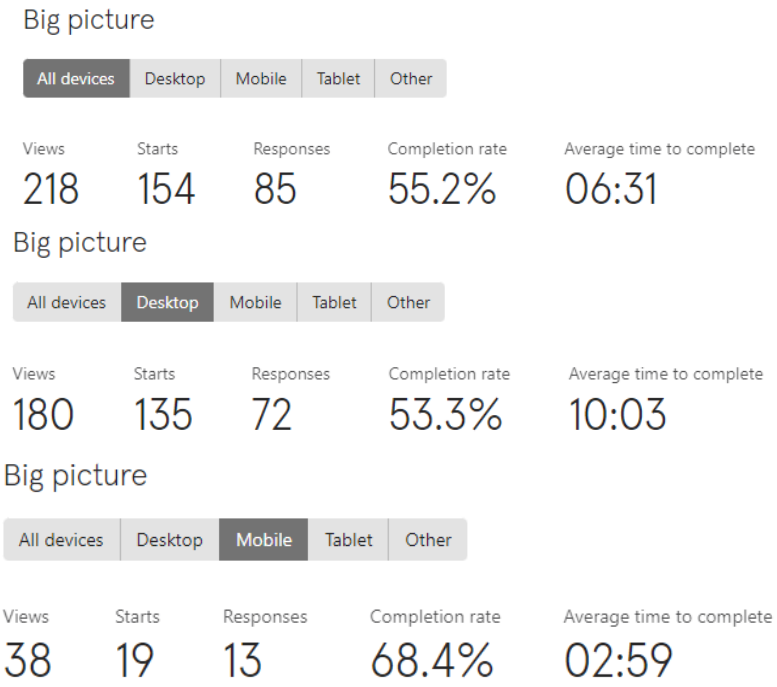
85 out of 85 answered

Yes 57 resp. 67.1%

No 28 resp. 32.9%

https://scoresproject.typeform.com/report/o408QegJ/R5CeGVHDzWz8THBz?view_mode=print 7/7

11 Annex 2 Statistics on the social impact questionnaire



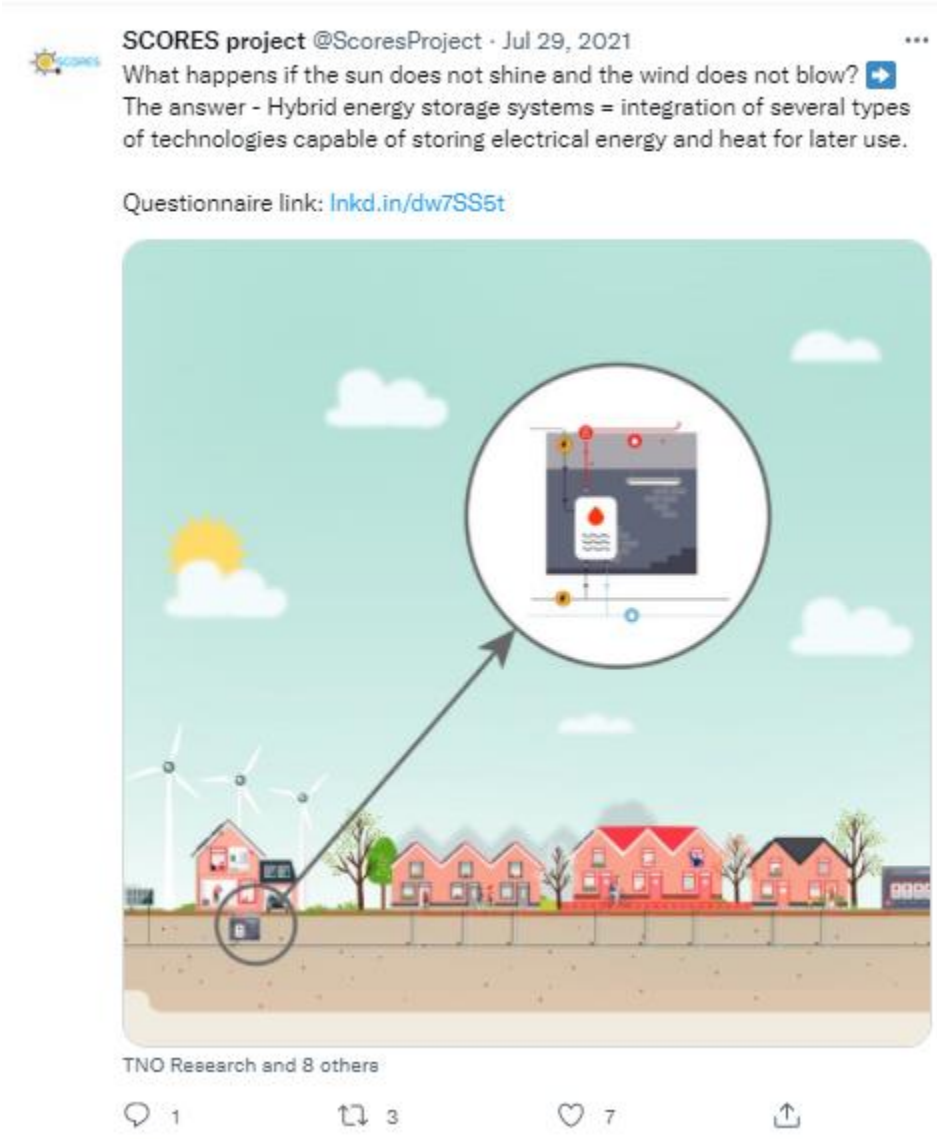
12 Annex 3 Time of the questionnaire's completion

Start Date (UTC)	Submit Date (UTC)	Duration (seconds)
2021-11-16 10:01:34	2021-11-16 10:03:21	107
2021-08-30 17:57:32	2021-08-30 18:02:12	280
2021-08-30 17:03:25	2021-08-30 17:05:02	97
2021-08-30 14:53:07	2021-08-30 14:54:28	81
2021-08-25 08:34:55	2021-08-25 15:50:52	26157
2021-08-25 07:01:14	2021-08-25 07:03:53	159
2021-08-24 19:49:10	2021-08-24 19:57:41	511
2021-08-24 13:52:26	2021-08-24 13:57:32	306
2021-08-23 15:01:07	2021-08-23 15:04:02	175
2021-08-23 10:45:46	2021-08-23 10:47:49	123
2021-08-23 10:06:26	2021-08-23 10:09:07	161
2021-08-20 19:03:20	2021-08-20 19:05:43	143
2021-08-18 16:35:57	2021-08-18 16:39:19	202
2021-08-17 13:20:26	2021-08-17 13:22:21	115
2021-08-16 11:39:26	2021-08-16 11:42:43	197
2021-08-16 09:38:52	2021-08-16 09:42:23	211
2021-08-13 06:45:48	2021-08-13 06:48:10	142
2021-08-12 18:23:00	2021-08-12 18:25:33	153
2021-08-12 10:53:54	2021-08-12 10:55:53	119
2021-08-10 06:03:28	2021-08-10 06:05:52	144
2021-08-09 20:16:57	2021-08-09 20:21:40	283
2021-08-09 19:40:20	2021-08-09 19:42:56	156
2021-08-09 17:37:22	2021-08-09 17:39:17	115
2021-08-09 15:09:25	2021-08-09 15:10:38	73
2021-08-09 14:43:12	2021-08-09 14:46:43	211
2021-08-09 14:23:17	2021-08-09 14:32:33	556
2021-08-09 13:31:29	2021-08-09 13:32:46	77
2021-08-09 09:41:16	2021-08-09 09:44:03	167
2021-08-06 06:11:50	2021-08-06 06:14:13	143
2021-08-05 09:32:42	2021-08-05 09:35:41	179
2021-08-04 22:38:42	2021-08-04 22:47:05	503
2021-08-03 13:37:41	2021-08-03 13:45:43	482
2021-08-02 22:38:57	2021-08-02 22:46:02	425
2021-08-02 17:45:56	2021-08-02 17:56:42	646
2021-08-02 11:50:18	2021-08-02 11:57:51	453
2021-08-02 11:39:16	2021-08-02 11:42:06	170
2021-08-02 09:40:10	2021-08-02 09:42:43	153
2021-08-02 08:48:05	2021-08-02 08:50:09	124

2021-08-02 08:43:30	2021-08-02 08:45:31	121
2021-08-02 08:37:44	2021-08-02 08:42:24	280
2021-08-02 08:19:33	2021-08-02 08:20:47	74
2021-08-02 08:16:23	2021-08-02 08:19:19	176
2021-08-02 08:07:44	2021-08-02 08:10:28	164
2021-08-02 07:35:43	2021-08-02 07:38:33	170
2021-08-02 06:26:08	2021-08-02 06:34:47	519
2021-08-01 22:10:02	2021-08-01 22:12:40	158
2021-07-31 10:41:21	2021-07-31 10:43:43	142
2021-07-31 09:50:56	2021-07-31 09:54:00	184
2021-07-30 21:12:00	2021-07-30 21:14:52	172
2021-07-30 21:02:28	2021-07-30 21:07:02	274
2021-07-30 20:58:05	2021-07-30 21:02:41	276
2021-07-30 20:06:56	2021-07-30 20:09:39	163
2021-07-30 19:05:06	2021-07-30 19:07:58	172
2021-07-30 18:40:06	2021-07-30 18:42:46	160
2021-07-30 07:43:36	2021-07-30 07:45:09	93
2021-07-30 07:07:01	2021-07-30 07:22:39	938
2021-07-28 18:56:50	2021-07-28 18:59:43	173
2021-07-28 15:13:19	2021-07-28 15:16:55	216
2021-07-28 11:25:46	2021-07-28 11:28:38	172
2021-07-28 09:49:56	2021-07-28 09:52:39	163
2021-07-28 09:01:31	2021-07-28 09:06:16	285
2021-07-28 08:36:06	2021-07-28 08:40:34	268
2021-07-28 08:15:54	2021-07-28 08:21:55	361
2021-07-28 08:19:20	2021-07-28 08:21:34	134
2021-07-28 08:04:57	2021-07-28 08:10:09	312
2021-07-28 08:00:39	2021-07-28 08:05:54	315
2021-07-28 07:53:51	2021-07-28 08:05:28	697
2021-07-28 08:02:12	2021-07-28 08:03:46	94
2021-07-28 07:24:27	2021-07-28 07:28:00	213
2021-07-28 07:18:56	2021-07-28 07:26:05	429
2021-07-28 07:18:26	2021-07-28 07:21:01	155
2021-07-28 07:08:58	2021-07-28 07:19:34	636
2021-07-28 07:14:54	2021-07-28 07:17:13	139
2021-07-28 06:54:02	2021-07-28 06:57:37	215
2021-07-28 06:50:38	2021-07-28 06:55:52	314
2021-07-28 06:34:52	2021-07-28 06:37:47	175
2021-07-27 17:22:05	2021-07-27 17:25:14	189
2021-07-27 16:42:30	2021-07-27 16:48:37	367
2021-07-27 16:23:17	2021-07-27 16:26:33	196
2021-07-27 15:45:49	2021-07-27 15:48:24	155

2021-07-27 15:21:44	2021-07-27 15:25:27	223
2021-07-27 14:26:23	2021-07-27 14:28:12	109
2021-07-27 13:30:24	2021-07-27 13:33:07	163
2021-07-26 21:05:51	2021-07-26 21:07:54	123
2021-07-26 20:47:16	2021-07-26 20:48:48	92

13 Annex 4 Screenshots of questions on Social media



[5]

[5] https://twitter.com/ScoresProject