Establishment of Engagement Platform for Geographical Islands (T8.2)

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Executive Summary

Work Package 8 is designed to engage citizens and local communities on LHs, Fellows and other EU Islands, with the overall objective to improve knowledge and empowerment in decision-making processes towards decarbonisation. After task 8.1. has delivered the theoretical foundation in form of the report "Designing a community engagement strategy (D8.1)", task 8.2 is dedicated amongst others to establish an engagement platform (ET) for geographical islands that will be used for supporting the decarbonisation plans of the 3 IANOS fellow islands Lampedusa, Nisyros and Bora Bora. Further deliverables under task 8.2. are national / regional policy advisory papers (D8.3 and 8.4) and national stakeholder workshops (D8.5 and 8.6), which are meant to further engage with citizens and local stakeholders on the IANOS fellow islands. This report is the first deliverable under task 8.2 and provide input for the capacity-building through training sessions that are foreseen under task 8.3 and the fellow islands' replication plans developed under task 9.2.

As such, the ET is a source of information and provides best practice approaches for meaningful participation of community and citizens engagement. The purpose is to present tools and methods that can be applied for putting citizens and local communities into the centre of the transition towards climate-neutral economies and energy systems that are powered and fuelled by renewable energy sources (RES). While this publication is offering engagement tools to geographical islands as such, it emphasises citizen and community involvement on the 3 IANOS fellow islands. The ET is made available for project developers and partners, who can be local authorities, businesses and other local community stakeholders, but also national and international actors with expertise on decarbonisation initiatives who seek to engage citizens and communities for successful project implementation.

The ET is based on input received through periodic Work Package 8 meetings, which have been dedicated to presenting on the situation and circumstances with regards to the overall decarbonisation process on each of the IANOS islands. Relevant factors include energy market and system specifics (energy mix and renewable share, number of available suppliers and customer choice, nature and separation of system operators and market actors, presence of individual and collective self-consumption), and existing levels of - and barriers to – meaningful citizen and community participation. Input has also been collected through questionnaires and follow-up meetings, with emphasis on improving the understanding of the fellow islands' local conditions.

Additional engagement tools have been identified through the review of related initiatives, incl. from Horizon projects that address how to best involve citizens and communities into the decarbonisation of Europe's energy, mobility heating & cooling sectors.

This publication is structured into the following chapters: it first gives an overview on the IANOS fellow islands Lampedusa, Bora Bora and Nisyros, with regards to current decarbonisation levels and initiatives that are meant to reduce the use of fossil fuels in energy, heating, cooling and transport, incl. attempts to engage with citizens and communities in this process. Based on essential elements of community engagement as described in chapter 4 of the IANOS report "Designing a community engagement strategy" (Deliverable 8.1), chapter 2 of this ET describes best practice approaches and engagement tools which have been developed and applied in real-life environments and within existing projects. These are meant to provide guidance and resources that can help navigate through the different stages of citizen and community engagement processes, starting with tools for assessing general local conditions and for identifying community stakeholders whose engagement is relevant or even decisive for successful implementation. The ET then proposes tools that can be used for outreach and initial mobilisation, for continuous involvement and dissemination, before highlighting the major role the organisation of events and other forms of encounters play in engaging citizens and stakeholders. It then presents an example how cooperating with established actors – such as consumer organisations – can help access to information and services that can be valuable for citizen and community engagement (such as market monitoring of energy consumer rights and satisfaction levels). Chapter 3 of this ET issues a summary toolbox for engaging citizens and local stakeholders into setting up and operating community energy initiatives, with information on enabling legal frameworks at EU and national level (with emphasis on Greece and Italy), as well as on planning, preparation, construction and operation phases. It further presents financial and capacity-building tools that are available for project developers who are seeking to establish energy communities, which as such are considered by many decision-makers (in particular among EU institutions, but also across growing numbers of national and regional governments) as a very powerful engagement instrument for a citizen and community-led energy transition.

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Introduction

Our planet's climate emergency requires the effective and rapid decarbonisation of the ways we produce and consume energy. The energy sector, including transport, industry, and heating & cooling, is responsible for around 75% of the EU's GHG emissions. Therefore, EU leaders have agreed on making the continent climate-neutral by mid-century, by substantially reducing the dependency on fossil fuels - most of which is being imported from outside Europe. The need to decarbonise has been accentuated by skyrocketing energy price levels and Russia's war on Ukraine, putting Europe's secure and affordable energy supply at risk – which in return threatens our economies' growth and competitiveness and impacts purchasing power of European Union (EU) citizens, especially among vulnerable groups.

Against this background, the EU is in the process to agree on more ambitious climate and energy target levels, which are being revised and negotiated under the Green Deal and more recently, the REPowerEU initiative. To reduce GHG emission by 55% until 2030, Europe must significantly accelerate the transition to systems that are powered and fuelled by renewable electricity and gases, with EU institutions set to increase the share of renewable energy to 45% (by 2030, with 1990 as reference year, in combination with increased ambition in energy efficiency). This requires strong commitment among EU and domestic decision-makers, who are tasked to implement drastic measures and make the profound and systemic transformation of our economies become reality.

The challenges the energy sector is facing are not new but have been aggravated by Russia's invasion in Ukraine. Already before today's global warming and security crisis, the EU has been reviewing its energy and climate policy framework, to deliver on its commitments made under the Paris Agreement and the recent Glasgow Climate Pact agreed at COP 26. In 2019, the *Clean Energy for all Europeans package (CEP)* was adopted, designed to support the EU's Energy Union strategy, which is among the EU's major long-term policy initiatives for achieving climate-neutrality by mid-century – and includes the following five dimensions: 1) security, solidarity and trust, 2) a fully integrated internal energy market, 3) energy efficiency, 4) decarbonising the economy and 5) research, innovation and competitiveness.

In this context, and in course of recent policy and legal reform processes, decision-makers and stakeholder groups keep emphasising that without putting citizens and communities at the heart of

Europe's energy transition, we would fall short of meeting our climate and energy objectives - and not be capable to keep the planet's temperature rise "well below 2 degrees", as stipulated under the Paris Agreement. Therefore, the CEP requires Member States to transpose, among others, a substantial number of measures into national energy laws and frameworks, which were designed to improve citizen empowerment and protection, and to increase the involvement of local communities. These measures include access to more accurate information on energy consumption and costs (incl. through smart metering and digital tools), energy labels and eco-design measures to increase energy-efficiency behaviour, and a tighter safety net to mitigate energy poverty and support vulnerable groups. Also, people are given more choice with regards to their energy supply, while they can in parallel play a more active role by investing in renewable energies, and then consume, store or sell the energy they produce, and benefit from functioning and organized electricity markets. While self-consumption is not a new concept and relatively widespread across Europe, the EU legally recognizes, for the first time, both individual[1] and collective[2] self-consumers and requires Member States to adopt enabling frameworks that will help exploiting the widely untapped potential of "active energy citizenship". The EU's "citizen" and "renewable" energy community frameworks set out requirements with regards to governance, open and voluntary participation, effective control by members as well as the primary purpose to provide environmental, economic or social community benefits for its members or the local areas where it operates, rather than financial profits.

Yet, most climate action and energy stakeholders, and especially legal experts, agree that many EU Member States have not designed and implemented sufficient measures and tools that support customer and community engagement in the energy sector. This includes transposing the CEP into national laws both in completeness and conformity, with regards to supplier switching, smart metering and access to consumption data, billing information, as well as energy efficiency measures and eco labels. This also applies to Greece and Italy and its islands such as Nisyros and Lampedusa but not to Bora Bora, which as a French overseas territory is not part of EU and therefore not required to apply EU Directives. On the other hand, progress has been made across a number of EU countries with regards to changes in national regulation and the introduction of enabling frameworks that allow individual and collective self-consumption, with the result that many new community energy initiatives are being established or have recently started operating.

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1 See Art. 15 on Active Customers in the revised Internal Electricity Market Directive (EU) 2019/944, as well as Art. 21 in the revised Renewable Energy Directive (EU) 2018/2001

2 See Art. 16 on Citizen Energy Communities in Directive (EU) 2019/944, as well as Art. 22 on Renewable Energy Communities in Directive (EU) 2018/2001

Chapter 1: Decarbonisation and Community & Citizen Engagement Levels on IANOS Fellow Islands

1.1. Overview Lampedusa: Energy and Decarbonisation

The island of Lampedusa is located between Sicily and North Africa and inhabited by a population of around 6.500, with the number of people present on the island varying considerably between winter and summer months - and the afflux of tourists which can make the islands reach 50.000 inhabitants. These socio-economic circumstances are reflected in Lampedusa's electricity consumption profile, with demand ranging from about 2000 MW in February to almost 9000 MW in August. Main consumers are the residential and tourism sectors and a desalination plant, using together almost half of the island's electricity – that is generated to 88,5% from a diesel-powered thermoelectric power plant and to 11,5% from 24 PV systems (and Lampedusa's only RES installation at present). Since there is no network connection to the mainland's power (or gas) infrastructure, the fossil fuels used for electricity generation are mostly imported by ships from Sicily, which in case of adverse weather conditions can threaten security of supply. In order to keep energy bills at equal levels with those issued to consumers on the mainland, Lampedusa's electricity supply is being subsidised (and financed through a levy paid by all Italian energy consumers), taking into account the substantially higher cost caused mainly by the transport of diesel to the island. Electricity is generated, distributed and supplied by the vertically integrated local energy company SELIS, which is Lampedusa's only established market and system actor[3].

1.2. Overview Lampedusa: Existing Initiatives and Levels of Citizen and Community Engagement

Lampedusa's energy landscape, in consideration of the high shares and costly import of fossil fuels and the abundant wealth of renewable energy sources (mainly in form of solar, wind and ocean energy) would largely benefit from increased renewable energy development. Benefits include the reduction of resource dependency and private and public expenditure, lower GHG emissions and increased citizen and community awareness of the important role that energy plays in climate change mitigation. Currently, the involvement and engagement of local residents and stakeholders

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[3] Please see IANOS Deliverable 2.2. (Report islands requirements on engineering and use case definition) for more detailed information on Lampedusa's energy sector and system.

in the decarbonisation process of the energy, heating & cooling and mobility sector is rather low and offers a meaningful yet untapped potential.

Lampedusa aims to reduce CO2 emissions by 63% until 2030. The municipality joined the EU Covenant of Mayors in 2013 and approved the Sustainable Energy and Climate Action Plan (SECAP) of Lampedusa and Linosa in 2018. The plan includes among others, energy audits of municipal buildings (2018-2030), implementation of PV systems in public and private sectors (2018-2030) and the revamping of public lighting (2019-2025). Existing initiatives include the "Green Islands Program" that was launched in 2021 by state authorities and designed to improve environment and energy related aspects on Italy's 19 non-interconnected islands. The program foresees the implementation of integrated projects on energy and water efficiency, sustainable mobility, waste cycle management, circular economy, renewable energy development and different end-use applications. The program's overall budget is 200€ million, which is provided through national and EU funding such as Italy's Recovery and Resilience Plan (PNRR) and Next Generation EU. In April 2022, the RE24S project was presented to apply for funding under the "Green Islands Program", after it had been approved to receive technical support by the Clean Energy for EU Islands Secretariat of the European Commission[4]. RE24S foresees amongst others to install new PV systems on abandoned areas of Lampedusa, set to reach a total of 2 MW and able to supply over 10% of the island's electricity needs (in parallel to the RECOnLI Project, under which a renewable energy community will be established on the nearby island of Linosa). To this purpose, a memorandum of understanding has been signed, to kick-start the development of a decarbonization strategy for the Pelagie Islands.

In parallel, the 'Smartisland - Lampedusa' project fosters sustainable development, with regards to clean energy as well as efficient waste management and mobility, seeking to develop solutions where the island's economic, environmental and social sustainability is at risk. The project aims to make Lampedusa become a "smart community", proposing i.a. an energy system design that is no longer based on a centralized infrastructure with one (oversized) generation plant, but on multiple distributed energy sources and active users that are connected through flexible and smart networks. To this end, two scenarios have been issued – one with 50%, and one with 100% renewables share connected and integrated into the islands' energy systems, in combination with a significant reduction in electricity through the implementation of energy efficiency measures. The scenarios

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[4] For more information, please see https://clean-energy-islands.ec.europa.eu/news/results-second-call-technical-assistance

have been presented to citizens and stakeholders, to inform and involve the island population from the early project implementation onwards.

The BLoRin project is developing a demonstration site that is dedicated to promote digitalization of local energy systems. A dozen buildings will be identified in Lampedusa, on top of which PV and storage systems will be installed. Then, a platform for electricity sharing based on blockchain technology will be tested, allowing prosumers, when not being able to consume or store the electricity produced, to be selling it to consumers who in that very moment are in demand (which is expected to generate higher revenue streams than selling the excess electricity to the grid operator). BLoRin lays the groundwork for delivering services and commodities that could be used by an energy community, including collective self-consumption, electricity sharing, IT management platforms, innovative solutions (such as blockchain), as well as contractual aspects.

Lampedusa has signed the Clean Energy for EU Islands pledge, formalizing the commitments between stakeholders involved in the transition to clean energy systems on EU islands. This commitment includes following an approach that actively engages all relevant stakeholders on an island, incl. citizens, local businesses, schools and universities. This approach is meant to secure support from the entire community and thus accelerate the transition process (see chapter 2.3.2 for more information on the Clean Energy for EU Islands initiative).

1.3. Overview Bora Bora: Energy and Decarbonisation

Bora Bora is a small island located in the South Pacific Ocean and belongs to French Polynesia (270 km northwest of Tahiti, Oceania). The archipelago contains 14 islands and is divided into two groups, the Windward Islands (207,333 inhabitants) and the Leeward Islands (35,393 inhabitants), which is where Bora Bora is located, with a population of 10,605 local residents and approx. 125,000 visitors per year. The total electricity produced in 2020 was 35.6 GWh, of which 94,6% is generated by 8 diesel generators, whereas the remaining 5,6% stems from PV panels. The electricity network are not built to cope with peak demand especially during high tourism season, when air conditioning can account for up to 50% of the electricity consumption. Bora Bora's main economic activity takes place in the service sector, where especially luxury tourism represents the largest electricity consumer. The local utility, Electricité de Tahiti (EDT), generates and distributes energy throughout French Polynesia on a vertically integrated market, with electricity generation that cost-intensive is due to shipping fossil fuels to the island and complex system operation. The installed capacity is 10 MW, with the peak

power at 7,860 kW and an annual electricity production of 45GWh. At present, there are no storage solutions currently available yet. With its centralized system architecture, Bora Bora is similar to most islands in the Pacific, and therefore exposed to environmental degradation through the high usage of fossil fuels and price levels which - already before recent supply shortages of mainly natural gas and oil - were major concerns for local residents. Further drivers for decarbonization efforts are the development of increasingly popular eco-tourism, as well as noise reduction and improved air quality through the use of electricity in mobility (for both cars and boats on the lagoon).

1.4. Overview Bora Bora: Existing Decarbonisation Initiatives and Levels of Citizen and Community Engagement

In general, there is strong commitment among decision-makers in French Polynesia to decarbonize the production and consumption of energy. In September 2021, the Council of Bora Bora and EDT signed an amendment to the concession granting EDT the supply and distribution of electricity (until 2030). This foresees an investment program of 4.2€ million dedicated to infrastructure and the installment of 5MW of solar PV, with the overall ambition to implement a carbon-free energy sector and 100% electric mobility by 2050, incl. for boat transport. An intermediary plan, targeted to be achieved by 2030, has already been launched: existing initiatives include SWEET, the "Solar and Sea Water Experiment for Energy Transition" project, which foresees the installation of a 2MW capacity of photovoltaic electrified agricultural greenhouses and photovoltaic shading structures on aquaculture pond, coupled with an energy storage system and a reinforcement of the cable to transport some of the electricity generated to the main Island. This will allow Bora Bora to foster self-sufficiency in food supply, which currently is in the range of 5 to 10% and hence a constant barrier to affordable price levels. In a second stage, SWEET will conduct the installation and operation of Ocean Thermal Energy Conversion (OTEC) and solar PV at Motu Mute (one of Bora Bora's reef islets), to use the onshore maritime thermal energy (2 MWth) and promote the modernization of air conditioning in the airport and neighbouring resorts, in combination with agricultural/aquaculture greenhouses in temperate environment. SWEET, along with a small-sized liquid hydrogen pilot project upheld by the Council of Bora Bora, has been integrated into IANOS (next to testing the replicability of operational solutions developed and applied on IANOS lighthouse islands, Ameland and Terceira).

In terms of citizen engagement, there is great interest and potential among local residents to engage in the island's decarbonisation process and the development of green energy solutions in sectors such as heating & cooling, transport, agriculture and tourism. Bora Bora's island community is well

aware of the need to protect the environment and foster sustainable development, incl. through the increase of RES. The Council held numerous public meetings on the preservation of the lagoon and water resources, as well as on the development of RES and scalability. The IANOS project, as it will be implemented, eventually aims at durably fostering public commitment to the decarbonization process. The option to establish a local energy community has been discussed among citizens and community stakeholders (and among involved IANOS partners). Several topics of interest have been identified in course of the discussion, such as powering fruit and vegetable cultivation in greenhouses with renewable electricity, or the use of electricity to power boat transport on the lagoon.

1.5. Overview Nisyros: Energy and Decarbonisation

Nisyros is a volcanic island located in the Aegean Sea, between the islands of Kos and Tilos. The around 1,000 inhabitants live on 41.6 km2, with average tourists' numbers reaching a total of around 86.000 over summer season. The main economic activities - and demand for energy which in total amounts to 9,6 GWh – stem from the tourism sector itself, as well as desalination and the mining and production of pumice stone quarry, which is supplied by on-site oil engines with a max. capacity of 3 MW. Apart from the mine, Nisyros does not dispose of any electricity generation units of its own, neither in form of RES installations nor plants that run on fossil fuels – despite strong winds, high solar irradiance and significant geothermal capacity (the potential of which is sufficient to meet energy needs of nine out of the 15 Dodecanese islands). Yet, heating and transport are largely fueled with oil and diesel, while Nisyros is being supplied by electricity produced in 2 oil-based thermal power plants located on the islands of Kos and Kalymnos (of 102MW and 18MW) and transported through the "Kos-Kalymnos" autonomous micro-grid via underwater cables. The extensive and complex configuration of the "Kos-Kalymnos" autonomous microgrid is impacting the quality of the electricity distributed to Nisyros island, with frequent black-outs occurring mainly at the microgrid's south part (which is comprised of Nisyros and Tilos), in addition to voltage and frequency stability issues. According to the Independent Power Transmission Operator (ADMIE), there are plans to interconnect Kos with Greek mainland via DC underwater cables by 2027. Like on Lampedusa and Bora Bora, electricity generation costs are much higher than Greece mainland, also due to the cost of fossil fuels and transportation. However, due to the Public Service Obligations (PSOs, charges collected by suppliers), the inhabitants of non-interconnected islands can access electricity at the same price as customers who live on the mainland. The island's heating and transport sector, which is fueled by oil, diesel and gasoline and brought by vessels mostly from Kos, also makes for higher fuel prices in comparison to the mainland.

1.6. Overview Nisyros: Existing Decarbonisation Initiatives and Levels of Citizen and Community Engagement

Existing decarbonisation initiatives that are in the pipeline include the AIGAIO Project which was meant to kick-off in 2020 but was put on hold as it did pass environmental impact assessment (but should be resubmitted soon). AIGAIO foresees the installation of 138 wind turbines with a total capacity of 582 MW on 23 remote and uninhabited islets of the Aegean Sea. The wind parks would be interconnected with both the mainland power grid and the Kos-Kalymnos" autonomous micro-grid (which i.a. supplies electricity to Nisyros). AIGIAO was designed to significantly improve interconnections and renewable electricity supply among the Southern Aegean islands and has been included in recent Ten-Year-Network-Development-Plans that are issued by ENTSO-E, the European association for the cooperation of transmission system operators (TSOs) for electricity. In parallel, there are further wind projects in the pipeline, such as a 330 kW turbine connected to one of Nisyros' desalination units, and for supporting local and sustainable energy consumption. In 2019, the municipality of Nisyros and the Center for Research and Technology Hellas (CERTH) signed a Memorandum of Cooperation (MoC), according to which Nisyros will promote circular economy solutions through knowledge and innovation, while at the same time foster the exploitation of locally available RES sources. Moreover, the MoC emphasises the importance of the blue economy[5] and the protection and restoration of biodiversity, as well the creation of local energy communities and/or energy cooperatives which would alleviate the Nisyros' major concerns with regards to its fossil and cost-intensive energy use and become a major tool for community and citizen engagement. Also, decarbonisation efforts on Nisyros will be supported in form of a feasibility study within the NESOI initiative (= New Energy Solutions Optimised for Islands). The study will analyse feasibility of the "Zero-Emissions-Nisyros" project, that aims to install PV and small-scale wind installations, in combination with energy storage and net metering systems – which are meant to cover the consumption of the desalination and the wastewater treatment plants, the public buildings, and some of the islands' public infrastructure, such as public lighting. The project further will define an operational plan for sustainable mobility.

In May 2022, a new climate law was enacted in which a Strategic Development Framework is established for Greek islands under the name "GR-eco islands", with the purpose to provide

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[5] Which according to the World Bank is "the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem"

assistance for achieving climate neutrality. In principle, all islands are eligible to be included in the framework. However, there are certain criteria such as their permanent population, their energy needs, as well as the potential to be interconnected to the mainland, and the exploitation of natural resources and the existence of transport infrastructure and accessibility.

1.7. Conclusion Part 1: Decarbonisation and Community & Citizen Engagement Levels on IANOS fellow islands

In conclusion, the 3 IANOS fellow islands compare well in terms of rather carbon-intensive ways energy is being produced and consumed, using fossil fuels as major source in electricity generation, transport and heating. In parallel, most citizens and community engagement in the energy transition has been, until present, limited to informing and consulting, and hence to low levels of the "public participation spectrum", as defined by the International Association of Public Participation (above informing and consulting, there is involving, collaborating, empowering[6]). In other terms, there's substantial potential to substitute fossil fuels by renewable energy sources and at the same time increase efforts to have citizens and communities getting involved in the process. Therefore, in course of the further IANOS implementation that is conducted to increase stakeholder engagement under WP8, project partners are planning to explore how and whether to combine resources available under other existing initiatives and IANOS, with emphasis on preparing further steps that can lead to establishing energy communities on IANOS fellow islands (see chapter 3) – and in return considerably boost citizen and community engagement.

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[6] See IANOS D8.1 "Designing a community engagement strategy", p. 15

Chapter 2: Best Practice Approach: Community & Citizen Engagement Tools

Part 2 of this publication describes community and citizens engagement tools that are built on and derive from the essential elements of designing an engagement strategy described in IANOS D8.1[7]. These tools will be illustrated by engagement activities that have been conducted in existing decarbonization initiatives, with a focus on related EU projects. In general, stakeholder engagement which in the broader sense extends to citizens, businesses, authorities, civil society and media is playing a more and more prominent role in initiatives related to decarbonization and climate change adaptation and mitigation. Most EU funded Horizon initiatives nowadays develop and apply engagement strategies and measures, responding to each project's needs and the removal of barriers that might prevent its successful implementation. The choice of effective tools depends i.a. on the type of intervention that is foreseen, in which phase the engagement process is, and what degree of involvement is being targeted. Nevertheless, tools such as interviews, questionnaires, surveys, workshops, informative sessions, advisory boards, demonstration site visit, serious games, webinars, communication and awareness raising campaigns, bilateral meetings, flyers, brochures and newsletters can certainly be used in earlier as well as later project implementation stages, and for achieving engagement levels that range from information to consultation to involvement to collaboration to empowerment. The tools suggested in the following chapters are presented in a structure that is based on the understanding that 1) progress on decarbonisation and community engagement on the 3 IANOS fellow islands is rather limited (and can hence encompass a wide range of potential activities); 2) IANOS project activities on fellow islands mainly consist of developing replication and scalability plans and do not foresee any concrete interventions, such as use-cases, demo sites or RES installations (and hence would require more tailor-made engagement tools); 3) general island characteristics can have an effect on engagement strategies and tools. A number of such characteristics have been summarized by the Horizon project INSULAE[8], such as the distance from the mainland and appropriate local communication requirements, the strong presence of tourism and planning needs that are adapted to seasonality, the electricity network interconnection and local consumer experience with regards to security of supply, or else the dependency on fossil fuels and high community engagement potential in renewable energy development.

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[7] See chapter 4 of IANOS Deliverable 8.1. "Designing a Community Engagement Strategy"
[8] See INSULAE Deliverable 2.4. „Citizens participation: common conclusions report"

As mentioned above, chapter 4 of IANOS D.8.1 (report on "Designing a community engagement strategy") describes key elements of engagement which need to be considered in an initiative's strategic planning phase, addressing aspects that include general information on the project, purpose and general objectives, target groups, expected levels of engagement, value propositions, the identification of key actors and their respective roles, communication and feedback loops, as well as the central role for community energy in this respect. Chapters 2.1 to 2.2. propose a set of tools that can be applied during the early and preparation stages of citizen and community engagement, while tools described in the following chapters 2.3 to 2.4 are mostly used in the implementation process engagement itself.

2.1. Assessment Tools of Local Island Conditions

Any effective decarbonization initiative will have to build on a thorough understanding of the general local context (socio-economic, economic, environmental, cultural, regulatory, demographic, energy market and system related, others[9]) and of the location's specific boundary conditions. Although not a tool exclusively used in citizen and community engagement, and conducted in most project inception stages, the ex-ante assessment of local conditions plays a central role for designing further elements of engagement strategies. Without a clear view on a location's key economic activities, energy sector developments and the wider public's attitudes towards decarbonization measures, it will be challenging to identify relevant community stakeholders, define their roles and influence, or develop incentives that effectively remove barriers to community and citizen engagement.

Such an assessment, covering aspects as outlined in the overview descriptions on the 3 IANOS fellow islands[10], can provide detailed information on 1) the energy mix and current levels of renewable and fossil fuel consumption across the location's energy, transport, heating & cooling and industry sectors; on 2) the energy market design, incl. energy price levels, degrees of consumer choice and participation in form of supplier switching or engage in self-consumption (individually as well as in collective initiatives such as energy communities and cooperatives); on 3) stakeholders who are key in the location's energy sector, incl. suppliers, retailers, renewable power and gas producers, project developers, distribution and transmission system operators, local authorities incl. mayors, urban planners, as well as wider energy and climate action stakeholder groups, such as NGOs, academia or

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[9] See chapter 3 "Assessing the situation and project" of IANOS Deliverable 8.1. "Designing a community engagement strategy"

[10] See chapter 1 of this publication

business representations (also see chapter 2.2.); on 4) present energy systems, incl. factors such as the shape and design of electricity and gas networks (and e.g. their capacity to connect distributed energy sources), interconnection with other islands or the mainland, smart metering and further (digital) solutions that can foster system flexibility and allow for the market and system integration of new entrants (like aggregators or prosumers); on 5) national and local regulatory framework conditions, with regards to permitting procedures for renewable energy installations, support schemes (such as feed-in tariffs), power-purchase agreements, renewable self-consumption, energy consumer protection, as well as the transposition of relevant EU legislation into national laws; on 6) current levels and examples of citizen and community engagement in the energy the energy transition; on 7) previous and present decarbonization initiatives, in order to identify valuable sources of information and opportunities for cooperation and the exploitation of available synergies.

Tools that can be applied for assessing local conditions include, next to research in form of literature and consultancy reviews and the collection of publicly accessible data and information, targeted outreach to stakeholders who are expected to support the inquires conducted - and can be identified within existing consortia as well as their networks of contacts. In e.g. the implementation of WP8 and in preparation of this Deliverable, experts among the consortium have been consulted and provided extensive information on the IANOS fellow islands' energy mix, their energy market and system designs, decarbonization efforts and progress, as well as previous initiatives and key stakeholders in energy and among civil society. This was and is being done through bilateral meetings, dedicated questionnaires, follow-up interviews and media and literature review.

Best practice approaches for assessment have been developed and tested by the following related initiatives:

- The EU Horizon project INSULAE foresees to issue an Investment Planning Tool (IPT) that can create action plans for geographical islands to generate their own sustainable and low-cost energy. In this context, INSULAE has developed a methodology[11] for geographical islands, using a set of characterisation vectors and KPIs on a range of energy related aspects, such as generation, demand, networks, renewable installation capacity, as well as economic, societal and environmental vectors (e.g. GDP and unemployment rate, GHG emissions and air pollution).

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[11] See INSULAE project at www.insulae-h2020.eu and Article "Reference Islands Definition within INSULAE Project through KPIs", Scientific Research, March 2020

Applying this characterisation methodology allows to categorise a geographical island according to 7 identified reference island types, which can represent most EU islands and have been developed under INSULAE through extensive data analysis. The results obtained are being used for designing tailor-made decarbonisation and replicability plans and interventions, incl. on citizen and community engagement. For instance, aspects related to generation, demand and networks play an essential role when planning renewable energy projects, incl. community-led initiatives.

- The EU Horizon project COME RES seeks to facilitate the market uptake of renewable energy sources (RES) in the electricity sector, with a strong focus on advancing renewable energy communities (RECs), as per the EU's recast Renewable Energy Directive (RED II). In its early implementation, COME RES conducted extensive assessments using a common methodology that was applied to understand the climate, energy, technological and socio-economic conditions in the project's 10 target regions[12]. This was done for calculating the potential of establishing renewable energy communities, incl. through estimates of the total wind and/or solar power capacity that could be installed (using parameters such as available land and rooftop areas, housing types, specific climate conditions etc.), as well as the consideration of policy commitments in form of energy targets and climate action plans, and the total RES investments that would be needed for the effective implementation of commitment. The assessment further covered the socio-economic potential that could be unlocked by households who are willing to invest in renewable energy projects and more specifically, in collective initiatives. Using this approach could be advantageous for also assessing the potential of community energy models on the 3 IANOS fellow islands, which in return could become a driver for meaningful citizen and community engagement.

2.2. Community Stakeholder Identification and Analysis Tools

Arguably, the identification of stakeholders can be considered as part of assessing the general local conditions[13] that is carried out in a project's inception phase and is not necessarily limited to interventions that seek to engage citizens and communities. And while experience shows that successful implementation of any project is preceded by determining and involving relevant and affected stakeholders, especially engagement activities require thorough and extensive stakeholder

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[12] See COME RES Deliverable 2.2. "Assessment report of potentials for RES community energy in the target regions"
[13] See IANOS Deliverable 8.1. „Designing a community engagement strategy", chapter on "Assessing contextual factors: stakeholders", p. 20-21

identification and analysis. Direct access and outreach to citizens is a fundamental challenge and requires substantial resources, but can be facilitated through organizations with direct citizen representation and meaningful outreach potential. This can be specifically the case for rather small island communities who are characterised by strong social networks and close personal relationships, where local civil society organisations like environmental NGOS - who might be opposed to wind or hydropower projects – can be key actors in implementing renewable energy projects. Other actors with outreach and decision-making weight are e.g. housing associations, with regards to initiatives that seek improving energy efficiency, facilitate prosumption models or the installment of e-mobility charging points.

The following table provides a preliminary overview of relevant actors and wider stakeholder groups that can be considered for involvement in decarbonization initiatives:

Most relevant stakeholders who are or need to be actively involved	Stakeholders affected by project implementation, with potential strong interest	Stakeholders interested by project implementation and results	Further stakeholders who can facilitate project implementation
Project developers and partners	Local business representatives (on islands often tourism, services, agriculture)	Investors and potential financial partners	Existing and related initiatives, for joint efforts and synergies
Competent authorities at municipal, regional or national level, incl. local decision-makers, urban planners, permit granting authorities, regulators	Energy market and system actors (suppliers, generators, network operators, flexibility providers etc)	Neighbouring islands and communities with replication potential	Sector organizations, helping with outreach, capacity-building and dissemination (e.g. national and EU level networks and associations)
Interested and/or affected citizens, prominent local community members	Civil society organisations such as environmental and climate action NGOs	• Universities, schools, research institutes • Media outlets, in particular at local level	Official EU and national platforms and programs, such as the Clean Energy for EU Islands initiative and the

			European Islands Facility (NESOI)

For projects that are implemented at nation-wide or EU level and across borders, useful data collection tools include digital service platforms that deliver information on existing projects[14], or online hubs for industry clusters[15] that helps finding partners and sources of information per country, region, sector or industrial ecosystem. Yet on islands of the size of Lampedusa, Bora Bora and Nisyros, the number of relevant community stakeholders can be mostly identified through local expert consultations (incl. among IANOS project partners and their networks of contacts). It is however advisable to carefully research on entities who are from outside the local community but involved in local policy-making contexts: for example, the Politecnico di Torino university is partnering on the Pelagie islands on the RE24S and RECOnLI projects, under which i.a. the establishment of a renewable energy community is being planned on the island of Linosa (see chapter 1.2). In parallel, the Politecnico de Torino university is strongly involved in comparable initiatives, having helped establishing Italy's first renewable energy community[16] in the small town of Magliano Alpi, located in the southern Piedmont region and accounting for around 2200 inhabitants[17]. With its expertise and engagement in such decarbonization initiatives, engaging with resourceful partners can be essential when preparing the implementation of comparable interventions on Lampedusa and other islands.

After *identification*, valuable stakeholder information can be collected and filed, incl. contact details of representatives, websites, publications etc. Such files can then be enlarged with information that stems from stakeholder *analysis and mapping*. In this respect, the IANOS report "Designing a community engagement strategy"[18] outlines the many contextual and behaviour change factors that should be taken into consideration, when analysing stakeholders: 1) the potential form and level of engagement of each stakeholder identified; 2) drivers and barriers for engagement; 3) motivations among stakeholders to support – or obstruct – project implementation; 4) available resources among stakeholders, incl. level of expertise, funding, outreach potential etc. The analysis will then allow to assign stakeholders to predefined categories - such as "key", "primary" and "secondary",

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[14] KAILA is s a smart digital services platform to foster open innovation by facilitating the creation and management of innovation ecosystems in Europe, with information about over 58.000 projects

[15] Such as the EU funded "European Cluster Collaboration Platform"

[16] After Art. 22 on Renewable Energy Communities in Directive (EU) 2018/2001 was transposed into Italian legislation in 2020

[17] See COME RES Deliverable 4.1. „Report on organisational and legal forms and business models", chapter 5 on Existing RECs and Pilot Sites"

[18] See chapter 4 of IANOS Deliverable 8.1. "Designing a Community Engagement Strategy"

according to their ability to influence the project's evolution and the expected interest in participation. This in return will help define further engagement actions and through which communication channels and material each stakeholder category should be addressed.

Best practice approaches for assessment have been developed and used by the following initiatives:

- The Horizon project FLAGSHIP aims to reduce the Levelized Cost of Energy (LCOE) for floating offshore wind to the range 40-60 €/MWh by 2030 and develop and fabricate the first 10 MW Floating Offshore Wind Turbine (FOWT) assembled on a floating semi-submersible concrete structure in the Norwegian North Sea. This demonstration project will manage a 25 million euros funding during its 4 years duration between September 2020 and late 2024, incl. a stakeholder identification and mapping that was carried out in 2021[19]. In preparation of the engagement activities, FLAGSHIP identified and grouped, in its capacity as a large-scale renewable industry project, stakeholders into 4 groups (research, industry, policy-makers and media/influencers) and according to whether they are acting at global, European or local levels. Based on that, the Power Interest Matrix[20] was applied, to determine the influence and interest of each stakeholder group, as well as the level of required participation and resulting communication efforts. The matrix can visualize whether stakeholders should be monitored, kept informed, kept satisfied or be managed closely – which in return helped issuing concrete actions for each of the groups. For instance, while monitoring groups is done mainly by reviewing social media accounts, websites and publications, groups to be managed closely are engaged through participation in advisory boards, active networking, bilateral meetings and the organization of joint events.

- The Horizon project ISLANDER seeks to decarbonise energy systems on EU islands, by demonstrating smart grid solutions that are combined with renewable energy and storage technologies in real-life settings. Starting with the pilot on Borkum in Germany, the project aims at replicating solutions on the 4 follower islands Lefkada and Skopelos in Greece, as well as Orkney in the UK and Cres in Croatia. Amongst others, ISLANDER promotes establishing a renewable energy community on Borkum and has therefore developed an action plan for citizen engagement process[21], incl. the analysis, grouping and rating of stakeholders. Relevant

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[19] See FLAGSHIP Deliverable 10.3. „Stakeholders mapping"
[20] See 'Strategic Management of Stakeholders: Theory and Practice' by Fran Ackermann and Colin Eden, 2011
[21] See ISLANDER Deliverable 7.1. „Action Plan for Citizen Engagement Process"

for creating a renewable energy community are the 3 stakeholder groups energy consumers, energy market and system actors and decision-makers, which have been sub grouped into further categories such as active or passive citizens, industry consumers, energy suppliers and integrated local energy companies, authorities at local, regional, national and EU level etc. Similar to what is being done under FLAGSHIP, each subgroup was then mapped using the Power Interest Matrix and classified as players (high power, high interest), subjects (low power, high interest), context-setters (high power, low interest) or crowd (low power, low interest). In addition, the stakeholder analysis helped to define organizations and individuals among each group, as well as the means of contact. While e.g. industry players, public institutions and potential project partners are contacted directly, citizens and tourists are reached via local media and workshops organized under ISLANDER.

2.3. Communication

After having identified, analysed and/or group key community stakeholders whose engagement is key for successful project implementation, it is important to choose effective communication tools and apply these throughout the further engagement process. This starts with outreach and initial mobilization, using formats and content that is developed according to expected motivations and needs that have been defined among the different stakeholder groups. It then continues with the use of tools that foster permanent and active involvement, which in general is more relevant among stakeholders who have been acknowledged to dispose of strong abilities to influence project implementation (see ISLANDER and FLAGSHIP projects under chapter 2.2). On the other hand, when the targeted level of participation is low (= inform), communication will predominantly be a one-way stream of information. Further engagement can be achieved by monitoring the engagement progress and outcome itself, as well as through targeted dissemination of the project and its results. Guidance on general communication requirements is provided by the IANOS report "Designing a community engagement strategy" (Deliverable 8.1). Overall, it is important to specify what information will be exchanged - what information will be presented to citizens and the community, what information will be collected - and the channels and tools by which that will be done.

2.3.1 Engagement Tools – Outreach and Initial Mobilisation

The material used for outreach and initial mobilization should already be based on a convincing corporate identity toolkit[22], incl. logos, claims, colour palettes, fonts, key visuals and templates for letters, emails, flyers and introductory presentations. This toolkit will be further used throughout a project's communication efforts, in publications, presentations, events, meetings and media work. Ideally, outreach and mobilization will be supported by a website and social media accounts, providing access to main contents and material that in return can be shared by stakeholder who act as multipliers in outreach and dissemination.

Outreach tools should address key content, with the level of detail and complexity adapted to each stakeholder group/subgroup that is meant to engage. Key content includes purpose, objectives, value proposition and other convincing arguments for citizen and community engagement – such as the high usage of fossil fuels and the resulting need to decarbonize. In case first outreach is done via personal message through letter, email or social media, it is essential to transmit not more information than what the stakeholder is expected to consume and comprehend. In case first outreach is done via phone or meeting in person, introductions that are well-prepared address the interlocuters' aspirations and prepare for unexpected reactions, which can be helped by careful research that is conducted ahead of the interaction (incl. on the contact person's previous professional background and publications, e.g. on LinkedIn and twitter). In case first outreach is targeting a wider public and especially citizens, and done via articles or videos in local media outlets and publications on social media, it is essential to develop content that is captivating the reader's attention and transmitting essential and accessible information. For instance, local and regional media in French Polynesia have been covering IANOS and the involvement of Bora Bora, providing information to local populations on what the project is about and planning to materialise.

Initial mobilisation goes beyond outreach and offers perspectives and incentives for citizens and communities to become active. This includes invitations to participate in consultation processes (via interviews, surveys, questionnaires etc.), to attend events such as demo site visits or townhall meetings, or information about the benefits of joining initiatives on energy efficiency, collective self-consumption or e-mobility. The emphasis in this phase of engagement lies on communicating concrete advantages that stakeholders can expect from getting involved. Other than invitations to join selected project activities, mobilization can be initiated through the allocation of subgrants to local stakeholders and other financial or material incentives, in form of supporting solar panel

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[22] For instance, see ISLANDER Deliverable 9.4. "Islander Corporate Identity Toolkit"

installations, smart meters, mobile applications and cost reduction in energy or transport in return for active participation in a program or initiative. For instance, participating in carbon-free mobility solutions can be initiated by offers to join electric car-sharing schemes, while citizens joining energy efficiency programs can receive financial support for insulating homes are replacing heating devices.

Best practice approaches for outreach and initial mobilisation have been developed and applied by the following initiatives:

- The Horizon project GIFT aims to decarbonise the energy mix of European islands and to develop innovative systems that allow islands to integrate high shares of renewables, such as a virtual power system, systems for energy management and a better prediction of supply and demand, as well as data platforms and innovative storage solutions. On the Italian pilot island Procida, the project as such was promoted via local media campaigns while in parallel, several sites that are suitable for implementing prosumption models were identified, both from a technical and motivational perspective. These include the city hall, office buildings, schools, the hospital, hotels, restaurants, the sewage treatment plant and industrial facilities – which were then clustered into 3 prototypes, depending on which of the 3 available solutions can best facilitate on-site prosumption: the Factory Energy Management System, the EV-Charger Energy Management System, and the Smart Energy Hub[23]. Then, the municipality outreached via telephone to the sites' owners and/or operators and started the initial mobilisation in form of bilateral meetings and introductory presentations that displayed how users would benefit from joining the GIFT implementation: real-time overview and information about energy consumption, better control over devices and their energy behaviour, as well as additional available income through lowered expenditure on energy (mainly by self-consumption and selling flexibility to the DSO). In total, 10 stakeholders became engaged into the process.

- A similar yet different process was started on the second GIFT pilot island, Hinnoya in Norway. To identify prosumers of electric flexibility[24], potentially interested parties (in this case only local businesses were targeted) were invited to collective information meetings that was designed to trigger interest. Then, questionnaires and letter of interest were sent out for

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[23] See GIFT Deliverable 8.1. „Report on Requirement and Prosumer Analysis - Procida"
[24] Those supplying electric flexibility, those purchasing it, as well as those doing both, see GIFT Deliverable 7.1. „Report on Requirement and Prosumer Analysis – Hinnoya"

determining whether prosumer sites meet technical requirements, in combination with individual meetings where technical and commercial details were further clarified. The key incentives to initiate stakeholder mobilisation that were communicated are stronger community involvement, contributing to the energy transition, being part of an innovation project and getting to use new technology (flexibility markets in Norway at present do not offer significant financial benefits to engage consumers). The communication strategy and tools used in outreach and mobilisation were developed in cooperation with a local agency who i.a. translated content into Norwegian language and even the local dialect, resulting in the engagement of 20 local businesses.

2.3.2   Engagement Tools – Continuous Involvement

Community engagement should be considered a continuous and ongoing process. The analysis of 17 best practice cases conducted under IANOS task 8.1[25] shows that long-term engagement is based on mutual trust that needs to develop over time. Once engaged, it is essential to maintain the dialogue. This can be done by means of regular dissemination of information on project implementation progress and results (newsletters, deliverables, press releases, incl. through social media content etc.[26]), requests to provide feedback (at meetings and events, through questionnaires and interviews), invitations to attend and contribute to events (project meetings, conferences, workshops etc[27]), as well as the active participation in stakeholder committees that have been set-up under the project itself.

Stakeholder committees come in many forms and can be an effective tool for continuous engagement, fostering the exchange of knowledge and expertise, dissemination, as well as the provision of feedback, guidance, advice, and pathways for exploiting project results. Depending on orientation and purpose, such stakeholder groups can be advisory board, sounding boards or steering committees who meet on a regular basis and provide input throughout project implementation. This can be done at local level and secure the continuous involvement of local stakeholders and citizens (which would be the most suitable option for the islands of Lampedusa, Bora Bora and Nisyros), as well as national and EU level, to engage with entities in project activities that are carried out on a

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[25] See chapter 6 of IANOS Deliverable 8.1. „Designing a community engagement strategy"
[26] See chapter 2.3.4. of this report: „Engagement Tools – Dissemination"
[27] See chapter 2.4. of this report: "Events as Citizen ad Community Engagement Tool"

larger scale, e.g. when addressing policy recommendations to decision-makers and wider stakeholder networks.

Best practice approaches for securing continuous engagement that have been developed and applied by the following initiatives:

- The Horizon project SENDER develops next generation energy service applications for demand-response, home automation, convenience, and security. It engages consumers through a co-creation process that is meant to ensure, in cooperation with energy market and system actors, that energy services are designed with the involvement of consumers themselves. The co-creation mechanism consists steering groups and workshops, with co-creation steering groups[28] gathering main stakeholders among technology and service providers, public regulators and end-users, who represent consortium partners and external actors from the project's 3 demo sites and be actively involved in the use-case definition. In parallel, co-creation workshops focus on the demand side and the purposes and use of solutions developed under SENDER, involving local technology and service developers, energy companies and local end-users at each demo site.

- The Horizon project ALPHEUS improve reversible pump and turbine technologies and adjacent civil structures needed to make pumped hydro storage economically viable in shallow seas and coastal environments with flat topography. To support the consortium's work, the External Advisory Board (EAB) engages stakeholders from the hydropower industry, policy-making and regulation, technology providers and academia, who are tasked to monitor that project deliverables adhere to sector needs and facilitate market uptake. This will be done by exchanging knowledge on best practices and experience with technology developments, as well as by providing advice on the relevance of project results to policy-making, and facilitate industry and end-user participation in pursuing exploitation strategies. The EAB is joining regular project and review meetings and stakeholder workshops.

In addition, national and EU level networks and platforms designed to connect and support local community stakeholders can be considered as tools that foster long-term engagement. Existing

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[28] See SENDER Deliverable 2.1. "Co-Creation Steering Group Definitive List"

networks and platforms that promote solutions for the clean energy transition for municipalities and islands include:

- The EU Covenant of Mayors for Climate & Energy brings together more than 9000 local and regional authorities who are committed to implementing EU climate and energy objectives. Signatory municipalities engage to support implementation of the EU 55% greenhouse gas-reduction target by 2030 and the adoption of a joint approach to tackling mitigation and adaptation to climate change. In order to translate political commitment into practical measures and projects, Covenant signatories commit to submitting, within two years following the date of the local council decision, a Sustainable Energy and Climate Action Plan (SECAP) outlining the key actions they plan to undertake. The plan will feature a Baseline Emission Inventory to track mitigation actions and a Climate Risks and Vulnerability Assessment. This is meant to mark the beginning of a long-term engagement process, with cities committed to reporting every two years on the implementation progress of their plans, incl. for municipalities that are located on EU islands.

- The Clean Energy for EU islands secretariat, an initiative of the European Commission, is the central platform for the clean energy transition of the more than 2,200 inhabited European islands. Despite having access to renewable sources of energy (like Lampedusa, Bora Bora, Nisyros), such as wind and ocean energy, many of them depend on expensive fossil fuel imports for their energy supply. The Islands secretariat's website acts as a centre to showcase best islands practices and informs about policy and regulatory issues for European island communities. The support provided includes dedicated advice for capacity building and clean energy transitioning, in form of technical assistance to clean energy projects (between 2020 and 2022 the secretariat will support a total of 40 energy projects on islands). Features for islands who are starting the clean energy transition, the Clean Energy Transition Agenda methodology and the Islands Transition Handbook provide guidance and helps developing a strategic roadmap for the transition process. Also, a self-assessment tool facilitates evaluate the status of an island's clean energy transition, based on eight indicators, whereas the Financing Corner gives access to information about financing clean energy projects of different forms and sizes on islands. In terms of local engagement, the Clean Energy for EU Islands recommends, in a first step, to get together with fellow enthusiasts on the island to form the clean energy transition team. This team ideally includes local authority

representatives, as well as from community organisations, local businesses and schools/universities.

2.3.3   Engagement Tools – Dissemination

Well-targeted and continuous dissemination is not only key for keeping stakeholders informed on project progress and outcomes, but also plays a major role to maintain the dialogue throughout the engagement process (see previous chapter 2.3.2). Ideally, the spreading of information triggers interest in new partnerships and cooperation, replication and the deployment of best practices and other exploitable project results. As in stakeholder identification (see chapter 2.2.), thorough research is required to identify and list potential recipients that extend to wider stakeholder groups and go beyond those who are meant to come actively engaged (but should get at least informed). Communication formats and content that is being disseminated among stakeholders from across wider target groups need to be clear and concise, and present key objectives and messages in accessible ways that can be understood by all types of audiences, regardless of their level of expertise. Typical dissemination tools that can outreach to large groups of stakeholders are:

- Generating a distribution list with relevant contacts from the target groups and stakeholders at local, national and EU level, incl. media outlets
- Using tools and services provided by the European Commission (such as the European IPR helpdesk and the EC Innovation Platform) and national initiatives to explore further dissemination pathways
- Establishing contact with international organisations and networks beyond Europe (such as the International Energy Agency, World Energy Council, UN Intergovernmental Panel on Climate Change)
- Providing newsletters and regularly updated information on websites, both on the project's own and those of consortium partners (for instance, EU Covenant of Mayors' website reaches out to more than 7,000 local and regional authorities, see chapter 2.3.2)
- Actively managing social media accounts, in particular on twitter, LinkedIn and Instagram.

In parallel, dissemination can be done among expert stakeholders, thus using formats and content that is tailor-made to each target audience and aiming to go beyond simply spreading information (but meant to engage e.g. in consultation and/or collaboration). To this purpose, specific tools include:

- Distributing information among selected energy and climate action stakeholders that have a genuine interest in the potential, means and outcomes of a successful project implementation, including through establishing expert groups such as European Advisory Boards or Co-Creation Steering Committees (see chapter 2.3.2)

- Making sure specific project outcomes reach the targeted recipients: for instance, EU policy recommendations should be addressed first and foremost to the European Commission, the European Parliament and relevant Brussels based stakeholder organisations (representing regulatory authorities, renewable associations, NGO networks etc.) The same is true for recommendations directed at national and local authorities

- Seeking liaison and collaboration with related initiatives that are being planned or implemented, combining dissemination efforts and other project activities that increase outreach (joint events and mailing lists, mutual social media support etc)

- Participating and presenting in relevant events and webinars, incl. those organised under EU initiatives (such as the Sustainable Energy Week, the European Week of Cities and Regions, the Clean Energy for EU Islands Forum)

- Events organised under the initiative itself (see chapter 2.4)

Designing and implementing a dissemination strategy is mandatory for each Horizon project. Examples for such strategies and tools are:

- The Horizon project PLATONE defines new approaches to increase the observability of renewable energy resources and less predictable loads while exploiting their flexibility. The project develops advanced management platforms to unlock grid flexibility and to realize an open and non-discriminatory market, linking users, aggregators and operators. To spread PLATONE content[29], a multichannel approach is chosen by creating synergies through networking and cooperation. PLATONE reaches out to the broader public via web-based channels and newsletters, backlinks, events and bi- or multilateral dialogues. These channels are regularly updated with non-sensitive and publicly available information on the progress and outcomes of the project and serve as a means for engaging with additional stakeholders. Main tools for implementing the dissemination strategy are the editorial plan (to report and monitor all relevant activities), the contact data base (to distribute content and manage

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[29] See PLATONE Deliverable 8.8. "Communication and Dissemination Plan"

stakeholder relations), contextual mailings (to announce events and news about publications), media and social media activities, as well as the European Commission initiative BRIDGE (which unites Horizon 2020 Smart Grid, Energy Storage, Islands, and Digitalisation Projects[30]).

2.3.4   Engagement Tools – Events

A central tool for engaging citizens and community stakeholder is personal and online encounters. Events and meetings can be conceived and held in many forms, in physical presence or via online platforms, bilaterally as well as in large settings that involve significant audiences. This includes conferences, workshops, seminars, stakeholder meetings, advisory/steering boards, webinars, demonstration site visits, townhall formats, house visits, educational workshops in cooperation with schools and other institutions, or events that are held as part of living labs. Stakeholder can be involved both through encounters that are organized within a project, as well as in cooperation and as part of relevant at local, national and EU level, depending on the type and size of stakeholder is being targeted. EU level events, such as the European Sustainable Energy Week, bring together large numbers of stakeholders, who can be helpful in enlarging outreach and visibility (for purposes of dissemination or support in form of cooperation e.g.), in exchanging best practice approaches and learning from other initiatives and stakeholder experience, as well as in addressing policy recommendations to EU decision-makers and helping to improve framework conditions in which decarbonisation solutions can be best implemented. This can be equally important at national level, where community stakeholders of islands such as from Bora Bora, Lampedusa and Nisyros can debate and recommend i.a. how to meet national policy needs, and engage with regulatory authorities, ministries and major energy market and system actors, and attract attentions to efforts undertaken at island level. But although events of larger formats at EU and national level can deliver meaningful benefits, it is encounters at local level that are most effective in engaging with citizens and community stakeholders. The success of initiatives that are implemented on geographical islands can largely depend on whether local population and businesses are becoming involved. Face-to-face meetings and formats that allow for discussions in person can significantly drive community ad citizen interest, while at the same time alleviate concerns (as e.g. related to the environmental impact of renewable energies) and reduce resistance to change and the application of new solutions. Just like for any project's overall engagement strategy, stakeholder identification and analysis (see

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[30] IANOS is part of the BRIDGE initiative as well

chapter 2.2) plays a central role in the preparation of events, for targeting and engaging with actors who are expected to be key enablers in carrying out further project activities. As such, events can be used to foster outreach and initiate community mobilization (see chapter 2.3.1), in form of kick-off meetings, introductory presentations or open days at demonstration sites, but also drive continuous engagement (see chapter 2.3.2), in form of regular workshops or advisory/steering committee meetings.

Best practice approaches of how events have been designed to engage with citizens and community stakeholders are:

- The Horizon project MERLON introduces an integrated modular local energy management framework for the holistic operational optimisation of local energy systems in presence of high shares of volatile distributed renewable energy sources. More specifically, MERLON optimizes the coordination of local flexibility resources through demand response and distributed storage solutions, to help establish integrated and interconnected local energy communities. At 2 pilot sites in Spain and Austria, the implementation of MERLON solutions for prosumers - in form of PV, batteries, EV charging facilities fand biogas CHP – require continuous interaction with stakeholders and the establishment of an open collaboration process. This is mainly done through living labs[31], which were established to improve technology customisation and proper validation against real market and user needs, including through the organisation of three workshops at each pilot site evenly for the engagement and training of local stakeholders and consumers who are either participating in the project or are affected by its implementation. The workshops were meant to gather all relevant local target groups and facilitate exchanging information, evaluate progress, assess risks and when required define corrective actions. To promote more efficient interaction with the different groups of participants, the workshops were divided into different sessions, such as the plenary (directed at all participants, introduction to the optimisation framework for energy communities), workshops for focus groups with parallel discussions (among participants whose role in the energy market is comparable), as well as feedback sessions where the where outcomes of the workshops were discussed. In total 20-30 stakeholders (incl. individual citizens) were successfully engaged in each pilot.

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[31] MERLON Deliverable 9.6. "Living Labs Activities Planning and Evaluation Report" provides detailed information on the workshop schedule, coordination and methodology (see in particular chapter

- The EU Horizon project INSULAE aims, like IANOS, at decarbonising geographical islands. At three pilot sites on islands in Croatia, Denmark and Portugal, seven replicable use cases are being developed and demonstrated, of which outputs be validated in form of Investment Planning Tool (IPT) – which in return will be applied by 4 follower islands. On the Danish island of Bornholm, to kick-start the demo site activities, project partners and local stakeholders (such as the municipality, the local energy provides, citizens and private companies) were invited to visit a fast-charging station for EVs that is powered by locally generated solar energy, with a 312 kWh reconfigurable battery storage that is equipped with two 175 kW ultra-fast chargers (up to 350 kW in single-mode) and a 43 kW grid connection. Bornholm's engagement strategy seeks to make as many people as possible use the EV chargers, which are free of charge and installed in an a publicly accessible and highly frequented location. The demo site event was designed to spread information and attract local population and businesses, as part of the attempt to make people opt for more sustainable and electric mobility solutions.

- The Horizon project E-LAND looks at innovative and economically viable solutions for extending the lifetime of existing energy infrastructures that can integrate high shares of distributed renewable energy resources (RES) and become more decentralised and flexible, incl. through storage solutions. To involve local stakeholders, they are offered to become co-creators and design suitable solutions that meet their energy needs. One of E-LAND's 5 pilot sites is the Norwegian harbour of Borg, which is an industrial area on a small peninsula and home to a range of energy intensive industries, such as incinerators, recycling plants, food, as well as energy companies who are active in production, storage and distribution (incl. LNG and district heating). Solution to reduce peak energy usage, increase self-consumption and become more energy-efficient include optimized schedules for harbour loads, smart battery storage systems, thermal heating and EV charging facilities, which have been presented at a kick-off workshop to port companies and local municipalities. The workshops are part of the overall engagement strategy (in addition to identifying stakeholder needs and using compelling communication material) and designed to initiate the participatory process among local stakeholders, which could see the creation of an Energy Board of Chamber at a later project stage.

- The Clean Energy for EU islands secretariat (see above, on page 23) has issued a Workshop Facilitation Guide[32] with tools and tips for organizing successful energy transition workshops on islands. The guide covers planning and preparation which include defining objectives, an overall vision, action plans and productive partnerships, as well as agenda design, the selection and invitation of speakers and attendees, workshop materials and logistics. With regards to the workshop implementation, the guide proposes several exercises, such as creating energy emergency scenarios and the development of solutions that can help avoid emergencies to occur in the first place. Through "Action canvasses" ideas can then be turned into concrete actions and make identified solutions become reality, in form of concrete initiatives. This exercise can be followed by deep-diving into "influence circles", which are drawn to understand involved and affected stakeholder groups who exercise control and influence over the planned initiative. In addition, several exercises for enhancing a positive workshop atmosphere are described, incl. through actions that can maintain the participants' focus over the event's duration.

2.3.5 Engagement Tools – Monitoring Markets and Support to Energy Customers

Tools that can be used for engaging with energy customers are available in form of services offered by consumer organizations, who can provide information on the performance of energy markets and more specifically, on (the absence of) consumer rights and protection. This refers to incomprehensible bills and access to accurate consumption data, barriers to switching between providers, as well as difficulties in accessing redress or price comparison tools, and the opportunities and risks stemming from market developments around smart metering and demand response. At EU level, cooperating with BEUC, the European umbrella organization for 46 national consumer organizations, can improve understanding on trends in customer empowerment and protection, incl. on legal rights and requirements for energy suppliers stemming from applicable EU legislation – which e.g. could be relevant in initiatives that are addressing legal barriers to citizen and community engagement in the energy sector, incl. on the IANOS fellow islands Lampedusa and Nisyros (while Bora Bora does not transpose EU legislation). At national level, cooperating with consumer organisations - such as Altroconsumo and Adiconsum in Italy, or EKPIZO and KEPKA in Greece – can be beneficial when raising awareness and helping build trust in energy markets, when identifying and

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[32] https://clean-energy-islands.ec.europa.eu/node/839

helping to address shortcomings in supplier performance, or when providing consumers with information and support to help them make effective decisions. In this context, the outreach and notoriety, the expertise and access to information that consumer organizations have are important tools in citizen and community engagement processes.

Best practices for existing initiatives conducted by consumer organisations at EU and national level include:

- In the UK, Citizens Advice is the official consumer body for energy, using research and evidence from people contacting its advice service to understand difficulties energy consumers are facing. These issues are being addressed and mitigated by engaging with industry, changing policy and supporting consumers to navigate the market. This is done i.a. through monitoring UK energy suppliers[33], analysing case notes, social media and data from local Citizen Advice offices, and comparing each supplier's performance against their previous performance, and against suppliers of a similar size. The results are being used in the dialogue with the suppliers directly, or for addressing issues of concern with the UK's energy regulator Ofgem. In parallel, Citizens Advice publishes supplier rankings based on their service performance, encouraging consumers to make switching decisions based on both price and customer service. This ranking is based on metrics including the complaints ratio, accuracy of billing (based on smart meter reading or not), customer service (e.g. average call waiting time), and the time for completing switching processes. Accessing and evaluating information on customer satisfaction levels and the functioning of retail energy markets can substantially increase engagement potentials, for instance when being used in addressing citizens to join initiatives that aim at establishing energy autonomy through self-consumption models.

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[33]
https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/How%20we%20monitor%20energy%20suppliers%20(1).pdf

Chapter 3: Community & Citizen Engagement through Collective Energy Initiatives

The value proposition of community- and citizen-led collective energy initiatives is tremendous and have been acknowledged as one of the most effective engagement tools in the energy sector: enabling so far mostly passive consumers of energy – both at the level of individual citizens and local/regional authorities – to become part of their very own decarbonisation process by generating and consuming green electricity (mostly, while also renewable fuel solutions are available). Community energy can empower citizens and local stakeholders and foster sustainable development and resilience, through improved labour markets, shorter supply chains, positive environmental impacts and significantly reduced public and private expenditure on energy. This can be applied in particular to geographical islands where energy is often being imported – in form of fossil fuels - over long distances and can hence considerably impact the affordability of energy. The potential of economic relief through renewable energy projects and collective citizen and community initiatives is becoming even more significant, in consideration of current energy price developments that are risking to cause social unrest and foster populist deception. In parallel, islands communities tend to experience and suffer from climate change impacts – such as environmental degradation, rising sea levels and extreme weather events – more severely than mainland populations. Moreover, the strong community sense and high degree of social cohesion that is present on many islands is predestined for active participation in collective energy initiatives, which in return strengthens democratic processes and transparent governance models, e.g., when local authorities direct public investments into measures to implement local climate change strategies (such as community energy initiatives).

Chapter 3 provides an overview of tools that can be used to engage citizens and local stakeholders into the establishment of community energy models. Although applicable in many other initiatives, the engagement tools described in chapter 2 can be well used also in the process of preparing and setting up an energy community, incl. with regards to stakeholder identification, outreach, mobilisation, dissemination, events etc. As concluded above (see chapter 1.7), IANOS fellow islands are well suited to take such solutions into consideration, with meaningful potential to decarbonize rather carbon-intensive ways energy is being produced and consumed on the one hand, and rather moderate citizens and community engagement levels on the other. This is why IANOS project partners are planning to explore how and whether to combine resources available under other existing initiatives and IANOS, with emphasis on preparing further steps that can lead to establishing

energy communities on the fellow islands – and in return considerably boost citizen and community engagement.

3.1. Enabling Frameworks at EU level

By 30 June 2021, EU Member States were expected to transpose the recast Renewable Energy Directive (2018/2001-RED II, or RED II) which includes provisions for renewable energy communities (RECs) and to develop an enabling framework to promote the development of REC across Europe. The provisions were designed to support active energy citizens and communities as stakeholders in the European energy markets, granting ownership of the energy transition. Also relevant for this purpose is the Internal Electricity Market Directive (2019/943, or IEMD), introducing Citizen Energy Communities (CECs). Although both types share many similarities, there are several distinct differences - RED II defines RECs as legal entities which, in accordance with national law, are based on open and voluntary participation, effectively controlled by shareholders or members who are located in the proximity of the renewable energy projects owned and developed by that community. Shareholders or members can be natural persons, SMEs or local authorities, with the primary purpose to provide environmental, economic or social community benefits for its members or the local areas where it operates, rather than financial profits. RED II further sets out to what RECs are meant to be entitled, i.e. the activities that can be carried out as well as the access to suitable energy markets. Member states are required to assess the potential of RECs as well as existing barriers - something which to date, almost no member state has done. This assessment should precede the establishment of enabling frameworks for RECs that respect a number of minimum requirements, in terms of customer rights, administrative procedures, capacity-building and support schemes, and the cooperation with distribution system operators. While the IEMD definition and provisions for CECs overlap with RED II with regards to participation, control, purpose and its scope of activities, the main difference to RECs is that CECs are not geographically limited nor restricted to renewable sources, with the IEMD provisions referring to electricity only.

Many climate action and energy stakeholders (and especially legal experts) agree that most Member States have not sufficiently - neither in completeness nor conformity - transposed EU legislation on renewable and citizens energy communities into national laws[34]. Even the progress made by pioneer

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[34] See the Transposition Tracker developed by RESCoop, the European Federation of Citizens Energy Cooperatives: https://www.rescoop.eu/policy

countries – such as Italy and Greece (see chapter 3.2) - is still far from the positive narrative that foretell a swift mainstreaming of community energy. The creation of enabling frameworks faces several barriers, for which to overcome it is necessary to adapt existing energy governance and infrastructures so to accommodate energy communities, especially with regards to incentives, subsidies, and access to energy markets. It is important to bear in mind that establishing new actors in markets and systems that were built to generate and transport energy largely made from nuclear and fossil fuels since more than 100 years is a fundamental challenge. As such, connecting substantially higher RES shares requires a holistic system approach for integrating a wide range of emerging and existing layers of the energy architecture (in particular electricity, gas, heating and transport). Therefore, national authorities are tasked to establish new energy market designs and agree on complex and extensive provisions, including rules on new market entrants (such as aggregators, flexibility providers as well as energy communities) and changing roles and obligations for system operators who are central to developing more flexible, smart and integrated energy infrastructures.

3.2. Enabling Frameworks in Italy and Greece

In Italy, energy communities are emerging in almost all regions, with higher numbers of projects present in Piedmont, Sardinia, and Apulia, which is also due to regional laws that are supporting their implementation. While community hydro schemes, in form of cooperatives, have a long tradition mainly in the Alpine region, the potential and interest in implementing models which are now available under Italy's latest frameworks is substantial – estimates show about 500.000 energy communities could be created, 80% of which in residential areas[35]. Also, meaningful support is provided through national and EU funding such as the COVID-19 recovery and resilience plan (Next Generation EU), allocating a total of €2,2 billion to cities with less than 5000 inhabitants who intend to set up energy communities. Recent Legislative Decree 199/2021 provides a direct incentive for newly installed RES plants up to 1 MWp owned by RECs and collective self-consumers, who are exempted from auctions (before the limit was set at 200kWp). This has considerably increased the potential participation in energy communities, in combination with simplified authorisation procedures for the installation of PV plants up to 50 kWp. As such, there is a positive outlook for extended community energy development in Italy over the coming years.

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[35] See Politecnico di Milano Energy & Strategy Group Report, July 2020

Greece was rather fast in introducing legislation on community energy, and did so already in 2018, before the EU Directives were adopted. As such, community energy is supposed to play an important role for decarbonisation and enhanced social economy and innovation. Since the adoption of Law 4513/2018, several energy communities have been established, with further projects under development. Energy communities in Greece can produce, distribute, and supply renewable energy from installations of up to 3 MW, whereas additional activities may include natural gas heating/cooling, demand-side management, aggregation of producers/consumers, and network development. Eligible technologies are PV, small wind power, biomass, biogas, small hydropower and CHP. Yet, the Greek legislative framework is complex and fragmented into many different laws and ministerial decisions, which intensifies the complexity of the process of developing renewable energy projects by energy communities. Furthermore, costly and complex administrative procedures continue to apply, while energy communities face barriers when seeking to access to finance and information.

In conclusion, recent legal and policy reform that is being supported by support mechanisms (see chapter 3.4) should be investigated further, incl. on the prospect to start building community energy initiatives on Lampedusa Nisyros and Bora Bora (although the latter does not apply EU legislation and has at present no enabling framework in place). Involved IANOS partners have agreed to examine available framework conditions that could facilitate the establishment of community energy entities.

3.3. Setting up Energy Communities

The core of community energy is based on building a democratically governed organisation, that will provide energy related services to its members. This entails questions on legal forms, business models, financing, structure and governance, and the writing of statutes. This further encompasses, like most other decarbonisation initiatives, aspects of outreach and involvement of as many members and stakeholders as possible, incl. by using the engagement tools described in this publication.

Project developers and citizens who are interested in developing community energy initiatives can benefit from Europe's extensive experience and best practice repository. Today, the vast majority of Europe's around 3500 community-led energy initiatives are cooperatives, which can be understood as a form of social and economic enterprise that enables citizens to collectively own and manage

renewable energy projects. Citizens (mostly but not necessarily) living in geographical vicinity invest in renewable generation, by buying shares to finance a project and then also consuming the energy the cooperative generates. Across Europe, a wide range of governance models are applied that enable citizens' participation on a voluntary and democratic basis, with decisions often being made on a 'one member–one vote' principle. Decision-making processes, structure and liabilities depend on the legal form and ownership of collective energy initiatives – which can be fully owned by the community or developed in shared ownership and cooperation with public or commercial actors. They can be organized in different forms, ranging from large cooperatives to small collective self-consumption schemes (e.g. in housing associations) and off-grid island systems. In most cases, they are designed to meet their members' needs, which can be economic, environmental social or cultural, seeking to maximise local benefits rather than return on capital. Often, surpluses are reinvested to support its members and/or the community, with the allocation of revenues being regulated by statutes and each country's legal requirements.

The above-mentioned aspects need to be addressed when starting a community energy project. Several EU initiatives and stakeholders have issued toolkits that provide guidance and recommendations to this purpose (and which can be useful for the further citizens and community engagement processes on IANOS fellow islands):

- The Horizon project COMPILE seeks to activate local energy systems and support the expansion of renewable energy generation, fostering the transition from centralized systems with passive users into flexible networks with active users through energy communities. COMPILE has therefore launched the COOLKIT, which is a repository for community leaders and project developers who are looking to build and operate energy communities. For the early planning and preparation stages, the COOLKIT offers the Best Practice Guide[36], meant to inspire and showcase existing examples on how to create energy communities in various European energy markets. In parallel, the Stakeholder Engagement Guide[37] provides tools and techniques to start building community groups and organizations, as well as examples and methods to engage with citizens and stakeholders in the local context. It provides guidance on legal context, governance and organizational aspects (such as members, general assembly, voting rights, roles and responsibilities), as well as assessment methods of risks and other factors that impact the initiative's development (PESTEL, SWOT). The guide further

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[36] See COMPILE Deliverable 4.1.1 „The Best Practice Guide"
[37] See COMPILE Deliverable 4.1.3 „The Stakeholder Engagement Guide"

outlines how to raise and maintain interest among citizens and the local community, incl. tools for stakeholder analysis and mapping, outreach (e.g. through pull and push actions), communication and continuous engagement.

- The Horizon project RENAISSANCE aims to deliver a community-driven scalable and replicable approach, and implement new business models and technologies that support supporting clean energy production and sharing in local communities. In the early implementation stage, and to engage with multiple stakeholders with the objective to start building an energy community, RENAISSANCE applies the Multi-Actor Multi-Criteria Analysis (MAMCA) tool. As such, the MAMCA[38] is a tool that was developed by the Vrije Universiteit Brussels and has been used in a number of European projects, allowing for integrating multiple stakeholders in decision-making processes and for evaluating alternative scenarios that are based on diverging objectives among those stakeholders. This was also done within RENAISSANCE, throughout a process that was applied to set up energy communities in the pilot sites: after outreach and stakeholder identification, MAMCA's survey tools were used to collect information on needs and goals of each stakeholder groups (when joining an energy community). Then, draft scenarios were drawn to propose potential forms of suitable energy community models, based on the survey's output and aspects such as energy consumption data. Subsequently, the scenarios were presented at stakeholder workshops, incl. the evaluation of alternative options which in return helped identifying the preferable scenario.

3.4. Financing Tools

Although community energy is often driven by environmental, ethical and socio-ecological motivation (rather than by the increase of profit margins), projects of course require access to financing. Major financing tools that are available for energy communities include public funding, traditional financing (such as equity and debt financing), crowdfunding and grants or donations. Key aspects when formulating a financing plan are matching needs with available income sources, cash flow analysis and fundraising strategies. Plans should address questions on most adequate types of financing, as well as implications the choice of legal forms and ownership models have on financing. Commonly, prerequisites for obtaining financing include solid business plans and feasibility studies, which should be conducted in the project's development phase, together with sorting out permitting

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[38] See www.mamca.eu

procedure and grid connection issues. Then, in the construction phase, main financial needs stem from installing equipment, incl. hardware and software such as renewable energy technologies and IT systems for energy management. Once installations are up and running, main cost factors are operation and maintenance (O&M). Each project phase might require different forms of financing, until the energy community starts creating revenues from electricity generation, RES support schemes or flexibility services that are provided to the grid operator etc.

Growing policy support for renewable energy development - and the acknowledgement of community energy as meaningful decarbonisation instrument - has been reflected in increased public funding opportunities. At EU level, proposals for project financing can be submitted to multiple programs, such as the Innovation Fund, InvestEU, Horizon, Life and others. Depending on a project' needs, EU funding is well suited to finance activities such as research, feasibility studies, impact assessments, demonstration sites and initial stakeholder engagement. At national level in Italy, the National Recovery Plan provides support to community energy in form of € 2.2 billion for municipalities with less than 5,000 inhabitants, with additional funding made available by regions such as in Piedmont, Apulia and Lombardy. The support is complemented by fiscal incentives for solar PV and subsidies for self-consumption of renewables within energy communities, who benefit from a subsidy of €110,00 awarded for every MWh that is shared within renewable energy systems not exceeding 200 kW (which could make building an energy community in Lampedusa financially viable). In Greece, the Just Transitions Fund program that was adopted by the European Commission on 16 June 2022 foresees mobilizing investments of 1.63€ billion to alleviate the impact of the energy and climate transition on the local economy and society (1.38€ billion of which will be made available in form of grants). Part of funds will be directed into the renewable energy development, incl. through community energy initiatives. Yet although Greek legislation on community energy (see Law 4513/2018) was welcomed in as an innovative, participatory tool that enables the local community stakeholders to contribute to the country's clean energy transition, recent legal reform has abolished incentives that had been granted to community energy development. This decision was taken by national decision-makers after resourceful private sector enterprises had taken advantage of Greece's favourable framework conditions. Moreover, energy communities are since 2022 required to compete with private investors and established energy market players in renewable energy auctions. Climate action stakeholders at national and EU level are advocating for competent

authorities to take corrective action[39]. In Bora Bora, where ambitious government plans to fully decarbonise by mid-century (see chapter 1.4) are supported by investment programs of 4.2€ million dedicated to infrastructure and the instalment of 5MW of solar PV, there are at present no specific financial tools available for community energy development.

Financial guidance and toolboxes for community energy have been issued under the following initiatives:

- REScoop.eu is the European federation of citizen energy cooperatives, representing the interests of around 1.900 cooperatives operating across Europe towards EU institutions and the wider Brussels stakeholder groups. In this capacity, REScoop.eu has issued the Handbook on Investment Schemes for REScoop Projects, which informs on existing types of investment schemes and a methodology that helps identifying financing sources that correspond to the project's needs. The handbook further describes best practice cases of investment schemes, in form of 4 replicable examples that have been identified according to criteria that include technical and economic sustainability and the financing schemes and participation of citizens as shareholders. In addition, the handbook outlines innovative investments schemes such as revolving funds, joint ventures, guarantees from existing cooperatives, and their applicability to new community energy projects.

- The COOLKIT that was developed under the Horizon project COMPILE includes, in addition to the Best Practice Guide and the Stakeholder Engagement Guide (see chapter 3.3, on page 34), the Financing Guide[40]. The guide explains the relationship between financing and ownership and provides advice on selecting models that energy communities can use to finance their activities and projects. Major finance models range from equity, subsidies and grants, debt finance and other forms such as crowdfunding and guarantee, meant to provide guidance for developing a financing plan, incl. considerations that are relevant when consulting with citizens and stakeholders, such as choosing the most suitable ownership and legal form.

3.5. Capacity-Building Tools

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[39] See Report "Development of energy communities in Greece: Challenges and recommendations", by Greenpeace Greece, WWF, Electra Energy and REScoop.eu, 2021
[40] See COMPILE Deliverable 4.1.2 „Financing Guide"

Tools that can be used for capacity-building among actors who are interested or already involved in community energy projects include advice and guidance that go beyond the establishment and financing of such initiatives. Experience from existing energy communities and available publications can provide valuable information on how to choosing from the most suitable renewable energy technology, how to choose from among potential activities (e.g. generation, supply, distribution, storage, flexibility), how to overcome barriers related to grid connection and permitting and other administrative procedures, and how to take part and benefit from energy market mechanisms (e.g. through power purchase agreements, aggregation, demand response). In this context, cooperating with European and national organisations and existing community energy initiatives.

Relevant organizations and publications that can be used for capacity-building are:

- The Community Power Coalition is an EU level network of about 40 associations from across Europe who represent energy cooperatives, networks of cities and local authorities, the renewable energy industry, legal experts, environmental NGOs and others. In its regular meetings, network members exchange on respective activities (such as advocacy, projects, and policy developments on citizen and community-led energy initiatives at national and EU level. The network can provide facilitate outreach and access to information and large stakeholder groups (and potential partners), incl. for actors who seek to build community energy projects.

- The Italian Forum of Energy Communities (IFEC) is an initiative promoted by WEC Italy and the Energy Center of the Polytechnic University of Turin, with the purpose to support of the development of energy communities in Italy. In this context, IFEC seeks to share best practices and exploit the energy-economic-environmental benefits, in coherence with the objectives set by Italy's National Energy and Climate Plan and the European Green Deal. IFEC activities include national conferences and workshops on topics of interest (such as digital platforms for energy communities) and awards community energy projects for technological and social innovation. Membership is open to energy system stakeholders who support IFEC's purpose and activities.

- The Greek Office of the Heinrich Böll Foundation has published an energy community guidebook for Greece[41], which among other lays out details on Greece's energy community legislation, explaining its key legal concepts such as locality and insularity, and the distinction between non-profit and not-for-profit energy communities, the minimum number of members, their scope of activity and geographically, membership of local authorities, cooperative capital, the distribution of surpluses as well as the minimum content of statutes. The guide further provides useful information on with useful information on key aspects and necessary steps for preparing the set-up of an energy community, incl. the establishment of the founding group, the interaction and trust-building among the local community, the shaping of a joint vision, the seeking of financing and local support, as well as the thorough selection of activities that can make the most of out of local energy sources while serving the needs of its members and the wider community in a sustainable way. The guide also addresses how to prepare a business plan and to organise daily business operations within an energy community.

- The 3 EU level organisations Friends of the Earth Europe, Energy Cities and RESCoop.eu have issued an extensive practical guide on energy community[42]. This "go-to guide" is a reference document with a wide range of instructions, practical tips and resources for building local, community-led renewable energy initiatives. Based on a convincing narrative, the manual provides guidance on ways to build citizen and stakeholder groups, organise effective outreach and advices on choosing from the most suitable form and activities (e.g. generation, distribution, storage, flexibility, mobility, but also energy efficiency and energy poverty mitigation). It further helps to decide on the renewable technology (solar, wind, hydro, biomass) that is most beneficial to the initiative and respect the location's overall conditions (such as climate). The guide also assists in navigating through barriers and challenges, how to identify sources for financing and sort out issues related to distribution network operators and market and support mechanisms (such as power purchase agreements, renewable support schemes). The guide has been translated into several European languages, incl. into Greek and could be used by local stakeholders on the IANOS fellow islands Nisyros.

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[41] See **"Building Energy Communities in Greece"**, 2019
[42] See "Community Energy – A Practical Guide to Reclaiming Power", 2020

Chapter 4: Conclusion and Outlook

The authors of this publication hope to demonstrate the great many applicable tools that can be used for engaging with citizens and communities on geographical islands. This IANOS Community Engagement Toolbox provides an overview of potential engagement actions which can be applied from early outreach and mobilization to more sophisticated forms of continuous involvement, e.g. in form of community energy initiatives. The outcome depends, other than on resources dedicated to the engagement process itself, also on access to information on existing initiatives and the cooperation among experienced partners. In the case of IANOS fellow islands, it is important to bear in mind that there is great potential for meaningful citizen and community engagement: from the intensive use of fossil fuels and the resulting need to decarbonise, to still limited citizens and community engagement levels in the energy transition, and to the absence of community-led collective energy actions. This, against the background of increasing climate change awareness and skyrocketing energy prices, calls for immediate and effective decarbonisation and engagement efforts that serve people's needs and improve life quality among local island communities.

Thus, the further IANOS implementation seeks to deploy resources that are available in particular under WP8 on engaging with citizens and community stakeholders on Lampedusa, Nisyros and Bora Bora. Deliverables 8.1 and 8.2 – which are the reports on "Designing a community engagement strategy" as well as this present ET – build the foundation for upcoming engagement actions, namely the upcoming national/regional workshops and the training sessions. Efforts are on the way to identify and map relevant island stakeholder who will be invited to engage in the dialogue and contribute to a series of workshops that will address the prospect of developing community energy projects. This will require applying tools that are proposed in this publication, with regards to the earlier steps in the process, incl. through outreach to already existing projects that are in the course of implementation. Then, based on workshop outcomes and further consultation with local stakeholders, IANOS partner New Energy Coalition[43] will design training sessions for IANOS' fellow and lighthouse island (under Task 8.3). Together with local island stakeholders, the trainings will formulate concrete action plans for setting up local energy communities. Ideally, the formulation of such an action plan will form the foundation of the capacity building for local stakeholders who seek to decarbonise their islands. Subsequently, policy advisory papers will summarise content produced

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[43] WP 8 leader, see https://www.newenergycoalition.org/en/

under WP8 and issue recommendations to decision-makers and wider climate action and energy stakeholder groups.