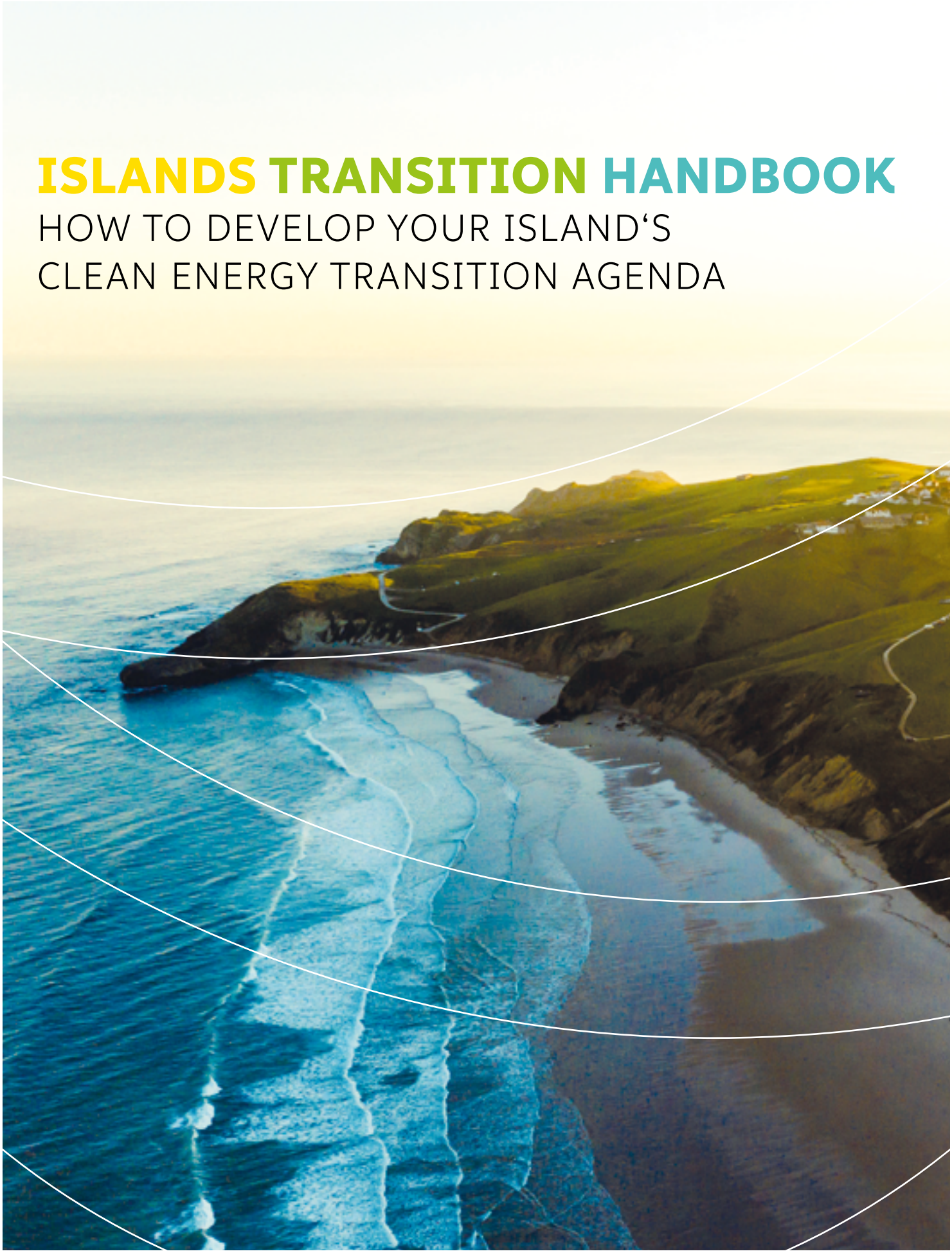
CLEAN ENERGY
FOR EU ISLANDS

ISLANDS TRANSITION HANDBOOK

HOW TO DEVELOP YOUR ISLAND'S CLEAN ENERGY TRANSITION AGENDA



ISLANDS TRANSITION HANDBOOK

Authors Simon De Clercq, Antonia Proka, Jeppe Jensen, Marina Montero Carrero

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Rue d'Arlon 63, BE-1000 Brussels
+32 2 400 10 67 • info@euislands.eu • euislands.eu
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Welcome to the Islands Transition Handbook. **This book is an action-oriented guide to start and help navigate the transition towards clean energy for your island.** Driven by passion and backing from your local community, it will equip you to develop an island clean energy strategy aimed at achieving a completely decarbonised energy and transport system.

This is a reference book that will guide you through your transition process, whether you are just starting the transition towards clean energy on your island or have made significant progress towards decarbonisation already. The handbook provides inspiration for the next steps as well as a check-list for solid clean energy transition management.

Islands offer a series of specific opportunities that are very well suited for modern energy planning, both in terms of the potential for energy efficiency, renewables and innovative solutions, as well as the creation of a broad and strong community-driven transition process.

Pulling together valuable inputs and experiences from the Clean Energy Transition Agendas that are ongoing on a number of frontrunning islands, this handbook stands on the shoulders of strong island histories and cultures, experiences from existing energy planning processes, multi-stakeholder engagement projects and transition management as a tool for changing business-as-usual thinking. In essence, the handbook provides background and current thinking, whilst offering practical examples for transition, tools for further reading and performance indicators for self-assessment of the ongoing process.

Every island community is unique and your island's geography, history, culture and socio-economic situation must always be borne in mind when reading the guidance. The handbook must be understood as a normative reference: a readily available framework that your island community can adapt for its own energy transition effort. You will see examples used in the handbook that may be different from your island's context. These cases are meant to show success stories, and the learnings can be customised to your island's context.

Building on a series of experiences from local energy planning, such as the Covenant of Mayors and the Pact of Islands, this handbook does not intend to copy the available large library of support material. The focus of this handbook is therefore primarily on the strategic phases that precede the technical planning and the development of individual projects. Technical elements will only be covered in so far as providing the correct information for decision making and the handbook will complement the more technical guidance provided by the Covenant of Mayors Office, which is also relevant to islands.

The Clean Energy for EU Islands Secretariat provides a range of support activities and more importantly, all the islands active within the initiative contribute a wealth of practical experiences worth learning from. Therefore, **this handbook can serve as a starting point to find inspiration and contacts in the EU island community to kick-start, re-start or further boost the decarbonisation of your island.**

Information on the Clean Energy for EU Islands Initiative can be found on **www.euislands.eu**

1 Introduction

The Clean Energy Transition Agenda in a nutshell

Central to this handbook is the Clean Energy Transition Agenda, a strategic roadmap for clean energy transition for your island. This process requires broad engagement and involvement from the island community and frontrunning public authorities, moving in the same direction to decarbonise the island's energy system. The outcome of this process is a roadmap that spells out the island's vision and identifies transition pathways to attain this vision. It differs from traditional energy planning as it has a focus on community-led clean energy activities, requiring an active role of citizens, local businesses and educational institutes in the decarbonisation of the island. The Transition Agenda as a method to achieve full decarbonisation emphasises the roles and responsibilities of the various stakeholders in this process.

Looking at the clean energy transition as a circular process, the arrows in Figure 1 provide an overview, going from an initial agreement between local island organisations and the public authority, through a dialogue process, leading from implementation and monitoring towards full decarbonisation. Normally the process will not strictly follow these steps and there will be several elements that overlap and recur in order to assure a good result.

This handbook and the Clean Energy Transition Agenda primarily concentrate on the initial stages of the process – the transition strategy – with the focus on different activities to commit to decarbonisation, understanding the island dynamics, visioning and exploring transition pathways. Each of the steps is covered in a separate chapter in this handbook. The engagement processes that form the basis of the Transition Agenda continue to play an important role throughout the implementation and monitoring phase.

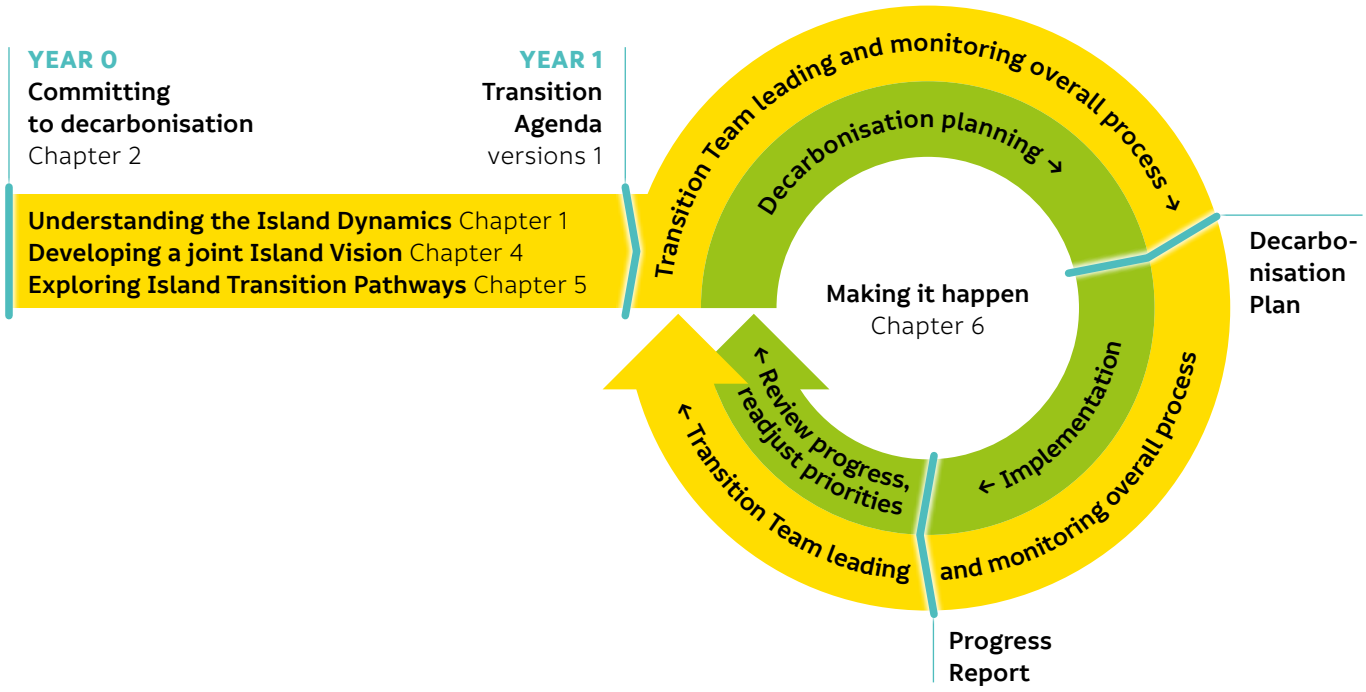

Figure 1 | **The clean energy transition process can be represented as a circular process.**

The Transition Agenda helps to shape the strategic direction of the island's clean energy transition and can be considered as a preliminary stage to developing a decarbonisation plan that describes the projects and actions, including the specific technology, the timing and financing, for clean energy transition on the island. Whereas a Transition Agenda normally precedes a decarbonisation plan, islands that already have a decarbonisation plan - for example a Sustainable Energy and Climate Action Plan under the Covenant of Mayors or Pact of Islands – can also benefit from the Clean Energy Transition Agenda process to review and improve these plans with the wider island community and anchor them locally.

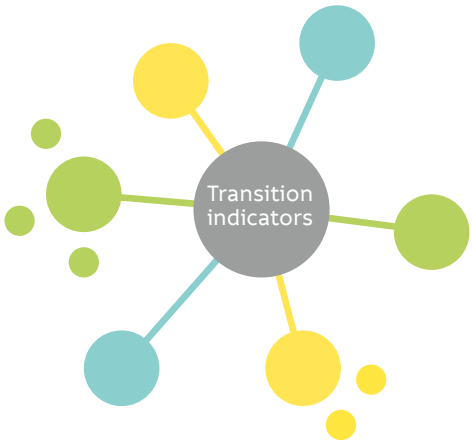

Figure 2 | **Transition indicators help to monitor the transition process.**

The above process is normative, and it is more the norm that islands have touched upon several of these activities already in one way or the other. It is therefore important to use the handbook as inspiration to identify where the strategic process could be strengthened and the ways in which this can be done.

In order to reflect upon the strengths and weaknesses of your island's energy transition, a set of transition indicators has been developed. This is a self-assessment tool to evaluate the clean energy transition process on your island and determine the focus of your Transition Agenda. In order to keep track of the development of the process, regular monitoring and reflection is important. The transition indicators are explained in **Chapter 7**. The complete matrix can be found in **Annex II**. At the end of each chapter in this handbook, the relevant indicators for that chapter are listed.

Key concepts

In the rest of this handbook, several terms are used to refer to the different concepts, stakeholders, and processes that are part of the Clean Energy Transition Agenda. Defining these concepts ensures a common understanding between the island stakeholders regarding their roles and responsibilities in developing a Transition Agenda. These key concepts are listed and explained below. On their own, these definitions may seem abstract and it is therefore recommended to use these with your island context in mind.

Clean Energy Transition Agenda

The Island Clean Energy Transition Agenda is a strategic roadmap for the transition process towards clean energy on your island. Starting from an examination of the current dynamics on the island, the Clean Energy Transition Agenda spells out the vision of the island that is shared by the members of the island community, and also involves an overview of the different pathways for achieving it.
It is the result of a participatory process that is led by the **Transition Team** and involves the **Island Transition Community**. It is designed by the local community, for the local community. The perspectives of different island stakeholders are brought together with the aim of coordinating their work towards this common vision by identifying possible transition pathways, including common goals and effective strategies. By mobilising all relevant stakeholders, this alignment helps to overcome technical and financial barriers, but also barriers related to history, traditions, and cultural and social perceptions for the island's clean energy transition. Besides the Transition Agenda's direct support to the transition process, it furthermore increases your visibility and broadens your network – being

part of an EU-wide network will raise awareness of your island's ambitious activities and enable you to share your transition experiences with other islanders in order to move forward effectively as one strong EU wide community.

Island Transition Community

Everyone on your island who shows an interest in decarbonising the island should be considered an important part of the island transition community. This includes individuals, households and organisations with a drive and passion to act. The island transition community is invited to take an active role in the island's clean energy transition by providing inputs, comments and confirming the Clean Energy Transition Agenda. Individual frontrunners and engaged members of the local community are also important implementers of the common vision, and whilst they as individuals are not expected to hold the overall responsibility for practically developing and operationalising the vision – this is the role of the Transition Team – they are however important to have on board actively in the transition process.

Transition Team

The Transition Team is the smaller team of organisations and associations that represent larger segments of the island's population. The Transition Team is the core team that drives the Clean Energy Transition Agenda process and has an important facilitation and coordination role. They are the main participants in the transition dialogues and look for inputs from the broader community. Since the Transition Team assumes the responsibility over the island's clean energy transition, it is important that the organisations are committed with both resources and availability. The Transition Team members can commit to each other using the official Clean Energy for EU Islands Pledge, as described in the following chapter. As the transition does have a direct planning implication it is required that the public authorities covering the island (municipalities, regions or similar) are part of the Transition Team, whereas it is recommended to have representatives from the local educational institutes (schools and/or universities), local citizens' organisations and associations and local business representatives (local business association, tourist association, local chamber of commerce, etc.). Together, the Transition Team should consist of 2 -10 organisations, which are in charge of following the process with frequent internal meetings and that engage the island transition community. The Transition Team members may vary depending on the needs and expertise available in the involved organisations, and it is also advised to involve expert individuals from inside or outside the community to strengthen the Transition Team whenever relevant.

Transition Dialogue

To ensure the transition process is anchored locally and that the wider Islands Transition Community is included in setting the Transition Agenda, frequent public meetings and hearings are required. These transition dialogues ensure that all the relevant voices are heard in the Transition Agenda process and that the clean energy transition is supported with the widest group of islanders possible. This participatory process is a central element in the development of the Transition Agenda. The Transition Team invites, prepares, facilitates and reports on the transition dialogue events, while the island transition community is periodically asked to provide inputs and feedback on the visioning and pathways. A good transition dialogue increases the ownership of the islands' decarbonisation vision and avoids challenges and missing leaderships in the process.

ISLAND TRANSITION COMMUNITY

- **All inhabitants** on the island
- Members of the organisations represented in the Transition Team
- **Implementers** of the transition
- Committed to implement
- Local drivers of transition
- **Verifying** the work of the Transition Team

Transition Team

- **2-10 members** with dedicated time allocated
- Scheduled meeting program
- **Representing** as large part of the island transition community as possible
- **No personal interests**
- Strong **trust** from the entire island community to coordinate
- Transition dialogue **facilitator** and **administrator**
- Mandate by the community to **act**
- Writers of the **Transition Agenda**

Figure 3 | **Through the transition dialogues, the transition community and team are engaged.**

Key takeaways

- Each island is unique. A successful clean energy transition will be driven and anchored locally.
- The Clean Energy Transition Agenda makes sure that there is a shared vision and an overview of the different transition pathways for the island. It is a strategic agenda that determines the next steps for the transition on the island.
- The Transition Team is the main contributor to the transition dialogue and coordinates and writes the Clean Energy Transition Agenda. The island transition community is invited to participate in this process where they can provide input, feedback and reflection.
- Transition indicators can be used to monitor the process on the island.

2 Committing to Decarbonisation

THIS CHAPTER EXPLAINS:

- *The importance of a balanced and strong Transition Team, in terms of human resources, mandate and responsibilities, that drives the island-wide Clean Energy Transition Agenda process.*
- *The Clean Energy for EU Islands Pledge, designed to support the commitments between the different stakeholders involved in the Transition Agenda.*
- *Practical considerations when planning a Clean Energy Transition Agenda.*

Embarking on your island's clean energy transition requires a team of relevant and eager members on the island. The following chapter will focus on how to gather a Transition Team, as well as present examples of workflows leading to a common vision and transition pathways for your Clean Energy Transition Agenda.

In order to ensure a steady workflow for the Transition Team, including the involvement of the whole island community, it is recommended to aim at having a first version of the Transition Agenda agreed within one year after the Transition Team has been configured. As the Clean Energy Transition is an ongoing process, which often starts by configuring the Transition Team, it can be expected that a Transition Agenda will require updates throughout the participatory process. In the different process phases, the Transition Team may require additional expertise and thus may bring in either local or external experts.

Why?

A Transition Agenda requires an investment of human resources regarding administration, management and expertise. An initial commitment to stay on board with this process is therefore highly recommended to guarantee continuity and trust among the organisations and associations that are willing to invest their resources. The inclusion of different organisations on the island together with the public authorities ensures a broader outreach and possibilities for a Clean Energy Transition Agenda that goes beyond the reach of the public authorities' mandate to act. This means that the local island community associations, schools or local businesses have the potential to push the island's decarbonisation via civil society actions, education, or through initiatives led by local businesses. Expanding the vision for decarbonising to reflect the entire island requires a joint agreement that is consolidated in the pledging among all engaged organisations on the Transition Team.

This will not only mark the start of public participatory energy planning, but a new way of teaming up across public authorities and local organisations for clean energy transition. As members of a Transition Team, organisations are not only declaring their trust to each other but also share a responsibility and a mandate to act in the energy transition within each organisation's individual domain and key competences.

Who?

An energy transition will affect the whole island socially, environmentally and economically. The configuration of the Transition Team is therefore important. There is no exact formula for a correct Transition Team, as it is highly dependent on the level of engagement of the team members involved as well as their individual representatives, to ensure a progressive and well-functioning team.

The clean energy transition happens in the legislative context of the European and national directives and regulations, which is why there is a requirement to include the local public authorities as part of the Transition Team from the start, in order to go from common vision to completely decarbonised energy system.

One way to think about this multi-stakeholder approach to clean energy transition is as a quadruple helix: four strands, representing the four stakeholder groups, with individual agendas that are overlapping with the clean energy transition. This concept is used to develop, manage and contribute to the island's socio-economic ecosystems and drive the local Transition Team. When well-implemented, the operation of the quadruple helix ensures the right balance between the involvement of public authorities, civil society organisations, local business associations and educational institutes. Only collectively will it be possible to manage the challenges that are posed by the transition towards a decarbonised island.

Figure 4 | **The quadruple helix is a way to find the right balance between different stakeholder groups.**

Pantelleria Island, Italy: a transition team led by the university

Pantelleria is an Italian Island southwest of Sicily and 60 km east of the Tunisian coast. It was selected as part of the 20 pioneering islands supported by the Secretariat for the development of their CETA. A transition team was led by the Energy Center at Politecnico di Torino and included representatives from all four stakeholder groups of the quadruple helix:

- *Municipality of Pantelleria, who will assume a central role in the governance of the energy transition acting as the main point of contact with regional and national institutions.*
- *National Park of Pantelleria, which covers 80% of the island and who aims at preserving Pantelleria's ecosystem and landscape, among the greatest treasures of the island.*
- *S.MED.E. Pantelleria: the local electricity system operator, who will evaluate the impacts of the new energy generation and storage solutions on the electricity grid to ensure its stability*
- *Resilea, a multidisciplinary civil society organisation based in Pantelleria. Resilea envisages the energy transition as an opportunity for implementing a participatory process and will propose tools and solutions for the active involvement of the population in the decarbonisation process.*
- *Local wine-producers, representing the local industry on the island.*

- *The Energy Center from Politecnico di Torino, composed by a multidisciplinary research team that provides support for energy planning and the industrialisation of cutting-edge technologies. Politecnico di Torino has been present in Pantelleria for several years, supporting the island on several energy aspects. Through the Energy Centre, researchers from the university have been involved int the islands more general energy transition, leading on the development of the CETA for the island.*

Figure 5 | **A public meeting was held on Pantelleria to present a draft of the CETA**

The transition team has met multiple times in the period between December 2019 until July 2020 to establish an island-wide vision, discuss the energy challenges on the island, establish the transition pathways and pillars and see how the CETA development could also help reaching regional authorities to communicate about the island's energy transition plans. This has proven to be a successful exercise to bring the Island's community together and come up with a comprehensive strategic decarbonisation plan. The draft CETA was presented mid-July 2020 during a public meeting on the island. Many island stakeholders provided comments, showing their interest to be actively involved in the decarbonisation process. The transition team expects to publish the CETA in fall 2020 after citizens and stakeholders have had the time to propose further modifications and comments.

As a guideline, the following four stakeholder groups all play an important role when considering the clean energy transition and ensure that the Transition Team is representational of the whole island. Using these four groups as a checklist against the structure of your Transition Team, do you for instance miss out on representatives for the voice of local businesses? Or are you missing out on the civil society organisations and their ideas or concerns?

The key stakeholder groups include:

- **Public authorities** as the entities that hold the legal responsibility for providing basic services on the island such as energy and are in charge of enforcing general rules regarding land-use and energy planning on the island. At a local level their support can be a critical aspect for the success of the island's clean energy transition and their close involvement gives an important mandate to the Transition Team. The capacity of public authorities, for example through their agencies, can be of great help to write the Transition Agenda. Smaller islands do not always have their own public administration and will therefore need a good relationship and commitment from their nearest public administration office, either on the mainland or neighbouring island. On larger islands there is often more than one public administration centre, for instance numerous municipalities each with their own different offices. The advice here is to ensure that all administrations are committed or alternatively, that the commitment is made on a regional level with a mandate to support all municipalities on the islands. Municipalities and the regions can also commit together for a strengthened collaboration from the public authorities.
- **Civil Society Organisations** are well suited to achieve the broad support and outreach needed to safeguard the transition as it relates to all citizens, as well as to ensure a Transition Agenda tailored to the dynamics, history and culture of the island. As citizens' organisations operate mostly on a voluntary basis, this resource is often highly engaged and grounded in serving the community with

a fast feedback loop of both positive and negative impressions. What you invest locally is often returned manyfold! Formal or informal commitments among locals are made without use of written laws or without money involved and rely therefore on mutual trust, a very strong force that is perfectly suited to pushing the clean energy transition. The strength of the voluntary work is not only driven by the shared responsibility but also by the shared success of the work done for the local community, as is often seen in cooperatives or other citizens' associations. Civil society organisations are therefore good for managing social tasks and engagement, as the characteristic of voluntary work is tightly linked to social and environmental responsibility, for instance in decarbonising the energy system as a part of strengthening the local socio-economic growth and autonomy of the island.

- **Educational institutes** do not only play an important role in teaching the importance of tackling our changing climate to the next generation but can also show examples of how to mitigate climate change by installing renewable energy sources as part of the curriculum. This should be taken a step further to include possibilities to act locally, which therefore also makes them an important local instigator to push local engagement via teaching as well as using the integrity of the school as a local role model for change. They can provide research and reliable information on the island, processes, and technologies to support the Transition Team.
- **Local business associations** and **private businesses** on the island are a vital part of the local socio-economic ecosystem which will be affected by the transition. It is therefore important to get them on board to ensure that businesses take part and that the economic effects of the transition are considered. To include local business associations at an early stage will help identify the opportunities the Clean Energy Transition Agenda can bring to local entrepreneurs and business owners. Local businesses and associations can play an important role both in regard to energy efficiency and renewable energy production, as sustainability can be a way to develop their business on the island. Furthermore, the support of local producers and service providers such as plumbers, carpenters and other local craftsmen who upgrade their training and skills to service the common vision ahead of the need for new skills on the island, plays an important role. The local business perspectives are therefore essential to have at the heart of the Transition Team, both when it comes to services but also in order to ensure that the skills on the island match the ambitioned futures.

The above stakeholders are not exhaustive and there may be other relevant stakeholders that are considered for the Transition Team. The Transition Team should assess and invite as necessary to create a successful and locally anchored Transition Team.

A good Transition Team is characterised by a broad range of stakeholders that match the islands general stakeholder dynamic. It should be a collection of organisations that have the human resources to ensure a Transition Agenda process with its transition dialogues, and to realise the Transition Team meetings. Having clear responsibilities for the overall process and progress is highly desired and there is an important connection between the Transition Team's first discussions on responsibilities and the overall topic of governance in the Transition Agenda. A strong Transition Agenda includes a clear description of the transition governance and the role of each of the stakeholders. This is further discussed in **Chapter 4** on visioning.

A balance should be found between the members of the Transition Team, and a clear understanding of the mandates and responsibilities held by each of them. This is primarily related to the collaboration between the involved public authorities and the other stakeholders. Is the Transition Team considered as a part of the public energy planning team or is the Transition Team more of an advisory body?

Clarification of the nature of this mandate is important from the beginning within the team. To establish an engaged and responsible Transition Team, it is recommended that the public authority, from an early stage, agrees to the Transition Team being an 'extension' of its energy planning department. Examples have shown teams built on mutual responsibility and trust between the public authorities and other stakeholders, working together on equal terms, provide the strongest long-term results.

How?

From the start, a Transition Team should consist of a minimum of two different organisations that commit to each other, and one of these must be the local authority covering the island. However, it is recommended that representatives are found from all four groups of stakeholders described above in order to achieve as broad a representation as possible. The size of the Transition Team should at the same time be kept operational – a guideline is therefore from two to ten members. As the transition process moves forward, it is also highly recommended that new organisations are included on the team, as this will lead to more resources and a broader transition mandate.

Figure 6 | **The Clean Energy for EU Islands Pledge supports Transition Teams to commit to decarbonisation.**

To ensure a good start, the **Clean Energy for EU Islands Pledge** is designed to support the commitments between the different stakeholders involved in the island-wide Clean Energy Transition Agenda. After the informal agreements have been made among the initial central organisations, the pledge can be used to consolidate the journey for all involved.

On the official pledge you will find space for several organisations that can be part of the Transition Team as well as space to indicate the main contact between the Transition Team and the Clean Energy for EU Islands Secretariat.

The pledge not only ensures a consolidated start to the clean energy transition, but also includes a series of acknowledgements to other islands and to national and European bodies in order to address the need for locally rooted actions that rise to the joint global challenge of tackling climate change. When the pledge document has been signed it must be registered on the Clean Energy for EU Islands **website**. Signing the pledge shows that the organisations involved are committed enough to broadcast this to the EU island community and the European Commission. It also indicates that the island is part of the EU-wide community of islands in transition, and you can reach out to likeminded islands and official supporting organisations via an online community for inspiration, collaboration and support.

The commitment to clean energy transition on La Palma

La Palma is one of the Spanish Canary Islands located in the Atlantic Ocean. The island has 14 municipalities and has a joint administrative island government called Cabildo Insular de La Palma.

Since 2012, The Platform for a New Energetic Model, Px1NME, has had an action group on the island. Px1NME is a citizen platform run by volunteers that aims to empower citizens to make clean energy transition happen on La Palma and to show the negative impacts of the way that energy is currently produced and consumed. In 2015, Px1NME launched the Ruta por la Soberanía Energética (Route for the Energy Sovereignty), a series of talks and meetings on energy transition in the island's 14 municipalities in which everyone could participate. In 2017 this led to the signature of the

Electrón Manifesto by the 14 municipalities and the Cabildo, the island government, to indicate the commitment to clean energy and to show the strategic direction of the transition. The engagement of the Px1NME, supported by funds from the Cabildo, led to the establishment of La Palma Renovable, an initiative to promote sustainability on the island. La Palma Renovable is an important enabler to ensure the continuity of the activities on clean energy and employs two people who manage projects on sustainability, organise stakeholder meetings and engage the community. They are a driving force behind La Palma's Transition Team.

The other members of the Transition Team on La Palma are:

- *The Cabildo de La Palma, the island government;*
- *The Platform for a New Energetic Model;*
- *Som Energia, a green energy cooperative operating at a Spanish national level that has an active local group in La Palma.*

Regular consultation between the members of the Transition Team makes sure that the roles of each of the actors is defined. La Palma Renovable has a coordinating role in La Palma's Clean Energy Transition Agenda; they facilitate the participatory process with the island transition community and take responsibility for communication and dissemination of the results. The Cabildo provides political support and makes available the necessary budgets and resources for the operation of the Transition Team. Som Energia and Px1NME work in parallel with a similar vision. In addition to the political side that the citizen movement Px1NME has, Som Energia has an operational branch that offers renewable and democratic energy supply to its members.

In order to reach out to the wider island community, the Transition Team collected signatures of groups, local administrations and companies to join the participatory project for the design and development of the Clean Energy Transition Agenda. More than 100 organisations from the fields of education, the environment, socio-cultural organisations, music, tourism, water, neighbourhoods, sports, agri-food industry, research, business, administrations, and private companies showed their awareness of the need for decarbonisation of the island. They collectively signed up for joint action to improve the sustainable welfare and resilience of the island's communities.
More info on La Palma Renovable can be found at ***lapalmarenovable.es***

Figure 7 | **The Platform for a New Energetic Model is a citizen initiative working on clean energy transition on La Palma.**

Practical planning towards a Clean Energy Transition Agenda

A vision for decarbonising the whole island may not seem very tangible. However, before presenting a Transition Agenda, there are several practical aspects that need to be sorted by the initial members of the Transition Team during the signing of the pledge, and shortly thereafter.

The following questions and tasks can help guide the newly consolidated Transition Team within the first month of work.

- **A mapping of the resources available within the Transition Team.**
  - How many colleagues will take part and how many hours per week/month?
  - What expertise do we have within the team and will we need to look for further experts – either to commit as part of the Transition Team or as support from relevant supporting organisations
- **A Clean Energy Transition Agenda can benefit from a variety of expertise to guide the Transition Team and island stakeholders in this process. Appropriate guidance is key for informed decision making. This expertise can be related to different areas:**
  - Facilitators can support the participatory process and help to translate the results from the transition dialogues into useful input for the Transition Agenda.
  - Legal advice is useful throughout the process to understand how the legal framework affects the transition.
  - Technical expertise is useful when developing the technical parts of the Clean Energy Transition Agenda.
  - Financial experts can support the Transition Team to develop a financing concept to advance clean energy projects.
- **The roles and responsibilities**
  - Who will coordinate the progress and ensure the delivery of the Transition Agenda in one year from now?
  - To what level can the involved organisations and associations support the decision making and resulting implementation of the joint vision? Who can implement solutions, who can ensure the engagement of all islanders, who can raise funds, prepare budgets, facilitate the dialogues? All organisations have specific strengths that should be utilised in the process.
- **A roadmap of activities:**
  - What is the frequency of the Transition Team meetings?
    - And who can
      - Host the meetings?
      - Ensure administration of meetings?
  - What is the frequency of the transition dialogues to ensure the engagement of the wider island community?
    - Who is in charge of:
      - Planning?
      - Invitations?
      - Execution/facilitation?
      - Note taking?
      - Summary and dissemination of conclusions to the participants?
      - Communication to the entire island community?
  - Set milestones for the different phases of the Transition Agenda to help the team focus.

It is advised to have a Transition Team meeting on a weekly basis at the start of the process and ensure a minimum of four transition dialogues within the first year.

The practical questions above can be covered in the first few meetings of the newly established Transition Team. The results of these first discussions are important to form the organisational basis of the transition process and can be included in the Clean Energy Transition Agenda – the way that the Clean Energy Transition Agenda is organised is closely related to the governance of the overall process towards clean energy transition.

A Transition Team may need to handle local dilemmas and old challenges that require tough discussions to ensure the joint vision. It is therefore advised to set good rules for the meeting culture in order to ensure that new options are considered and existing ideas and 'business as usual' is questioned with a positive attitude and open dialogue. Resources for hosting progressive meetings that can ensure a positive dialogue in an easy way, both within the Transition Team as well in broader transition dialogues are outlined in the following chapters.

With the above considerations, your newly established Transition Team should be well equipped to embark on the clean energy transition.

Transition indicators

By pledging to decarbonisation, the two transition indicators in the Community category can be addressed. The indicator Stakeholders assesses to what extent there is a formal commitment between different stakeholder groups on clean energy transition on the island. The indicator Organisation polls whether a Transition Team is in place that takes responsibility for the transition process.

The Clean Energy for EU Islands Pledge extends an offer to stakeholders on the island to assemble a strong Transition Team. The pledge also formalises their shared commitment and makes sure that the Transition Team members can be held accountable for their engagement.

The transition indicators are explained in detail in **Chapter 7**. The entire self-assessment matrix can be found in **Annex II**.

Key takeaways

- A transition is a long process that needs commitment from all actors. The pledge makes sure that there is continuity in the process.
- Practical planning towards a Clean Energy Transition Agenda is an important step to form the organisational basis of the transition process.

Resources

The following resources related to this chapter are available online.

- Island Clean Energy Transition Pledge Template
  Available **online**.

3 Understanding the Island Dynamics

THIS CHAPTER DESCRIBES HOW TO:

- *Analyse the island's energy system to identify energy consumption patterns and interdependencies.*
- *Map the island's relevant stakeholders to determine their role in the transition process.*
- *Investigate the policy and regulation that surrounds the island's clean energy transition to identify barriers and opportunities.*

Before starting the island's clean energy transition, the complexity of the challenge has to be fully understood. As an essential step in the Clean Energy Transition Agenda, the island dynamics are explored to identify and analyse the barriers and opportunities that exist. A sustainable transition happens in conjunction with the island's present and past and each island has a unique context that requires an adapted approach.

By investigating the island dynamics, the Transition Team identifies and frames the problems for clean energy transition. The interlinkage between the different sectors and actors is identified to provide an understanding of what the problem is, and to give insight into causes and symptoms in order to address them integrally. The island dynamics will influence the way the Transition Team is organised, how the island transition community is coordinated, and will also play a role in determining the vision and developing the transition pathways.

Why?

The purpose of this orienting phase is to obtain a thorough understanding of the situation at hand and identify the challenges faced. This establishes which problems the clean energy transition addresses. This allows the island to:

- identify the challenges they face on their way to carbon neutrality;
- determine the priorities that the clean energy transition should address; and
- recognise the existing opportunities that can be used to this end.

What?

The analysis starts from the island's geographic, economic and demographic perspectives. It includes a description of the current energy system that acts as a baseline for the future and allows to determine the key sectors that influence the clean energy transition. The island stakeholders are mapped to identify those who are key to the process. The position of the transition process in the regulatory context, including national, regional and local targets, is investigated. This results in a catalogue that acts as a useful reference to shape the island's transition pathways.

How?

The activities in this phase are carried out by the Transition Team. They coordinate the individual tasks and convene regularly to discuss the results of their analysis. The main activities are data gathering, desktop research, and interviews with individual stakeholders. In this phase, the team can start using the **word template** to structure and format the findings.

Energy system description

An important part of exploring the island dynamics is to investigate the island's current energy system. Having a comprehensive picture of how energy is produced and consumed on the island supports the Transition Team in determining the priorities for the switch to clean energy. A complete analysis of the island energy system is recommended as input to develop the rest of the Clean Energy Transition Agenda.

Having access to accurate data is critical as this will ensure that the energy system description is written as comprehensively as possible. This should also include descriptive elements that outline the technical and economic aspects of the system, thereby efficiently informing the stakeholder group. Collecting accurate, detailed and up-to-date data requires effort. It can take a significant amount of time and will likely involve an outreach to instances both on and off the island.

The scope of the energy system description in the Transition Agenda depends on how far along the island is in its clean energy transition. For islands that are only starting the process, the energy system description may be approached as a first step towards a comprehensive energy system analysis. In their case, the focus will lie on gathering the data that the Transition Team already has available or can easily obtain. Depending on the available information, data that cannot be found for a specific sector can be estimated or extrapolated. Data that is not available should be reported as missing. Islands with more accessible resources and capacity can go further and include a detailed diagnosis of the energy system, including technical, economic and climate aspects. In general, writing an energy system description as thoroughly and exhaustively as possible is recommended.

Data collection on energy consumption should be a continuous exercise because accurate, up-to-date data is crucial throughout the entire transition process and beyond. The energy system description refers to annual consumption; thus, ideally, data from the previous year would be included. If this is not possible, data from the most recently available year is recommended.

Several methodologies exist to analyse energy consumption and production. The following subsections give guidance on an appropriate scope for the analysis, possible sources of data, how to interpret it, and how to estimate it whenever it is not available. Islands are referred to the material developed by the **Covenant of Mayors** for detailed guidance on developing a final energy breakdown and baseline emissions inventory.

In order to acknowledge the special needs and challenges of islands, the energy system description is classified according to the following sectors:

- Electricity generation and consumption
- Transport on the island
- Transport to and from the island
- Heating and cooling
- Other

The goal of the energy system description is for the island to understand the current situation, and to set a baseline for referral and future comparison. The outcome of the energy system description should not be used to compare different islands. In fact, the proposed classification for energy vectors serves as a guideline, but there might be cases where allocating the consumption from a specific sector/device/technology is not obvious. For example, for an island connected via a bridge to the mainland, transport to and from the island by car may be easier to include in road transport on the

island instead of separating it. It is also important to understand that different countries use different methods for allocation, which means that a direct comparison of islands across EU member states is often not possible. To avoid misunderstandings, these nuances should be highlighted in the Transition Agenda. The energy system description is not meant to be a compilation of data but rather a part of the Transition Agenda that tells the energy story of your island.

Electricity generation and consumption

The way in which electricity as a vector is analysed in the energy system description varies, depending on whether:

- The island is connected to the mainland via a cable which provides all or part of required electricity.
- The island locally produces part (or all) of the electricity that it consumes, either through engines or through solar PV, wind, etc.

On an island connected to the mainland without any auto-production, all electricity is sourced from the national grid. In this case, electricity is purely analysed from a final energy consumption viewpoint – the key data to be collected corresponds to the total electricity consumed on the island by end users, such as households, industry and agriculture. Whenever available, it is recommended to classify this data per sector, e.g. residential, primary sector (agriculture, forestry, mining, and fishing), industries (secondary sector, manufacturing), tertiary sector (services including tourism), transport on the island, and transport to and from the island. Besides the annual electricity consumption, an interesting additional data point may be the recorded consumption at the point of interconnection on the mainland.

If there is some degree of auto-production on the island, apart from final electricity consumption, it is also necessary to consider the local electricity generation. The following indicators can be collected for a complete system description:

- Total installed capacity per technology (whether this is an engine-generator, wind or solar energy, etc.)
- Total energy produced per technology and year (at least in the last year; if historical data is available it may also be included to show the evolution).
- For any technology that consumes any type of fuel (like fossil fuels, biomass, etc.) the annual fuel consumption i.e. the primary energy consumption of the electricity sector in the island.

PROBLEM	POSSIBLE SOLUTION
Only aggregated data is available. For example, there is only a value of electricity consumption for a specific region (to which the island belongs) or for the archipelago of which the island is a part.	If uniform electricity consumption patterns apply to the whole region for which data is available, the island's consumption can be estimated based on its population; i.e. proportionally scaling down the aggregated value If this is not the case, e.g. tourism on the island is larger than in the rest of the region, the corresponding proportion of the final electricity consumption would not be accurate enough and the estimation would need to take these aspects into consideration.
No final electricity consumption data is available, but the island is small with no industry or any other relevant sector with a significant energy consumption.	The final electricity consumption can be estimated assuming a value for the annual electricity consumption per dwelling (or hotel, based on its capacity) and multiplying it for the number of dwellings/hotels in the island. The **Odyssee-Mure European project** publishes databases on a number of energy indicators, one of them being average electricity consumption per dwelling and per country. This could serve as a first estimation for this case if no other data is available.

Possible sources where the required information may be found are:

- Electricity companies operating on the island.
- Transmission and Distribution System Operators.
- Statistics agency in the country/region, either through databases, annual reports, etc.
- Municipalities.

The off-grid Scottish Islands: How the Energy System Description can help to focus towards decarbonisation

The off-grid Scottish Islands are a group of six islands, two in the North of Scotland (Fair Isle and Foula) and four to the West (Canna, Rum, Eigg and Muck). They all have in common that their electricity systems are not interconnected to the mainland. Due to their small size, and because they share common challenges and interests, they teamed-up to write a joint Clean Energy Transition Agenda.

All six off-grid Scottish Islands have already taken action towards island decarbonisation and largely deploy renewable energies (solar PV, wind and hydro) to produce their electricity, combined with batteries for electricity storage. Diesel generators are only used as back-up.

Figure 8 | **The off-grid Scottish islands are a group of islands whose power systems are not interconnected with the main land**

The same assumptions and parameters were used for the Energy System Description of all six islands. This exercise helped the islands to identify the critical areas on which they need to focus to continue with their energy transition.

The results pointed out that the main source of energy consumption (with 70 % - 90 % of final energy consumption) for the islands on the West is transport to and from the island. This is predominantly attributed to fuel consumption associated with the 'MV Lochnevis' ferry that connects the four islands with the mainland. The off-grid Scottish Islands are already looking into ways of decarbonising maritime transport by, for example, turning their ferries into hybrid electric-diesel engines. The main ferry provider has successfully deployed such vessels on one or two other routes in the Scottish Highlands.

Heating and cooling are the second major contributor to CO_2 emissions, with households making use of a variety of fossil fuels like propane, kerosene, coal, heating oil and natural gas.

Finally, transport on the islands minimally contributes to CO_2 emissions, given their small size and population (ranging from 19 to 83 inhabitants).

Transport on the island

Depending on the size, geography, and culture, islanders and visitors use different ways of moving around the island. In the energy system description, an overall picture of the different means of transport and their energy consumption in the last (or the most recently available) year should be provided. As for the rest of the vectors, the more detailed the data, the more accurate the picture will be. For example, whenever possible, it is recommended to include the type of vehicle, the type of fuel it consumes, its size, average mileage, etc.

The modes of transport that could be described in this section are:

- Passenger cars for private use (if possible, further classifying into electric, hybrid, petrol, diesel, etc.). Additional information as to whether there is infrastructure in place for electric vehicles or whether there are plans to install it in the future should also be included here.
- Vans (if possible, further classifying into: electric, hybrid, petrol, diesel, etc.).
- Public transport (buses, mini buses, etc.).
- Bicycles (transport share, explain whether there is a public sharing scheme).
- Micro-mobility (promotion measures in place, existence of a public sharing scheme).

The energy consumed by transport on the island may be calculated by following two different approaches:

1. If fuel import data (further broken down into, e.g. petrol and diesel for vehicles), or data on fuel sales in petrol stations is available, it can serve as a very good estimator for the energy consumed by vehicles on the island (see **example box on La Palma**).
2. Otherwise, data relative to the vehicle fleet on the island may also serve to appraise energy consumed by road transport (see **example box on Cres-Losinj**). In particular, the following indicators are desired:
   a. The total number of permanent vehicles on the island, classified per type and per fuel
   b. Estimation of the average mileage per year. If data is available on the number of rental cars, this should also be taken into account.
   c. Estimation of the fuel economy (i.e. on the consumption every 100 km, for example) per vehicle type.

Possible sources for the required information are as follows:

- Statistics agency in the country/region, either through databases, annual reports, etc.
- Municipalities
- Organisations in charge of the technical inspection of vehicles.
- Official websites providing information about electric vehicle infrastructure.

*Example | **Cres-Lošinj Archipelago, Croatia***

For the archipelago of Cres-Lošinj, the number of vehicles that passed the technical inspection service on the island was available, further classified according to:

- *Type of vehicle (scooters, motorcycles, passenger cars, vans, busses, trucks, etc.)*
- *Type of fuel used (diesel, petrol, LPG, electric car)*

In addition, for each category an average mileage was available.

The procedure that was followed to estimate the energy consumption due to transport on the island was:

- *The archipelago is well-connected by a short ferry to the mainland, and cars usually travel both on the mainland and on the islands. Therefore, of the average mileage, only 50% was assumed to be on the islands.*
- *For each category, a representative vehicle model was assumed based on Croatian car sales. The fuel economy of this model was then multiplied by the assumed mileage on the islands and by the number of vehicles in the category.*

The above steps gave an indication of the total consumption by fuel (in volume) from the transport sector.

Figure 9 | **Road transport by private and rental cars is one of the main modes of transport on Cres-Lošinj.**

*Example | **La Palma, Spain***

The regional government of the Canary Islands collects detailed fuel supply data, both aggregated at a regional level and for each one of the islands. Fuel supply is further classified between petrol and diesel sales in petrol stations. This value was taken as an estimate for road transport consumption.

In order to complete this data and to provide a full picture of transport on the island, the following information was also collected and included in the section as a description of this vector:

- *Data from the Statistics Agency in the Canary Islands was consulted to retrieve the number of registered vehicles on the island, per vehicle type and per fuel used.*
- *Data from infrastructure for electric vehicles was retrieved from a local organisation that allows users to book only electric vehicle chargers.*

This information is included in the energy system description as a way to characterise the vehicle fleet on the island and to illustrate how developed the electric vehicle infrastructure is.

Transport to and from the island

Transporting goods and people to and from the island is one of the major challenges for an island's clean energy transition. To show the full picture precisely, in terms of energy consumption, both trajectories (to and from the island) are taken into consideration for the energy system description of the Transition Agenda.

The main transport modes to consider are:

- Maritime transport (boats, ferries).
- Air transport (depending on whether the island has an airport).

As was the case for transport on the island, the following sources may serve to calculate final energy consumption to and from the island:

1. Fuel import data further broken down into, e.g. kerosene for airplanes and fuel for maritime transport (see **example box on La Palma**).
2. Data relative to flights and ferry trips to and from the island (see **example box on Sifnos**). Relevant indicators to collect are:
   a. The total number of flights/ferries for each type of plane/boat per year. If tourism is important on the island, the frequency of the trips may vary depending on the month.
   b. An average distance on all routes. This value should be doubled in order to consider return trips to and from the island.
   c. Estimation of fuel consumption for each plane/boat involved. This could be found either on technical reports or provided by the involved air or maritime transport companies.

Possible sources for the required information are as follows:

- Statistics agency in the country/region, either through databases, annual reports, etc.
- Coast guard records.
- Private/public companies offering ferry services.
- Airport management companies.

*Example | **Sifnos, Greece***

In terms of maritime transport, no data on ferry energy consumption was readily available.
The procedure followed to estimate energy required for transport to and from the island was::

- *The Hellenic Coast Guard provided data on arrivals and departures of ferries to the island in the past year.*
- *The average distance navigated by the ferries was calculated.*
- *Two companies provided approximate data on the average consumption of their ships.*
- *The participation of each ferry to the routes was estimated.*
- *With all of the above data, the energy consumption by maritime transport during 2018 was calculated.*

*Example | **La Palma, Spain***

As with fuel supply to petrol stations, kerosene supply to air navigation is published by the regional government of the Canary Islands. This data corresponds to the kerosene fuelled to planes on the island; thus, it only reflects transport from the island to another destination. In order to include the fuel consumed by air transport to the island, the kerosene data was multiplied by two.

Heating and cooling

Depending on the weather conditions on the island, there may be a demand for heating and/or cooling. As part of this category the consumption over the last (or most recent) year for boilers, heat pumps, A/C systems or any other heating or cooling device or technology used on the island should be considered.

Possible sources for the required information are as follows:

- Statistics agency in the country/region, either through databases, annual reports, etc.
- Gas/fuel providers.

As heat is usually produced onsite (for example in boilers placed in a house, apartment or office building), it might be difficult to have accurate data on final energy consumption for this vector. Two different methodologies are suggested below:

- If data on total fuel sales on the island is available: once fuel consumed for electricity production and by the transport sector is determined, it could be assumed that the rest of the fuels correspond to heating (unless there is industry or any other relevant sector on the island that may require a specific type of fuel).
- The **Odyssee-Mure project** provides average data on heating consumption per dwelling and per country. If this data could also be representative of the conditions on the island, it could serve to estimate heating consumption by island households.

Certain devices such as A/C systems, electric boilers or heat pumps may consume electricity to produce heat or cold. In this case, their consumption could either be allocated under electricity or under heating/cooling. Special attention should be given to avoid counting the same consumption under two categories.

Other

Other important sectors (such as industry, agriculture, water etc.) may play an important role on the island and may consume large amounts of energy. In such cases, these can be covered in separate categories in the energy system description. As for the rest of the vectors, a description of the current situation would be included.

Overall summary and CO_2 emissions

The data for the different vectors can be summarised in a Table such as per **Table 1**. At this point, if the breakdown per fuel type is specific enough, it would also be interesting to include the CO_2 emissions associated with each one of the vectors. The conversion factors (ton of CO_2 per MWh of energy consumed), is made available through the **Covenant of Mayors**. If there is an electricity connection from the mainland, the CO_2 emissions associated with electricity would depend on the energy mix of the region/country.

For islands that are not connected to the mainland or that produce part of the electricity that they consume, a second table summarising the total energy produced on the island, the primary energy consumed in the production of electricity and the CO_2 emissions (following the example of **Table 2**) can be included. For renewable energies such as solar photovoltaic or wind energy, there is no primary energy consumed or CO_2 emissions associated with the production of electricity, therefore, these should be left blank.

	ENERGY CONSUMPTION [MWh/year]	CO_2 EMISSIONS [tonne/year]
Electricity consumption		
Residential	XX	XX
Primary sector	YY	YY
Industries	ZZ	ZZ
Tertiary sector…		
Transport on the island		
Source 1	XX	XX
Source 2	YY	YY
Source 3	ZZ	ZZ
Transport to and from the island		
Source 1	XX	XX
Source 2	YY	YY
Source 3	ZZ	ZZ
Heating and cooling		
Source 1	XX	XX
Source 2	YY	YY
Source 3	ZZ	ZZ

Table 1 | **Example of the summary final energy consumption data and CO_2 emissions**

	TOTAL ENERGY PRODUCTION [MWh/year]	PRIMARY ENERGY CONSUMPTION [MWh/year]	CO_2 EMISSIONS [tonne/year]
Diesel generators	XX	XX	XX
Gas turbine	YY	YY	YY
Solar photovoltaics	ZZ	—	—
Wind power	TT	—	—

Table 2 | **Example of table summarising energy consumed by the electricity production units on the island**

Stakeholder mapping

A successful clean energy transition benefits the entire island community. Mapping the island stakeholders is a useful way to ensure that the relevant stakeholders are engaged, whilst providing a structure for determining the governance of the transition. The stakeholder mapping also facilitates the co-creation process in the next phase of the Transition Agenda.

Individual stakeholders have different reasons to be engaged and each will bring their perspective to the transition process. Through their participation, stakeholders will contribute increased awareness of the process, leadership, resources, expertise, and other skills. The key to a successful transition lies in having a balanced stakeholder representation.

One way to map stakeholders is to build a comprehensive stakeholder list, where each stakeholder is listed and both the reason for their engagement and the perspective on the transition is described. A template for this register can be found in **Annex I**.

ORGANISATION NAME

Reason for their involvement:
Awareness, support, endorsement, leadership, resource (financial & people), commitment, data, expertise, decision/sign off, investment, coordination in timing of projects, etc.

Perspective on the transition:
Unsupportive, neutral, supportive, etc.

From this list, the stakeholders can be mapped to determine their involvement in the process and build a stakeholder engagement register. Based on their level of interest and their impact on the outcome of the transition, the mapping determines which type of engagement should be assigned by the Transition Team per stakeholder, as shown in **Figure 10**.

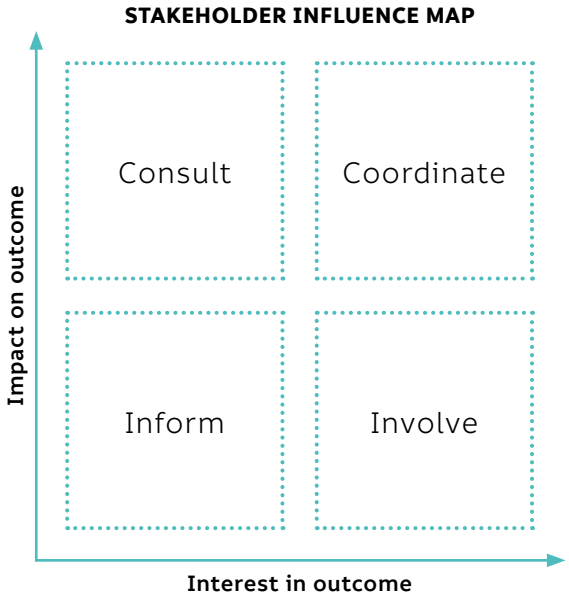

Figure 10 | **Stakeholders can be mapped according to their impact and influence to determine their role in the process.**

- Stakeholders with a high interest and a high impact on the outcome of the transition should be closely coordinated. They are invited to become part of the Transition Team, and in any case a close relationship should be established regarding both the operational and strategic aspects of the transition.
- Stakeholders with a high interest and a low impact should be involved in the process. They can provide valuable support by facilitating meetings, supporting outreach activities, doing research, etc. This simultaneously touches on their interest in the outcome.
- Stakeholders with a low interest and a high impact on the outcome should be consulted throughout the process. The Transition Team can use their support and feedback to determine next steps.
- Stakeholders with a low interest in the island's clean energy transition and a minor impact on the outcome should be kept informed of the ongoing developments and progress. This can be through, for example, a public website, a newsletter, information poster in public areas, etc.

Example | ***Stakeholder mapping on Culatra, Portugal***

The clean energy transition on Culatra, a small island in the Ria Formosa delta in the south of Portugal, is part of the Culatra2030 project that aims to improve the living conditions on the island and spur local development by empowering the island community. Culatra's transition covers energy, but also goes beyond. Historically, access to basic services such as water and electricity on the island has been hindered and there is therefore a need for overall development.

The Transition Team consists of Algarve University, the Resident Association of Culatra Islands, the Coordination Commission of the Algarve Region and Faro Municipality. They are supported by Make It Better, an organisation that specialises in working with communities on development projects, who lead the participatory diagnosis with the island community.

The Transition Team used stakeholder mapping to explore the island dynamics and identify the different stakeholders and consider their role and involvement in the process. The team distinguished between three different groups:

- *The management committee that consists of the organisations on the island that play an active role in facilitating and driving the transition process.*
- *The communities of the island that are present on Culatra and that are engaged for the transition process.*
- *The advisory committee which consists of organisations and public bodies off the island that are relevant to consider.*

The mapping, shown in ***Figure 11****, gives an overview of the most important stakeholder groups on the island and identifies the actors off the island that play a role in the transition. This helps the Transition Team to reach out appropriately to each of the groups, which is important for the participatory process.*
More info on Culatra2030 can be found at ***www.culatra2030.pt***

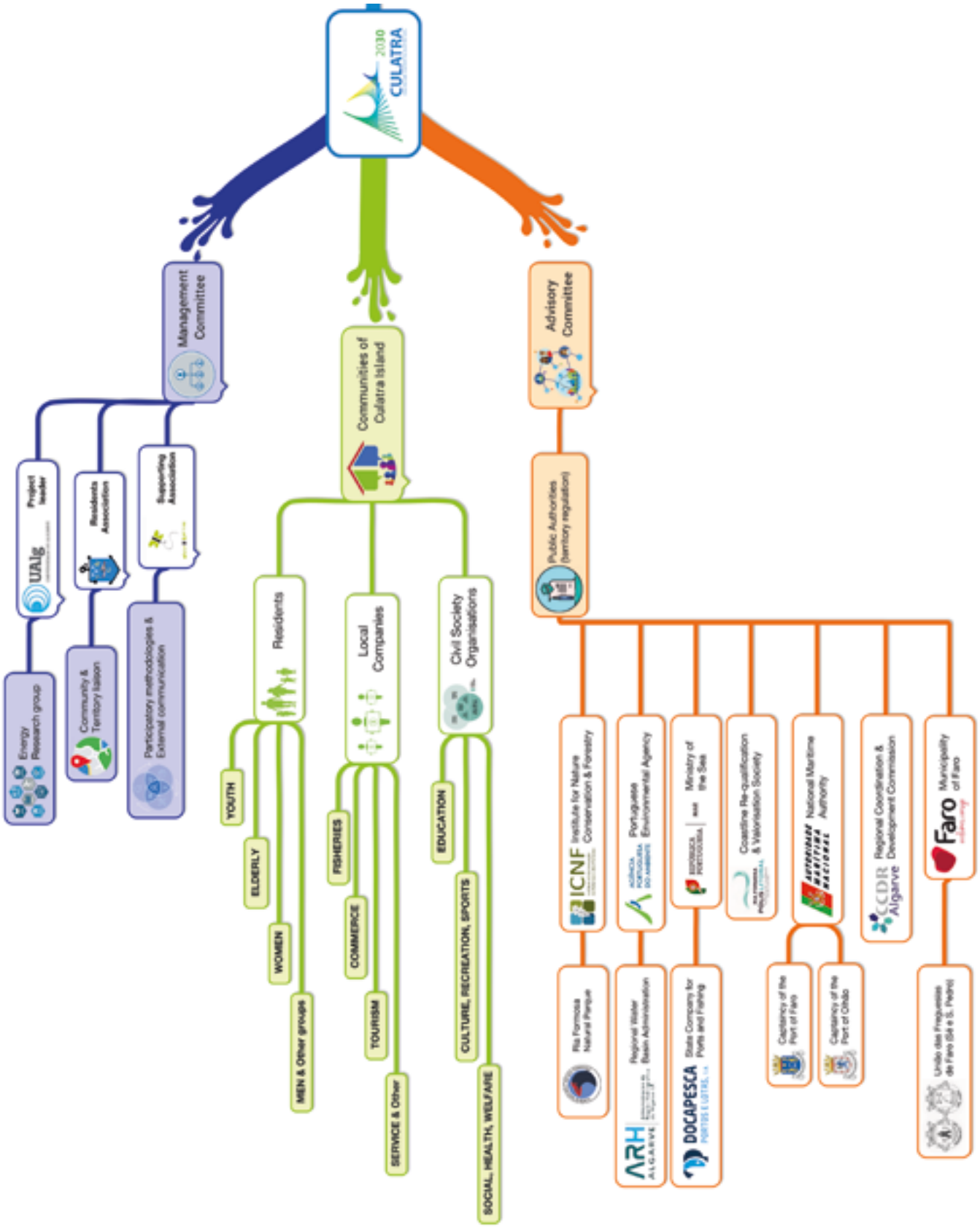

Figure 11 | **Stakeholder mapping on Culatra shows the different stakeholders involved.**

Policy and regulation

The Transition Team should investigate how the island transition process is embedded in the surrounding policy and regulatory framework as this provides the backdrop against which the local energy transition takes place, such as international agreements on climate change, national and regional targets for the integration of renewable energy, local commitments to decarbonisation, etc. This exercise provides a clear understanding of how your island's Clean Energy Transition Agenda relates to clean energy transition and planning processes at different governmental levels in your country.

A more detailed study of policy and regulation that investigates the available support schemes, sustainability programmes and other available resources can also identify specific opportunities for the island's transition. Legal and regulatory limitations can pose significant barriers and should therefore also be considered. It is recommended that islands explore synergies with other islands in their particular jurisdiction that are also undergoing transition, so that they can consider the legislative and policy framework together since this is common for that whole area.

Information on policy and regulation can be gathered through desktop research and interviews using information sources such as policy documents, government websites, national climate and energy plans, previous commitments and plans on energy that were made for the island, etc. This is a good opportunity to reach out to government stakeholders to establish a point of contact. In the future this can facilitate the information flow, both top-down and bottom-up.

*Example | **Salina, Italy***

As part of their Clean Energy Transition Agenda, Salina studied the regulatory framework surrounding the island and identified several opportunities for their clean energy transition.

Salina is the second largest of the seven Aeolian islands, situated off the Sicilian North Coast. It is one of the 14 Sicilian Isole Minori – Sicilian Small Islands. Salina is electrically not interconnected and lies about two nautical miles from Lipari, the largest and most populated island of the archipelago.

There are three municipalities present on the island: Malfa, Santa Marina, and Leni. The Sicilian Region, through its regional energy department, is the highest government body responsible for energy planning in Sicily and on the Sicilian islands.

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Figure 12 | **Salina Isola Sostenibile is a part of the island's visual identity.**

*At a local level, all three municipalities on Salina have signed the Pact of Islands to commit to a reduction in primary energy consumption and greenhouse gas emissions. They each developed a Sustainable Energy Action Plan in 2013 to show which measures could be taken to make this happen. As part of the Clean Energy Transition Agenda, the Transition Team noted that limited progress had been made on these plans, which indicates that several barriers exist for the implementation of the actions. An assessment of the strengths and weaknesses of the transition process on Salina based on the transition indicators can be found in **Chapter 7** on monitoring.*

The Transition Team also identified the policies and regulations at a regional and national level that have an impact on the clean energy transition for Salina. The Transition Agenda gives an overview of the relevant decrees and resolutions. For example, the Decree of the Ministry of Economic Development known as the "Isole Minori" Decree promotes the construction of renewable energy plants by private individuals by providing a remuneration for the production and self-consumption of electricity. It also sets the objective to reduce electricity production from non-renewable sources by at least 20% of the conventional annual electricity production – which equals 9,160 MWh/yr for the island – and the objective for the development of renewable energy sources to be reached by 2020 – 580 kWp solar power and 570 square meters of solar thermal surface.

At a European level, the Transition Agenda identifies the major trends on energy, including the targets on greenhouse gas emissions, renewable energy integration and energy efficiency. It was found that the European rules on Renewable or Citizens Energy Communities can play an important role to empower citizens and small producers to participate directly in the clean energy transition by jointly investing in, producing, selling and distributing renewable energy.

Through this analysis, the Transition Team was able to identify the top-down dynamics that are important to consider in the rest of the Transition Agenda.

Transition indicators

By exploring the island dynamics, the transition indicators in the Diagnosis & Planning category and the Multi-level governance category can be addressed.

A data-driven clean energy transition benefits from an accurate understanding of the island's current state of the energy system and the progress that is being made towards decarbonisation. Islands are therefore encouraged to set up a system to regularly and periodically monitor energy consumption and CO_2 emissions. This data is used in an island energy system description, that evaluates the technical and socio-economic aspects of the island energy system. These topics relate closely to the transition indicators on Decarbonisation Plan – Island Diagnosis and Data Quality.

Multi-level governance is the process of acknowledging that many competences and responsibilities are shared between various horizontal and vertical governmental levels and that collaboration between these levels is necessary to address issues effectively. By positioning the Clean Energy Transition Agenda in the landscape developments that are going on, islands can reach out to the relevant local, regional or national authorities to discuss other planning initiatives and strategies that are relevant to the island. This relates to the transition indicator on Multi-level Governance.

The transition indicators are explained in detail in **Chapter 7**. The self-assessment matrix can be found in **Annex II**.

3 Understanding the Island Dynamics

Key takeaways

- It is important to understand the dynamics of the island to develop a realistic clean energy transition strategy.
- A description of the energy system is a useful basis from which informed decisions can be made and next steps prioritised.
- Having a balanced representation of different stakeholders is key to the success of the transition.
- An understanding of the policies and regulations on energy for the island allows for the identification of barriers and opportunities.

Resources

The following resources related to this chapter are available in **Annex I**.

- **Tool 1:** Energy system description template
- **Tool 2**: Stakeholder mapping template

The following resources related to this chapter are available online:

- The Odyssee-Mure project key indicators.
  Available **online**.
- CoM Default Emission Factors for the Member States of the European Union.
  Available **online**.

4 Developing an Island Vision

THIS CHAPTER DESCRIBES HOW TO:

- *Set a vision on clean energy for your island that is supported by the island community.*
- *Appropriately consider the governance in each step of the transition process.*

The development of a shared vision for your island's energy future is an important step in developing an ambitious Clean Energy Transition Agenda that inspires and mobilises action. Departing from the island energy challenges, the participants of the transition dialogues shift their focus to the development of a vision that covers the future and ambitions of their island.

What?

Having identified the island energy challenges under the island dynamics, the participants of the transition dialogues proceed with the development of a vision around a sustainable energy system that will enable them to maintain the sustainable wellbeing and resilience of their community. This vision identifies a number of basic principles for long-term actions, which can be based on the mapped island challenges, e.g. 'polluting infrastructure harming the environment' underlines the need for the transition to a system based on clean energy sources that respects and enhances the local environment. The main discussion point can be based on the following question:

"Where do we want to be, or what do we want to see happening on our island in the future?"

The desires, dreams and wishes of the island stakeholders come into focus during this vision development. The importance of answering the 'why?' question is crucial at this stage because simply developing a vision on clean energy without a reason for doing so is not useful. Some stakeholders might be interested in the economic opportunities, others may want to ensure a clean energy future for their children. The interests of each of the stakeholders needs to be considered; only once people understand the potential impact and opportunities of the transition, will they be engaged.

The local stakeholders discuss their wishes for the future of their island from an energy system perspective and vice versa – the future energy system is discussed in relation to the role it plays in island society. In other words, how the changes in the energy infrastructure will impact the way the island relates to them. A clean energy infrastructure can, for instance, enable local businesses to provide their products and services in a healthy environment, attract residents to the island, strengthen the local economy, and interrelate to other sectors such as waste.

Why?

The development of an island vision is crucial for the transition to clean energy sources. A collectively developed vision functions as a compass that orients the island community towards a new 'attractor' – a vibrant carbon-free island, an energy independent island, a resilient island, etc. Beyond that, the discussions that take place in shaping this vision, enable the actors involved in the transition dialogue to focus their efforts on concrete actions. A major direct benefit of participatory envisioning is the direct dialogue between local stakeholders, policy makers and local technology providers.

Who?

The organisation and the associated overall coordination of the actors involved in transforming the island's energy and mobility infrastructure are issues that emerge at the very beginning of the

Benefits of envisioning

- *Visions provide the foundation for creating the necessary policies because in an envisioning process awareness is raised, the public is mobilised as its voice can be heard, a basis for conflict resolution is established, and partnerships that may carry out the implementation are formed.*
- *Envisioning encourages fresh ways of thinking about the future and creates collaborative linkages between previously unconnected or disconnected actors.*
- *Envisioning processes genuinely engage people and provide space for reflection and creativity, while paving the way for change, since facilitated reflection and creativity challenge conventional wisdom and inspire discussion.*
- *A clear vision enables people to determine their own (personal/ organisational/ departmental) objectives and to collaborate with others, as they know that they are all working towards a shared goal.*
- *When people that share the ambition to contribute to a common cause come together for the creation of a common vision, the collective energy inevitably increases, and a sense of real commitment is created.*
- *When a vision is created with the participation and collaboration of all relevant stakeholders, then everyone shares its ownership, and, therefore, it is more likely that the overall coordination will be more effortless. Once success means the same for everyone involved, the achievement of the collective goals more becomes more feasible.*

transition process. The transition of an island community to clean energy sources requires the collaborative efforts of numerous actors on and beyond the island. The completed stakeholder analysis and mapping enable the clarification of questions around the potential roles and responsibilities of the different island stakeholders when strategizing and implementing this strategy in the projects that follow.

The governance of the island's transition comes up during the initial discussions of the Transition Team on the coordination and progress of the Transition Agenda. A strong approach to governance covers the level of involvement of each of the organisations in the transition process both during and beyond the Transition Agenda: decision-making processes, organising and operationalising ideas, etc. Each organisation has specific strengths that need to be combined to ensure the ownership of the transition process. It is a good idea to consider governance both during the strategizing phase, when the Transition Agenda is developed, and during the action phase, when it is operationalised.

Strategizing phase:

Developing a Clean Energy Transition Agenda requires a committed team to coordinate and facilitate the overall process. Once the mapping of the dynamics on and around the island is complete, the Transition Team invites the relevant stakeholders to join the dialogue process to develop the strategic agenda. In selecting the actors to be invited to the transition dialogues, the team considers not only their expertise, but also personal characteristics, and their overall ability to bring their knowledge, influence, or creativity to the transition process. Depending on the island context, it might be a good idea to invite as many island residents as possible. Transition processes benefit from the involvement of actors recognised for their open-mindedness, curiosity, listening, their attachment to their land and vision of its future, and their ability to propose creative solutions.

The role of the Transition Team in this phase is to prepare, document, analyse, monitor, manage, facilitate and evaluate the entire process. Therefore, the distribution of tasks and responsibilities among the several team members is recommended.

Apart from selecting and mobilising the participants of the dialogue, the Transition Team provides the transition dialogue group with background information and all relevant expert input when needed. The Transition Team is responsible for the internal and external communication of the transition processes overseeing all the activities in and between the meetings and functioning as an intermediary when tensions emerge.

Action phase:
The future island energy and mobility system can take different shapes. Local authorities may join forces with community energy initiatives to develop renewable energy and energy efficiency projects; community energy initiatives may also establish partnerships with private investors; local hotels or restaurants and other local businesses may invest individually or collectively in energy efficiency as well as energy generation measures. Along the way, private-public partnerships may emerge for the development of sustainable mobility services. A number of different possibilities exist and can be developed in the course of the transition dialogue.

The focus of these discussions between the Transition Team and members of the island transition community, is not on having a governance system perfectly defined. As the transition continues, the roles and partnerships can change, and the way governance is covered in the Transition Agenda should take this into consideration. Instead, the transition dialogue on governance will lead to the identification of possible roles and partnerships between the involved stakeholders.

It is important to strike a balance between the role of traditional ways of governance, represented by the public authorities, incumbent energy companies, established actors etc. on the one hand and the need to facilitate open-ended and flexible governance processes. The transition on your island can benefit from the involvement of actors with different kinds of technical or contextual expertise to go beyond business-as-usual and that bring new ideas and perspectives to the discussion table. This includes stakeholders outside the energy sector: schools, tourism associations, etc; the way that all of these stakeholders collaborate is a learning process in which the role of governance is to empower each actor according to their ability.

The following questions can be used as a guide:

- What is the role of each stakeholder in the process, their motivation, and what are their resources? Who are the main drivers of the transition?
- How does the governance system integrate the different stakeholder groups described above? How do they interact and collaborate?
- What is the role of local authorities? To what extent is ownership by citizens and local businesses foreseen?

How?

Visioning best takes place in a workshop with engaged participants from the island transition community. An island vision needs to be bold and at the same time attainable. The group of participants needs to strike a balance between an ‘inspiring vision’ that can engage and mobilise people, and a ‘reasonable vision’ that can materialise in the long-term. The right time-frame for developing a vision is mid-term – neither too far nor too close. A mid-term target of 10 – 15 years can play a psychological role as this helps create an urgency that mobilises people to take immediate action for a future that affects them and may also be influenced by them.

4 Developing an Island Vision

It is important to note that achieving a consensus on the detailed characteristics of a vision, e.g. technological solutions, is not necessary. The discussion should remain on a strategic level. Instead of issues such as the share of different technologies in the energy mix, the discussion should focus on possible tensions between principles such as autonomy, efficiency, automation, citizen participation, etc. By focusing on a mid-term vision that consists of several – possibly competing or overlapping – visionary images, the possibility for future debates is left open, while an overall future direction is set. Whilst it is important to maintain a friendly atmosphere so that participants can learn from one another and collaboratively imagine their common future, conflict will have a place in this process. This is a healthy and normal part of all transition processes, because sustainable visions are often at odds with the vested interests of powerful actors who tend to oppose fundamental change and often challenge the very foundation for a transition.

The focus of the discussion should remain on the collective future of the island community and what everyone will gain though the transition to clean energy sources.
An envisioning process involves two main steps:

1. Formulating guiding principles
2. Creating the vision

Formulating guiding principles

The first step in an envisioning process is the formulation of principles (e.g. a sustainable island, a socially just island, an accessible island) for the desired outcomes in the future. These principles emerge once the dialogue participants discuss and reflect about their core values (e.g. sustainability, justice). The identified principles are going to guide the development of the overall vision.

The guiding principles of the vision, together with a short description of their meaning, can be shared with other island stakeholders who do not participate in the strategic discussions regarding the island energy transition. In this case, careful presentation is needed because the non-participants are not aware of the broader context of the discussions.

An important takeaway is that an envisioning process should acknowledge and present existing visions, especially when there are participants in the process who are aware of or participated in such processes. It is important to provide the choice to the participants to either build on existing visions or strategies or start working on these principles with a new perspective. The Transition Team should furthermore take into consideration existing agendas, legal instruments, emerging community initiatives and partnerships and pilot projects to develop the guiding principles;

Creating the vision

The aim of this step is the creation of iconic images or storylines of an envisioned future that captures the desires and wishes of the transition dialogue participants as expressed in previous discussions on their principles. A successful vision manages to capture the imagination of not only the participants of the strategic discussions but also of a broader audience and can therefore have social or symbolic value for the overall process.

Some ‘good practices’ around envisioning processes are the following:

- Consider existing, local storylines around change and activate them within the vision;
- Engage with a variety of non-like-minded actors in the envisioning process, and allow for open confrontation and the exploration of commonly shared values and future desires;
- Involve actors with different backgrounds (e.g. technological, organisational, financial, etc.) and types of knowledge (e.g. expert or informal) into the envisioning to allow for learning and co-creation;
- When writing, express the vision with several adjectives.

The result of this process is an elaborate description of a vision that brings together different images or representations of the desired future. The vision can cover different areas (e.g. transport on the island, transport to and from the island, public buildings, private buildings, etc.). There are several ways to present the created vision and as well as vision statements, they can involve artistic images and videos, online communication, headlines, front pages of future newspaper, newsmagazine issues, etc. Communicating the vision to a broader audience may mobilise networks and the associated resources for the realisation of this vision.

The participation of expert facilitators is in many cases crucial in conducting effective envisioning processes. Several vision workshop ideas are given in **Tool 4**: Visioning tools. If possible, the presence of an artist in the meetings can help capture the discussions of the participants in attractive images and sketches for both involved actors and the broader audience. The sketches and images can be used in the discussion process to illustrate internally and externally the core ideas of each vision image.

Why visioning sometimes does not work

- *Obscuring old knowledge (e.g. renewables are expensive)*
- *Limiting beliefs and attitude (e.g. we can’t do this)*
- *Lack of or inappropriate facilitation*
- *Developing a vision only using analytical thinking, instead of also mobilising creative thinking (i.e. inability to ‘think out of the box’)*
- *Unwillingness or inability to identify concrete action steps after envisioning*
- *Unwillingness or inability to recognise when external support is needed to make a breakthrough*

Example | ***The vision of the Aran Island***

The Aran Islands are an Irish archipelago that consists of three islands, Árainn, Inis Meáin, and Inis Oírr, off the Irish west coast in Galway bay. Covering around 46 km², the islands are a unique habitat for fauna and flora and are protected as special areas of conservation. The three islands have a permanent population of around 1200 inhabitants, and tourism is the main economic activity. Tourists are drawn to the islands because of their karst limestone landscape, impressive cliffs, and the rich archaeological heritage. The Aran Islands do not have their own public administration and fall under the administration of County Galway.

Figure 13 | **The Aran Islands Energy Co-op has developed an ambitious and concrete vision for their clean energy transition.**

The Aran Islands Energy Co-op was launched in 2012 and is the main protagonist in the Aran Islands Transition Team. They run several sustainable energy pilots on the islands, including an electric vehicle pilot, retrofitting of residential and commercial buildings, and applied research and innovation projects on residential demand response, hydrogen generation and geothermal heating. The co-op counts approximately 85 members, all of which are residents and businesses located on the Aran Islands.

At their outset in 2012, the co-op developed an ambitious and concrete vision, stated through its strategic objectives:

- *"To secure the future energy needs of the three Aran Islands by gaining a controlling interest in the local sources of alternative energy production.*
- *To reduce and gradually remove the dependency of the Aran Islands communities on fossil fuels (oil, gas, coal, including transport) by replacing them with alternative and more sustainable sources of energy.*
- *To preserve the islands' unique language, heritage and culture by providing sustainable employment and a sustainable environment for people to live in.*
- *To facilitate the conversion of homes and other buildings on the three islands to be more sustainable in their energy usage.*
- *To provide low-cost energy to industry so as to create employment on the islands.*
- *To create, provide and encourage employment in projects of sustainable energy.*
- *To facilitate and at least part-own initiatives and projects in research and development into sustainable energy.*
- *To provide education and training to both residents and non-residents in sustainable living.*
- *To create on the three Aran Islands an example of best practice in sustainability to the rest of Ireland and to the world.*
- *To use the three Aran Islands as a platform from which to promote sustainability and environmental protection worldwide."*

More information on the Aran Islands Energy Co-op can be found at ***www.aranislandsenergycoop.ie***

Transition indicators

By developing an island vision, the transition indicators in the Vision category can be addressed. It is important to note that it is not possible to precisely evaluate the results of a visioning exercise. Visions that are expressed in general terms, but that are shared between multiple stakeholder groups, can be much more useful than explicitly articulated visions that are not anchored with the island transition community. Visions that only cover part of the island, for example a commitment of a single municipality, or visions that are not specific for the island, for example a regional plan, score low in the assessment. A strong vision is expressed in clear terms, can include explicit targets and is shared between several stakeholder groups, including the relevant public authority.

The transition indicators are explained in detail in **Chapter 7**. The self-assessment matrix can be found in **Annex II**.

Key takeaways

- Your island's clean energy transition will benefit from a vision that is co-created by the relevant island stakeholders.
- Mid-term goals create urgency whilst mobilising immediate action.
- Visioning involves a strategic discussion regarding the collective future of your island's community and what everyone will gain though the transition to clean energy.
- Governance needs to be considered at every step of the process in order to ensure its ownership and responsibility.

Resources

The following resources related to this chapter are available in **Annex I**.

- **Tool 3**: Illustrative dialogue rules
- **Tool 4**: Visioning tools

Readers interested in more information on visioning are referred the Guidance Manual on Transition Management in the Urban Context (Roorda et al. 2014) published by the Dutch Research Institute for Transitions (DRIFT).
Available **online**.

5 Exploring Island Transition Pathways

THIS CHAPTER EXPLAINS HOW TO:

- *Develop pathways that link the island vision with the present.*
- *Identify and elaborate on the pillars of your clean energy transition.*

Island Transition Pathways describe strategies, barriers to overcome, important actors, and essential actions for the island's clean energy transition. The starting point is the island-wide vision on clean energy that is shared between the island stakeholders – where will the clean energy transition lead your island? The transition pathways describe possible storylines, including goals and interventions, in the short-, mid- and long-term to make the bridge between the island's envisioned clean energy future and the present. It is the result of a process that involves all relevant island stakeholders and leads to aligned perspectives and assigned roles to work towards the identified common goals.

Why?

The island transition pathways start from a vision and spell out options that exist for the island's clean energy future, with the aim of considering holistic energy scenarios. These options are structured and further developed in the transition pillars. By identifying common goals and effective strategies they allow the decision-making process to move forward. The pathways and pillars help to overcome technical, financial, cultural, historical and social barriers to the island's clean energy transition by mobilising all stakeholders.

What?

In this phase, the island stakeholders are brought together to explore strategies for reaching their envisioned future. By identifying a number of storylines across different areas of intervention, several pathways towards this future vision are built. Such interventions involve issues of both technical and organisational nature and focus on the importance of the role of the different actors in the transition. Strategic considerations of the transition process are assessed by analysing the structural barriers and opportunities across different pillars.

How?

The island vision is based on a strategic dialogue between the island stakeholders which take place in plenary sessions. A first session can be organised to focus on analysing the problem - "what is the transition challenge?" and discuss the features of the island vision. Another session can be organised to identify and elaborate on the pillars of the transition - "which key areas will the transition address?" Further discussion, fuelled by research and input from experts, assesses which technologies and organisational structures are suitable to reach the envisioned future.

Transition pathways and pillars

Developing the transition pathways is an important step to connect the vision of the clean energy island to tangible and concrete ideas of how this future can be achieved. It brings the strategic discussion on the vision down to an operational and pragmatic level and leads to an overview of the different possible ways to your island's complete decarbonisation. These are no fixed plans, but storylines across scales and sectors that present an overview of the existing possibilities for

decarbonisation. They can be considered holistic energy scenarios that provide insight into how different areas, such as ownership models, technologies, and principles can work together to reach the envisioned future. They provide action mandates and enable an outreach to the island transition community and beyond.

Parallel to developing the transition pathways, transition pillars can be constructed for your island. Whereas the pathways integrate the different perspectives from across sectors and energy vectors, the transition pillars explore and investigate individual opportunities in a single area. Whereas pathways focus on the inter-dependencies across the pillars and go beyond existing silos and cut across the existing tasks and responsibilities of the actors involved, the transition pillars lead the way to concrete project decisions and ideas.

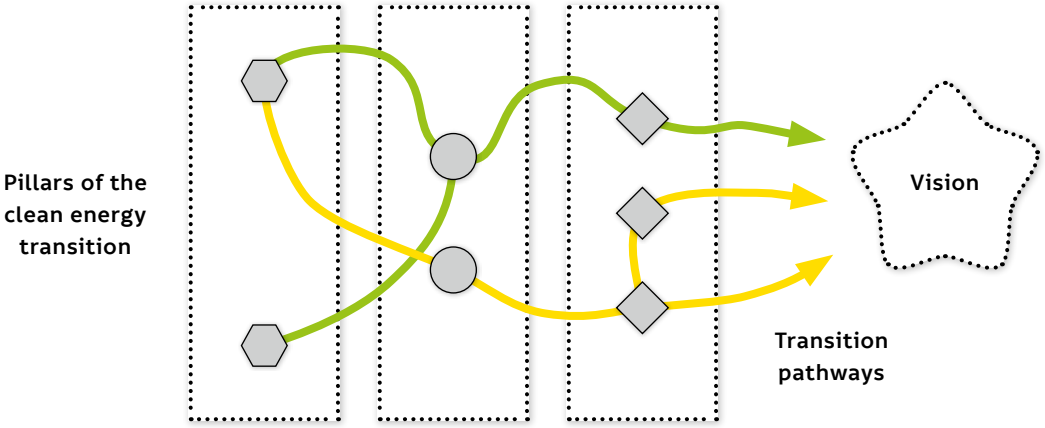

Figure 14 | **Constructing the island transition pathways by connecting the elements of the pillars.**

Developing island pathways

A starting point for the development of the transition pathways are the guiding principles that were used to formulate the vision. While achieving this ideal future vision may not be a concrete goal, the strategic objectives enable the establishment of short-term actions that can prepare the ground for more bold steps in the medium and long-term.

There is no one-size-fits-all solution to develop island transition pathways. Based on the input gathered in the transition dialogues, the Transition Team clusters the strategies, ideas, and actions according to identified themes.

Usually planning processes involve a 'from X to Y' approach, where X indicates the present, and Y stands for the envisioned future:

- 'From a fossil-fuelled island to a renewable energy island'
- 'From energy dependence to energy autonomy'
- 'From private-owned energy to energy as a driver of community development.'

Another method starts from the envisioned long-term future and goes back step-by-step in time to imagine the achievability of such a future: starting from the long-term vision, what steps are necessary in the medium term to achieve this. This method is useful in addressing complex challenges, like our energy and climate issue, because it encourages creative thinking. The Transition Team can focus on

the short-, mid- and long-term implications for each of the pathways. The order of individual steps per path can be determined and the actors that are important are identified. Once a draft of the pathways has been developed, further enrichment can involve the island transition community during a workshop. Several iterations are possible, until a final consensus has been reached. It is important that this work is validated by the island transition community.

Taking a wide perspective that goes beyond energy transition can be useful, but it is important that the overall priorities of clean energy transition, as identified during the mapping of the island dynamics, are considered throughout the pathways' development. Pathways should address the most pressing issues to clean energy transition. Existing targets and objectives set the overall framework in this exercise. If existing vision or strategic documents fit the designed vision, they can be incorporated or partially adapted to the overall vision. Trying to connect with pre-existing strategic documents may tone down the radicality of the vision, by bringing arguments regarding the feasibility of a vision, for instance. However, they should at least be considered, and the transition team should try to go beyond the pre-existing documents and identify the required steps to reach the next level.
The pathways help to engage stakeholders by creating storylines that relate to their own strategies and initiatives. The shared narrative that is developed in the transition dialogue is also important in order to further build the commitment of the island transition community and to empower them to develop ideas into concrete objectives that are attainable.

Example | ***Ibiza: an example of how dedicated human resources can drive the energy transition despite a global pandemic***

The island of Ibiza decided to seriously invest in its energy transition and hired two people to work full time and lead their transition team: one person specialised in participatory processes and an expert in energy systems.

Despite the COVID-19 crisis, this dedicated transition team managed to substantially progress on the development of Ibiza's first CETA. Through a survey, islanders could provide their views and proposals to achieve a renewable island. The results from the survey were used as input for the workshop named 'Dialogues towards a sustainable island', which finally took place online in June 2020. More than 40 people (from NGOs, businesses, public administration, renewable energy experts, etc.) participated in the workshop, split over two days of intense, joint effort and showing the island's commitment to the clean energy transition.

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Figure 15 | **Online tools played a prominent role in the workshop held on Ibiza.**

During the workshop, the island's clean energy vision, as well as transition pathways and pillars were discussed, thanks to the facilitation of the transition team and by making use of online tools. The output of the workshops was written down to become the first version of Ibiza's CETA.

Pillars of the energy transition

The developed transition pathways, based on the identified guiding principles, involve a set of key areas that the clean energy transition will address. These emerging areas comprise the pillars of the clean energy transition for which different solutions are investigated. A Clean Energy Transition Agenda's pillars should cover at least the following energy vectors:

- Electricity
- Heating
- Cooling
- Transport on the island
- Transport to and from the island

They can also be based on a sectorial approach, an ownership model-based approach, etc. or incorporate additional areas. The transition dialogues, which can consist of different meetings per pillar, provides insight into the island's wants and needs and increases the effectiveness of the agenda.

The pillars are developed by the Transition Team, the island transition community and where appropriate, expert support. The resources required to develop the pillars will depend on the size of your island, the number of stakeholders involved and the previous strategic work that the Transition Team can draw on. In general, a few months and a significant amount of stakeholder effort should be foreseen. Alternatively, the pillars can be elaborated in several days with a trained facilitator.

Before starting, it is important to consider the level of expertise that is available on the island as this will have an impact on the Transition Agenda's level of abstraction. The pillars address the clean energy transition strategically, and benefit from detailed and informed input to develop a realistic strategy. However, detailed information on the available resources, technologies, consumption, costs, etc. is not a strict requirement. Inviting a professional to talk about his area of expertise can be an inspiration for the community and bring new ideas to the discussion table. Operationally, the island transition community can split in smaller working groups that each cover a transition pillar. The pillars can be sectoral (e.g. transport, electricity), while others can be cross-cutting (e.g. lifestyle, community engagement, education). Transition pillars can be people-based, technology-based, market-based, sector-based, etc. The pillars are in the first place a way to structure the island's Transition Agenda and the local energy context is therefore a determining factor in this exercise. The stakeholders involved in this part of the transition dialogue can chose to work on the pillars with which they identify the most.

The pillars of the Clean Energy Transition Agenda for Sifnos, Greece, include

- ***Electricity generation and storage***
- ***Energy demand for heating***
- ***Transport on the island***
- ***Transport to and from the island***

The identification of thematically distinct yet synergetic transition pillars helps the dialogue participants to identify feasible strategies, and a number of different projects and specific activities. By mapping potential short-term actions, the group can identify possible contributions through their own professional positions. At a later stage, these identified actions will enable them to link with networks that are already working on similar topics and to mobilise resources towards achieving the defined objectives.

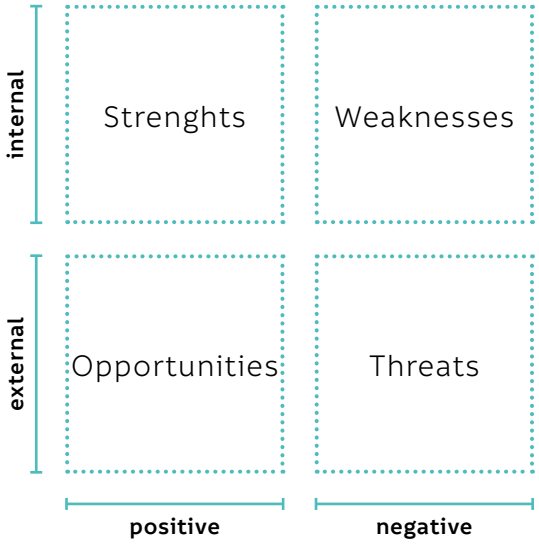
Developing the pillars

The starting point for each of the working groups is the strategic objective. For example, under a pillar such as energy efficiency, the objective can be to reduce energy use by a certain amount in the next ten years. Through the stakeholder process, this goal can be broken down into a community-driven strategy. For example: how much of that goal will be met with by the island's local businesses, how much will be contributed by the municipality? Different technologies can be discussed and their potential application in the island context assessed. Covering the topic of financing is not required, though can be part of the discussion.

The working groups involved in the strategic discussions for the development of the pillars should aim at influencing their overall institutional frameworks and mechanisms. The clean energy transition is not only a matter of technology: it will influence the way people live, move, think, and act related to energy on the island. Only then will it be possible to materialise the envisioned impact.

Developing a pillar can happen in different ways, and will be a combination of research, presentations and discussions. Thematic workshops can be organised where participants contribute their perspectives and ideas. A focus should lie on letting ideas flow freely and maximizing the creativity and innovation of the current situation. Research can help to identify opportunities and eliminate unrealistic proposals. The results from these activities are summarised in writing, pictures, drawings, … and are made publicly available. The role of the Transition Team in this step is to facilitate the thematic workshops – send the invitations, coordinate the meetings, record the inputs, process the results, disseminate, etc. – do the back-office work – carry out the research, invite experts – and contribute to the dialogue. The number of thematic workshops will depend on the island context. Your island may have certain pillars for which concrete strategies have been developed, while other pillars will require more work. The level of abstraction on which each of the pillars is address depends on the priorities of your island's transition.

Below, several tools are explained that can be used to support the workshops.



SWOT analysis is a tool to investigate the factors that will help to achieve a pillar's objective. Using a 2-by-2 matrix, the strengths and weaknesses of the people involved, and the available resources are listed, and the external opportunities and threats are identified. Threats are the obstacles that would prevent the transition to develop in the envisioned direction. These can be regulatory, institutional and economic, but could also be technology-specific, historic traditions, infrastructure, cultural and social perceptions, etc. Opportunities, on the other hand, are the circumstances that are helpful to achieve the envisioned objective.

Figure 16 | **Strengths, Weaknesses, Opportunities and Threats matrix**

Example

As an example, opportunities and strengths facilitate progress in a particular pillar. They can include:

- *Political commitment*
- *Transparent planning and resource allocation decisions*
- *Community support*
- *Local experience*
- *Well-trained construction and/or utility workforce*
- *Capital investments that are ready for replacement*
- *Specialised university training courses and expertise*
- *Advanced utility metering and billing infrastructure.*

Threats and weaknesses can be:

- *Unclear permitting requirements*
- *Utility rate structures*
- *Lack of consumer awareness*
- *Inadequate credit or project repayment history*
- *Misaligned electricity production incentives*
- *Overlapping governmental responsibilities over energy*
- *Access to land*
- *Lack of necessary skills in the workforce.*

To develop more concrete ideas, the **transition canvas** can be used. This tool allows to structure project ideas and to identify the relevant partners, activities, resources, etc.
It breaks down an initiative into the individual components:

- **Key partners:** Who are the key partners that need to be involved?
- **Key activities:** What activities does the key objective require?
- **Key objective:** Which problems does your initiative solve? What value is delivered?
- **Engagement:** What type of relationship can be established with the stakeholder groups and customer segments?
- **Key stakeholder groups and customer segments:** For whom is value created? Who benefits from this transition model?
- **Key resources:** What resources does the key objective require?
- **Channels:** Through which channels can they be reached?
- **Cost structure:** What are the main costs associated with your initiative?
- **Revenue:** What are the sources of revenue?
- **Social impact:** What social impact does your initiative have?
- **Environmental impact:** What environmental impact does your initiative have?

The transition canvas can function both as a workshop tool to guide brainstorming or as a guide for research to find out which problem will be solved and how. A template for the transition model canvas, including a description of each of the building blocks, can be found in **Annex I**. It can be printed for use in the workshops. More info on generating 'canvases' can be found in the handbook (Osterwalder and Pigneur, 2010).

While the transition pillars are based on a participatory process, it is important to emphasise the need for accurate information. In order to create trust between everyone involved, correct numbers on the impact of the transition, for example on electricity prices, number of local jobs, renewable energy potential, financing, etc. needs to be available during the transition dialogue. Trust is essential as it makes sure that everyone is willing to move forward with a project even though the exact consequences might not be sure. If exact numbers are not available, having the most accurate numbers is important. When there is trust between the different stakeholders, great things can happen.

5 Exploring Island Transition Pathways

To determine the suitability of a certain technology in your island's context, a technology assessment can be made. This can be carried out by members of the Transition Team, or by an external expert. The results of the technology assessment can support the transition dialogue that takes place between the different stakeholders by acting as a fact-check. It answers the questions: is the technological strategy that we are considering realistic? To what extent can a technology meet the identified objective?

It is recommended that the following topics are included in the technology assessment:

- **Technology description**
  What does the technology do, and which aspect of the clean energy transition does it address?
- **Potential on the island**
  A resource assessment identifies how much this technology can contribute to the island's decarbonisation. As an example, for renewable solar and wind power, resource mapping is based on historical meteorological data for the island, and can consider further constraints such as protected areas, permitting, land ownership, etc.
- **Organisation**
  Which business/ownership models does the technology allow?
- **Cost**
  How much does the technology cost and how does this compare with other technologies? An interesting indicator to compare difference energy sources is the levelised cost of electricity.
- **Maturity**
  What is the technology's track record and how has it previously performed in the island context? Many innovative technologies are promising to address issues related to clean energy transition. However, they often come with high risks which means that the success of such a project is not guaranteed.
- **Previous cases**
  Investigating previous implementation cases can show whether the technology works well in a certain context and allows to identify the best practices.

The levelised cost of electricity is the price of electricity production, usually expressed in €/MWh, considering the total costs during the lifetime of the installation – including construction, operation, fuel and maintenance – and the installation's expected electricity production over its lifetime.

*Example | **The pilot islands***

The Clean Energy for EU Islands Secretariat developed Clean Energy Transition Agendas with six islands – the Aran Islands in Ireland, the Cres-Lošinj archipelago in Croatia, Sifnos in Greece, Culatra in Portugal, Salina in Italy and La Palma in Spain. Their Transition Agendas provide good examples of how island transition pathways and pillars can be developed. These Transition Agendas are published on the Clean Energy for EU Islands **website**.

*Example | **How did this happen on La Palma?***

*La Palma's Transition Team built on the island's existing strategic vision to develop transition pillars and island transition pathways. The signatories of the **commitment document** were invited to participate in sectoral workshops with the double objective of further outlining the Clean Energy Transition Agenda's vision and instilling trust and a sense of community between the involved stakeholders. Afterwards, a transversal workshop was organised to bring everything together into concrete strategies and actions.*

Five sectoral workshops were held that focussed on the following topics:

Culture, education and research

Agri-food industry

Water

Tourism

Mobility, Electricity and Construction

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Figure 17 | **Transition pathways and pillars were developed in sectorial workshops.**

Each of the sectorial workshops had a similar structure. To start off, the participants discussed the current situation per sector in order to scope the topic of the workshop and get a better understanding of the challenges that they are facing. Based on both the available sectorial data and the stakeholders' own experiences in the sector under discussion, the dynamics of the system were analysed in the group. They were then asked to visualise the sectorial future: what will the sector look like in the long- to medium-term? Participants wrote their ideas on posters and post-its to facilitate the discussion. They were asked to map their ideas on a timeline from 2020 to 2040 and on a difficulty vs. impact map in order to develop the transition pathway from the present to the envisioned future. This effective way of sharing and organizing all the input allowed to identify the fastest and most impactful ideas.

The sectorial workshops led to a first understanding of how the different stakeholders will work within the complex and interrelated systems and how all actors have to take responsibility and cooperate to achieve the vision's objectives.

All signatories of the commitment document were then invited to participate in a transversal workshop, in which the ideas that were developed during the sectoral workshops were transformed into concrete strategies and actions. The objective of the transversal workshop was to establish the dynamics of each group and foster cooperation between signatories and stakeholders on the island. Through different workshop activities, facilitated by the Transition Team, the next steps were determined to make sure that the ideas continue to evolve, and the strategies were operationalised by the different actors.

One of the main outcomes of the participatory process on La Palma was to build capacity in the island community on relevant topics to overcome the challenges of decarbonization, such as innovation, project management, agile processes and methodologies, complex systems and teamwork. The Transition Team agreed to periodically meet with the representatives of the organizations in order to check the progress they make, help them overcome barriers, deal with relevant issues and continue the outreach to new organisations on the island.

Publishing the Clean Energy Transition Agenda

No two Transition Agendas are identical. The content can vary significantly from one island to another. For example, islands that are new to transition planning tend to focus on an assessment of the current situation and developing an island-wide vision, with only basic ideas on the potential pathways for reaching it. Islands with advanced plans, on the other hand, will focus on developing the main pillars across the different pathways in order to support the development of their transition projects. The Transition Agenda is meant to integrate the existing plans and studies that have been developed for and by the island and in each case bring the planning process to the next level.

The role and format of the agenda will differ per island. This can be a brief strategic document used to indicate principles and tactical decisions, or it can be a detailed guidebook with goals and operational planning. Early stage Transition Agendas can be limited to a few aspects of the clean energy transition, while more advanced Transition Agendas can encompass more than energy alone. Some islands will deliver a document with a lot of visuals, others include material developed during workshops, while others may decide to make an online Transition Agenda.

Since transition processes are uncertain by nature, the Clean Energy Transition Agenda is a dynamic document that is meant to be updated continuously to record the operational status of the clean energy transition, report the progress against targets and accommodate changed circumstances. Nonetheless, once the Transition Team agrees that the strategic dialogue has led to clear outcomes, publishing the agenda can serve as a milestone in the process.
The publication of the agenda is an opportunity to bring together the entire island community and relevant mainland stakeholders. An organised public event involving local and regional media is a good platform from which to share the outcome and announce the next steps, whilst increasing the exposure of the ongoing island initiative. Making the Transition Agenda available online provides access to it for the island stakeholders and any other EU islands wanting to learn from your island's process.

Transition indicators

The transition indicator on Clean Energy Transition Agenda indicates the progress made on the Transition Agenda. Publishing the Transition Agenda is in that sense the final step and leads to the maximum score for this indicator. A Transition Agenda is considered finalised when it has been submitted to the Clean Energy for EU Islands Secretariat.

The transition indicators are explained in detail in **Chapter 7**. The self-assessment matrix can be found in **Annex II**.

Key takeaways

- Island transition pathways integrate the different perspectives and identified opportunities to link the present situation on the island with the envisioned future.
- Pillars of the energy transition are explored and assessed to determine the opportunities for your island's clean energy transition
- After the transition dialogue has arrived at clear outcomes, it is important to bring the Clean Energy Transition Agenda to a close.

Resources

The following resources related to this chapter are available in **Annex I**.

- **Tool 5**: SWOT Matrix
- **Tool 6**: Transition Canvas

For more information on Canvases, we refer to the book Business model generation. A handbook for visionaries, game changers, and challengers (Osterwalder and Pigneur, 2010).

The Clean Energy Transition Agendas of the six pilot islands are published on the Clean Energy for EU Islands **website**.

6 Making it happen

THIS CHAPTER GIVES
general advice and practical tools on how to continue the clean energy transition after your Clean Energy Transition Agenda has been published.

After the Clean Energy Transition Agenda has been published, it is time to develop, execute and operationalise transition projects. Your Transition Agenda, which came about through the engagement of the wider island community, is the stepping stone to the next stage. A strong Transition Agenda has created and reinforced the governance of the transition which allows for the translation of the strategic and tactical transition pathways into an operational plan.

The Transition Agenda, however, is only the first step on the road to decarbonisation. After all, the visioning and strategizing needs to lead to concrete actions on your island. The transition pathways from the Transition Agenda are therefore operationalised into a project pipeline, ready for execution. In this phase, the role of the Transition Team changes. The team focuses on monitoring the transition process and making sure that the transition does not lose sight of the vision and pathways. Meanwhile, working groups can be set up to operationalise individual action-ideas.

Below you will find references to guides, programmes and platforms that can help you develop a decarbonisation plan, financing concept and individual clean energy projects.

When driving the clean energy transition on your island, it is important to bear in mind that the transition will take time. It may take several years to get all the key stakeholders on board, so a good idea may be to initially focus on small projects with a high visibility to build momentum, and slowly scale up to achieve complete decarbonisation.

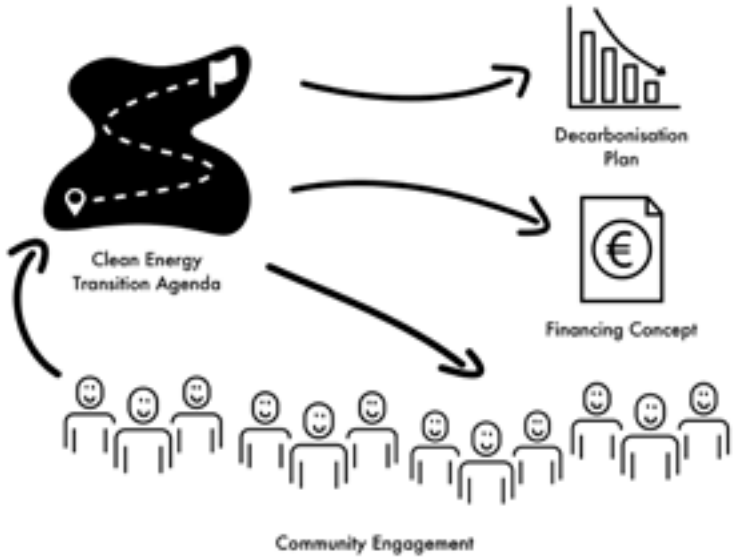

Figure 18 | **The Clean Energy Transition Agenda is a stepping stone for the next phases in your island's clean energy transition.**

Decarbonisation plan

A decarbonisation plan defines the concrete actions, responsibilities and timing required to achieve an island's long-term energy consumption and CO_2 emissions reduction targets. It is an operational plan that clearly defines what will happen, by when, and by who.

The Covenant of Mayors has developed a methodology to develop a Sustainable Energy and Climate Action Plan (SECAP) to support local authorities in reaching their energy consumption and CO_2 emission reduction targets. Guidance material is available in the Guidebook **How to develop a Sustainable Energy and Climate Action Plan (SECAP)** (Barbosa et al., 2018).

Covenant of Mayors
for Climate & Energy

Figure 19 | **The Covenant of Mayors provides guidance on developing Sustainable Energy and Climate Action Plans.**

It is important that a decarbonisation plan, such as a SECAP, has the appropriate grounding and connection to the local context. A technical plan that is developed without input from the local stakeholders might not answer to the island's needs and is likely to face barriers such as lack of community support, capacity, financing, etc. The plan might also overlook opportunities and enabling conditions that are driven by the island community and context. **By using the Clean Energy Transition Agenda as a basis to ensure the engagement and support of the relevant island stakeholders, a realistic and effective decarbonisation plan can be developed.**

There is a distinct difference between the decarbonisation plan and the Clean Energy Transition Agenda. A Transition Agenda is a strategic document that aims to consider the possible transition pathways based on a shared vision. The decarbonisation plan is a technical and financial plan that clearly states what will happen, by who, and by when. By developing the pillars of the transition agenda in greater depth and with greater detail, the different pathways are analysed and prioritized and can lead to a decarbonisation plan.

Example | ***Marie-Galante, France***

Marie-Galante is a small French island in the Caribbean with about 10,000 residents. It is part of the Guadeloupe archipelago and is electrically interconnected with the island of Guadeloupe. Today on Marie-Galante, more than two-thirds of the electricity consumed is imported from Guadeloupe. This electricity has a high share of petroleum and coal and Marie-Galante therefore wants to engage in clean energy transition. The project designed by Marie-Galante Île Durable aims to achieve energy autonomy and green growth for the island through a 100% renewable, local and competitive electricity mix.

Figure 20 | **Marie-Galante has developed a technical decarbonisation plan for their transition to clean electricity.**

Based on these guiding principles, the island has been working on a decarbonisation plan that describes the clean energy transition from a technical perspective. French renewable energy provider Compagnie Nationale du Rhône is developing a model of 100 % renewable energy autonomy in which the excess electricity produced during the day is exported to Guadeloupe. The plan is based on agri-voltaic projects, in which solar photovoltaic production is combined with agriculture for optimal land use and electricity storage, that complement the renewable electricity generation already present in the territory.

Marie-Galante's project is based on a dual transition, looking at both energy and community aspects. This transition allows for sustainable agriculture, housing and tourism and aims to promote the development of innovative local businesses, increase social cohesion, and create jobs.

Marie-Galante Île Durable is an ambitious project with many different actors. The innovative character of a project of this scale requires continuous communication and regular feedback from the local community. Many events are organised to present and discuss climate change and the need for a change in the island's energy model. Marie-Galante Île Durable is committed to ensure that local stakeholders are invested in and informed about the project.

Financing concept

Different financing opportunities exist for clean energy transition projects, depending on the technology, the involved stakeholders and other project-specific factors. A financing concept is an analysis of the steps and approach required to develop a pipeline of projects on the island. It outlines how various sources of public and private funds are combined to develop a viable and effective financing structure.

A financing concept is more than just a financial plan for a single project. It is a solid basis from which to implement parts of the decarbonisation plan and is a starting point for discussion with potential promoters and financiers.

An investment concept can target national and European public funds, institutional investors, impact investors, banks, as well as specialised private investment funds. It should include a blend of subsidies, fiscal incentives, and public funding, while attracting market and private capital. The advice here is to look beyond business-as-usual and consider alternative financing schemes such as energy performance contracting and financing concepts that involve citizens such as crowdfunding and peer-to-peer lending.

More information on financing energy projects can be found in the Clean Energy for EU Islands Secretariat's **Quick Reference Guide on Financing**. The tools and resources on financing made available through the **EU Covenant of Mayors** provide more information.

Developing projects

The **IRENA Project Navigator** is a platform provided by the International Renewable Energy Agency (IRENA) that gives comprehensive and practical information, tools, and guidance to assist in the development of bankable renewable energy projects. Information can be found on their website.

Example | ***An innovative power system for the Isle of Canna, UK***

The Isle of Canna is a small Scottish island that is part of the Small Isles archipelago, together with the islands Rùm, Eigg and Muck. Canna has about 15 houses and a population below 50. For several years, the community on the Isle of Canna had been discussing their transition to a clean electricity system. Inspired by the systems installed on the other Small Isles, in 2018 they made it happen.

The renewable power system on Canna consists of six small wind turbines, a solar power installation and a battery bank to balance the system. The system is owned and operated by Canna Renewable Energy and Electrification Ltd, established by the island community. Electricity is provided to the island residents and the revenue from the sale of electricity is used to cover the operation and maintenance costs. Once the investment has been paid back, the revenue can be used to reduce bills for local homes and businesses.

The project received support and financing from different sources:

- *The Big Lottery Fund and their Growing Community Assets Programme;*
- *Local Energy Scotland and the Scottish Government for their CARES and Innovation and Infrastructure Fund programmes;*
- *SSE and their Highland Sustainable Development Fund;*
- *Highlands and Islands Enterprise;*
- *the National Trust for Scotland.*

A major enabler of the project was a project manager who guided the island community throughout the project and ensured the ownership of each of the steps.

Figure 21 | **The island community on Canna installed an innovative electricity system in 2018, the result of the transition dialogue on the island.**

The implementation of the system was completed in October 2018 and the island reported that during the first two months of operations, the share of renewable energy in the electricity mix was 98%.

6 Making it happen

Transition indicators

A comprehensive action plan operationalises the Transition Agenda and describes the necessary actions, timeline and budget to achieve the targets and objectives. This is addressed by the Transition Indicator Decarbonisation Plan – Action Plan.

The transition indicators are explained in detail in **Chapter 7**. The self-assessment matrix can be found in **Annex II.**

Key takeaways

- The Transition Agenda is only the first step towards complete decarbonisation. The island vision and transition pathways need to be operationalised into a concrete project pipeline.
- Based on the Transition Agenda, a decarbonisation plan can be written that defines the concrete actions, responsibilities and timing to achieve an island's long-term energy consumption and CO_2 emissions reduction targets.

Resources

For more information on the Covenant of Mayors methodology to develop a Sustainable Energy and Climate Action Plan, islands are referred to the most recent guidance manuals on How to develop a Sustainable Energy and Climate Action Plan (SECAP) (Barbosa et al., 2018).
Available **online**.

The Clean Energy for EU Islands Quick Reference Guide on Financing provides additional information on a range of sources of financing available for sustainable energy projects as well as other relevant studies on the topic.
Available **online**.

Additional info on financing can be found on through the Covenant of Mayors initiative.
Available **online**.

The IRENA project Navigator can be found **online**.

7 Monitoring the Transition

Monitoring is an important part of the learning process. Both the transition process itself and the way that it is managed are monitored and reflected upon. Periodic assessment is recommended – to keep track of the developments and indicates whether the transition is going in the right direction.

What?

The transition process on the island can be monitored according to transition indicators. This is a self-assessment tool with nine indicators that cover six areas. Each of the indicators is scored from 1 to 5. The Transition Team self-assesses the transition process on the island according to the indicators and the matrix acts as a tool to guide discussion and evaluation.

Why?

The self-assessment allows you to have a diagnosis of the transition process on the islands. It allows you to identify the strengths and weaknesses of the various activities and prioritise the different things to focus on in the transition process. If your island scores well in one indicator but is weak in others, you can focus on the weaker parts. The self-assessment can direct the strategic focus of the transition process and indicate the next steps.

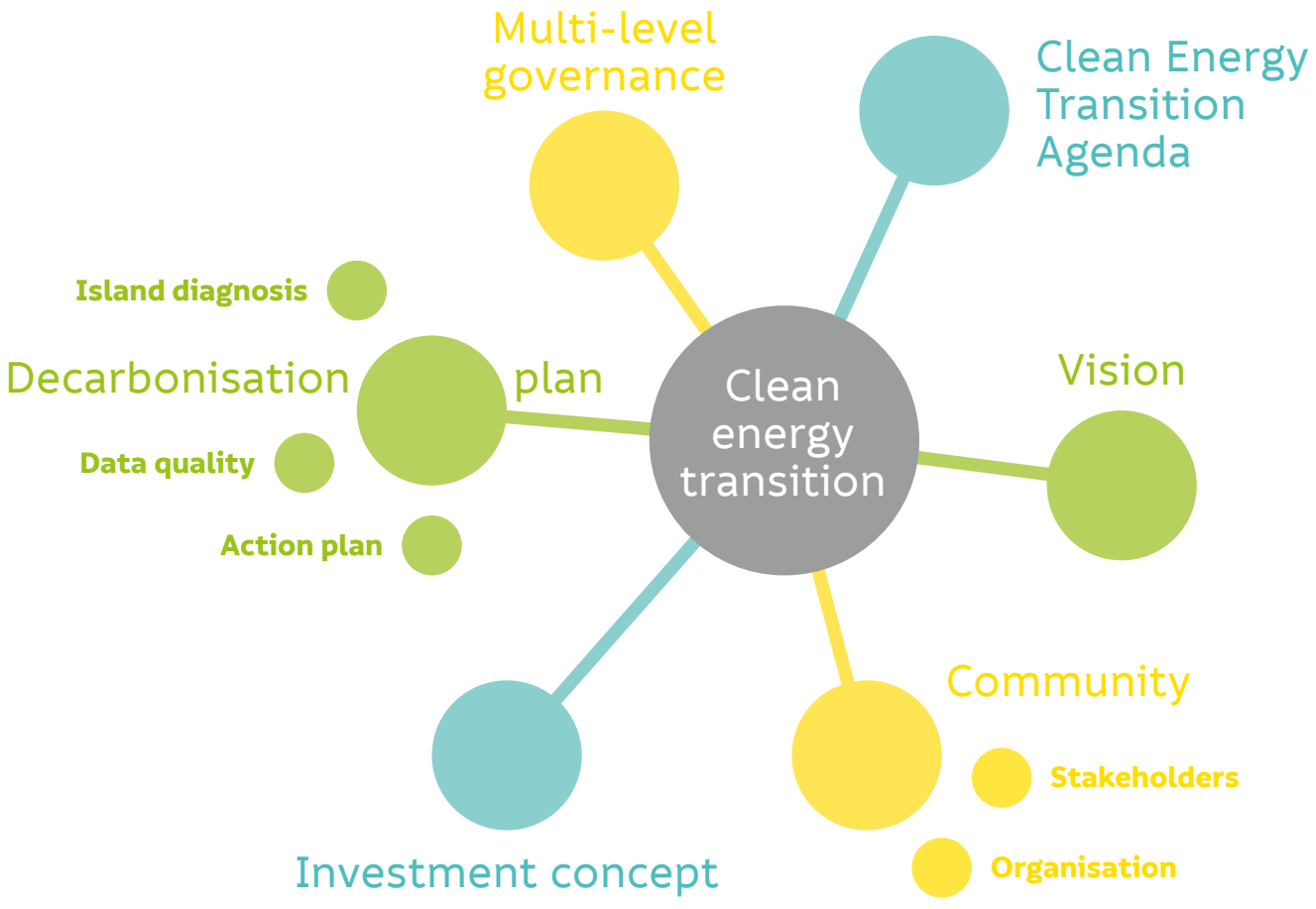

Figure 22 | **The transition indicators for clean energy transition can be used to monitor the progress of your island.**

7 Monitoring the transition

How?

The self-assessment is done by the Transition Team, who are experts regarding the situation on the island. Each indicator is discussed among the team members and a score is agreed upon. This should not take more than one hour. The exercise is repeated periodically, for example every six months, to see the developments.

It is a good idea to make the results of the assessment publicly available; that way islands that score low in a category can look for islands that score well in that category to exchange ideas on how they can improve.

Example | ***The self-assessment by the Transition Team of Salina, Italy***

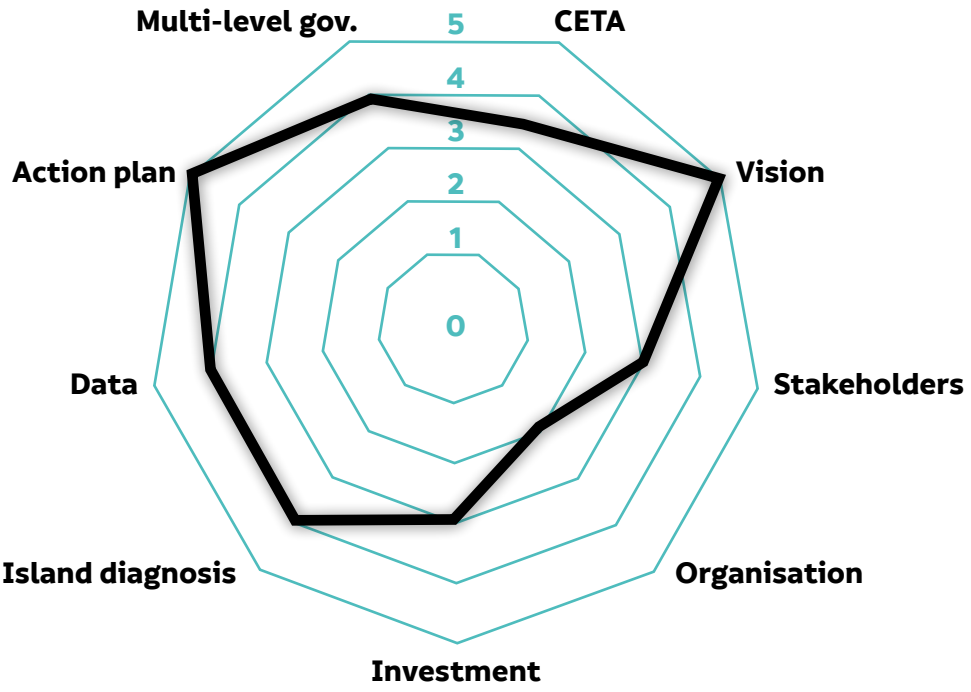

Figure 23 | **The transition indicators were evaluated with Salina's Transition Team in June 2019.**

Indicator 1: ***Clean Energy Transition Agenda*** ***Score*** *3-4*

Salina's Transition Team was in the process of developing a Clean Energy Transition Agenda for the island. The Transition Team expects to finish the agenda by September 2019.

Indicator 2: ***Vision*** ***Score*** *5*

The island has developed a vision that has been approved by the relevant authorities through their Sustainable Energy Action Plans (SEAPs). The SEAPs include specific targets and timelines for the Clean Energy Transition Agenda of the island. For this reason, the island scores level 5 for this indicator.

***Indicator 3:* Community – Stakeholders** *Score 3*

There is a commitment from individual actors on the island on decarbonization, mainly through the island's SEAPs. However, there is no shared commitment between different stakeholders, in particular the three island municipalities. Salina therefore scores 3 in this category.

In order to reach level 5 for this category, Salina plans to sign the Clean Energy for EU Islands Pledge with a large group of stakeholders. This pledge will be an outreach to the wider island community to get them on board and formalise the shared commitment between the three municipalities.

***Indicator 4:* Community – Organisation** **Score 2**

There is an interest from the different municipalities to move forward clean energy projects and they are working on this individually. However, the Transition Team identifies that a lack of aligned perspectives is one of the major barriers for clean energy transition on the island. The interaction between stakeholders is limited. Salina therefore scores 2 in this category. Collaboration between the stakeholders on the island to develop an island-wide transition strategy and take island-wide measures is an important next step for the transition.

***Indicator 5:* Financing concept** **Score 3**

In the SEAPs from 2013, different funding opportunities for the clean energy projects are listed with a focus on those at a national and regional level. Salina therefore scores 3 in this category. However, a lack of financing is one of the reasons why very few actions from the SEAPs were developed in the previous years.

In order to score higher in this category, it is necessary to expand the identified project pipeline and develop a stronger financing concept. The Transition Team will work on this as part of their Clean Energy Transition Agenda.

***Indicator 6:* Decarbonisation plan – Island diagnosis** **Score 4**

An island diagnosis was made as part of the SEAPs, which has provided the necessary information to evaluate and prioritise different transition pathways for the island. The SEAPs include a baseline emissions inventory and a technical and economic analysis of the transition to clean energy. In order to reach level 5, the Transition Team will include transport to and from the island in the analysis.

***Indicator 7:* Decarbonisation plan – Data** **Score 4**

Data from the sectors electricity generation, heating, cooling and transport on the island are annually collected by the island's energy manager. The data from recent years has not been published.

***Indicator 8:* Decarbonisation plan – Action Plan** **Score 5**

Three sustainable energy action plans have been developed for and approved by the island municipalities. They determine the key actions that should be taken by the island municipalities to achieve their 2020 targets. The plan focusses on decreasing fossil fuel consumption in personal transport, retrofitting residential and municipal buildings, and installing solar PV.

***Indicator 9:* Multi-level governance** **Score 4**

The Transition Team identifies that there is appropriate multi-level governance in place regarding the clean energy transition on the island. The island has a good interaction with the Sicilian region and different national institutions that support the island with their transition process. In order to reach level 5, the Transition Team will align their Transition Agenda with the existing energy strategies at local, regional and national level.

7 Monitoring the transition

Key takeaways

- Monitoring is an integral part of the learning process of the transition and allows to keep track of the developments and indicates whether the transition is going in the right direction.
- The transition indicators can be used as an opportunity to reflect and adapt the strategic direction of the transition.

Resources

The self-assessment matrix can be found in **Annex II**.
More information on the transition indicators can be found **online**.

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Annex I: Tools

Tool 1 | Energy system description template

	ENERGY CONSUMPTION [MWh/year]	**CO_2 EMISSIONS** [tonne/year]
Electricity consumption		
Residential	XX	XX
Primary sector	YY	YY
Industries	ZZ	ZZ
Tertiary sector…		
Transport on the island		
Source 1	XX	XX
Source 2	YY	YY
Source 3	ZZ	ZZ
Transport to and from the island		
Source 1	XX	XX
Source 2	YY	YY
Source 3	ZZ	ZZ
Heating and cooling		
Source 1	XX	XX
Source 2	YY	YY
Source 3	ZZ	ZZ

	TOTAL ENERGY PRODUCTION [MWh/year]	**PRIMARY ENERGY CONSUMPTION** [MWh/year]	**CO_2 EMISSIONS** [tonne/year]
Diesel generators	XX	XX	XX
Gas turbine	YY	YY	YY
Solar photovoltaics	ZZ	—	—
Wind	TT	—	—

Tool 2 | Stakeholder mapping template

NAME	**ORGANISATION**	**REASON** FOR INVOLVEMENT	**PERSPECTIVE** ON TRANSITION

Tool 3 | Illustrative dialogue rules

1. Dialogue participants make personal contributions to the meetings. It is up to the participants to determine to what extent the outcome of the dialogue also represents the positions of their organisation.

2. The participants strive to achieve a shared strategic vision and action plan. Yet consensus is not required. In the absence of consensus, the aim is to highlight the various arguments and insights of the participants as well as possible.

3. The dialogue is held under the so-called 'Chatham House Rule': participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.

4 In order to make use of the meeting time as effectively as possible, the agenda does not, in principle, allow time for presentations. All relevant information is shared in writing in advance.

5. The dialogue group determines when it is desirable to involve other actors (beyond the core group) in the dialogue.

6 The participants approve reporting any dialogue results before they are communicated beyond the group.

Tool 4 | Visioning tools

GUIDED ENVISIONING THROUGH FACILITATION

A trained facilitator can assist the group in the clarifying and putting its vision on paper. The script may involve questions such as:
Imagine you wake up at the end of summer 2050 ...
Where do we want to be, or what do we want to see happening?
Without overthinking, how would you describe the energy and mobility infrastructure on your island? How does it look? What do you like most about it? What partnerships are in place? etc.

Give people 5 minutes to imagine the sustainable (energy) future of their island and, then, ask them to discuss their ideas, first with a neighbour or in smaller group and, then, with the whole group. Record the ideas on a whiteboard/flipchart and ask the group to identify recurring themes.

Good for groups of any size.

GUIDED ENVISIONING THROUGH POST-IT NOTES AND FLIP CHARTS

People gather in small groups and generate several ideas regarding an ideal future noting them down on post-it notes.

Encourage very specific comments. Then, ask the team to cluster the post-its in recurring themes.

Effective method for groups between 5 and 50; requires data processing capacity in the Transition Team.

GUIDED ENVISIONING THROUGH GRAPHIC FACILITATION

This method requires that a facilitator draws or writes down the ideas of the participants of the meetings regarding a future sustainable (energy) future of the island on a large sheet of paper.

The output of this process can function as a vivid reminder of their vision and can be used as a tool to communicate it to a wider group of people. e.g. Images, Mindmaps, etc.

Excellent for groups no larger than 30 people. Requires someone with the ability of graphic note-taking.

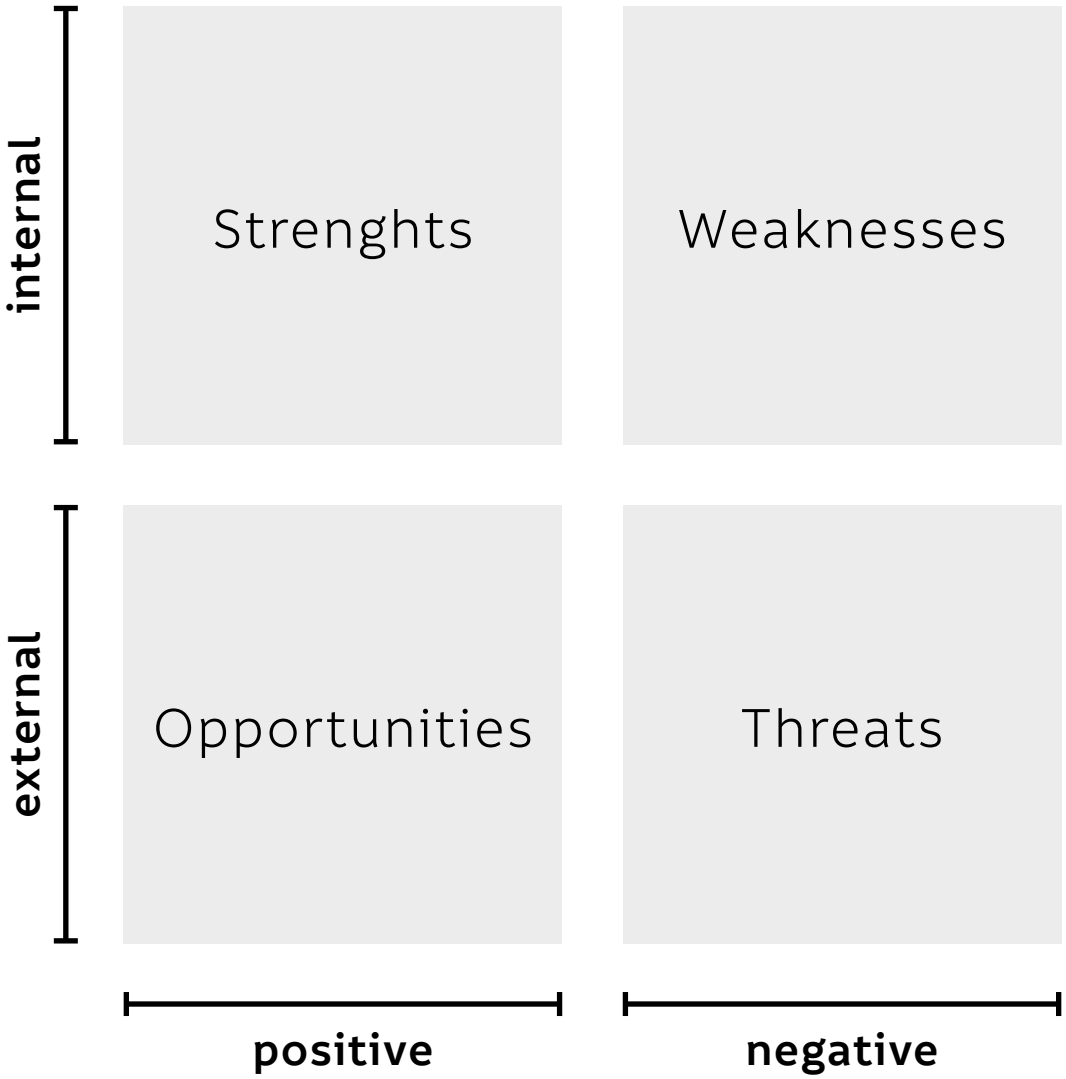
ENVISIONING THROUGH COLLAGE OF PICTURES

Provide everyone with magazines with a lot of photos. Ask them to select and cut out any picture that appeals to them when thinking about the future energy system on their island, including mobility needs.

After 15 – 30 minutes, ask them to collectively glue them on a large piece of paper. The output of this process is presented to the team, with an invitation to suggest a title to capture the message of the collage.

Ideally for 5 to 30 people.

Tool 5 | SWOT analysis



Tool 6 | Transition canvas

Key Partners
Who are the key partners that need to be involved?

Key Activities
What activities does the key objective require?

Key Resources
What resources does the key objective require?

Key Objective
Which problems does your initiative solve? What value is delivered?

Engagement
What type of relationship can be established with the stake-holder groups and customer segments?

Channels
Through which channels can they be reached?

Key Stake-holder Groups and Custumer Segments
For whom is value created? Who benefits from this transition model?

Cost structure
What are the main costs associated with your initiative?

Revenue
What are the sources of revenue?

Social impact
What social impact does your initiative have?

Environmental impact
What environmental impact does your initiative have?

Annex II: Transition indicators

SCORE	CETA	VISION	COMMUNITY	
			STAKEHOLDER	ORGANISATION
5	A island-wide Clean Energy Transition Agenda exists that has been accepted by the Clean Energy for EU Islands Secretariat.	There is a long or medium-term island-wide vision on clean energy, approved by the relevant authority, that includes explicit targets.	There is a formal shared commitment from all 4 stakeholder groups on clean energy transition of the entire island. This commitment is formalised at an island level (e.g. the CE4EUI pledge).	A formal island-wide Transition Team is in place that consists of and is supported by actors from the four stakeholder groups that drives and takes responsibility of the energy transition process (e.g. a periodically convening Transition Team with an official mandate from the relevant authority).
4	The Transition Team works together with stakeholders from multiple stakeholder groups to develop a shared vision and transition pathways to achieve this vision.	There is a long or medium-term island-wide vision on clean energy that includes clear objectives.	There is a commitment from multiple stakeholder groups (2-3) to advance the transition to clean energy on the island. This commitment is formalised at an island level (e.g. the CE4EUI pledge).	An island-wide Transition Team is in place that consists of and is supported by actors from multiple stakeholder groups that drives the energy transition process. (e.g. a community initiative with the support from academia).
3	The Transition Team has a good understanding of the island dynamics, the different perspectives on clean energy and the barriers and opportunities for clean energy on the island.	There is an island-wide vision on clean energy, though expressed in general terms.	There is strong commitment from individual actors though there is no shared commitment on an island-wide level.	There are active partnerships in place between multiple stakeholder groups working on clean energy transition including shared activities.
2	The Transition Team has gathered and defined a writing plan for the Clean Energy Transition Agenda.	There is a vision on clean energy but it is either not specific for the island or only covers part it.	There is awareness on clean energy transition among different individual stakeholders.	There are individual stakeholders working on clean energy transition with little collaboration between them.
1	There is no intention to develop a Clean Energy Transition Agenda.	There is no vision on clean energy.	There is limited awareness on clean energy transition among individual stakeholders.	There are few or no individual stakeholders working on clean energy transition.
ISLAND SCORE				
COMMENTS				

ISLAND _____ **FILLED IN BY** _____

COUNTRY _____ **DATE** _____

INVESTMENT CONCEPT	DECARBONISATION PLAN			MULTI-LEVEL GOVERNANCE
	ISLAND DIAGNOSIS	DATA	ACTION PLAN	
An investment concept exists which includes a financing plan with committed and potential sources of funding for a clearly identified project pipeline.	A technical and economic analysis of the island energy system exists that includes a final energy consumption breakdown or energy balance covering electricity generation, heating, cooling, transport on the island and transport to and from the island.	Consumption and emission data is collected regularly and periodically from all sectors on the island based on local reporting.	There is an island-wide action plan on clean energy, approved by the relevant authority, that clearly describes the necessary actions, timeline and budget to achieve the targets and objectives.	There is interaction with all relevant local, regional or national authorities on clean energy transition. The Clean Energy Transition Agenda is aligned with the existing energy strategies at local, regional and national level.
A basis project pipeline has been identified and the available financing solutions for the different steps have been analysed.	A technical and economic analysis of the island energy system exists that includes a final energy consumption breakdown or energy balance for some of the sectors above.	A recent inventory of consumption and CO_2 emission data exists for all sectors based on local reporting. There is no periodic reporting process in place.	There is an island-wide action plan on clean energy that describes the necessary actions to achieve the vision.	There is interaction with some other levels of governance on clean energy transition to align the Clean Energy Transition Agenda with existing plans.
The different funding opportunities for clean energy projects have been listed.	A technical or economic analysis of the energy system exists on a sub- or supra-island level.	An inventory of consumption and CO_2 emission data exists, tough this is not entirely based on local reporting or is out of date.	The priorities and key actions and measures on clean energy are selected.	There is interaction with some other levels of governance on clean energy transition to align the island's Clean Energy Transition Agenda with existing plans, though this process has just started.
There is little awareness on financing opportunities for clean energy projects on the island.	A technical or economic analysis of some parts of the islands exist without coordination on an island level.	Data on energy consumption and emissions is only available at a supra-island level.	A prospective of good practices for actions and measures in similar contexts is made.	Some other levels of governance are considered regarding clean energy transition, though the interaction is limited.
An investment concept for clean energy projects has not been developed.	There is no existing diagnosis of the current energy situation for any part of the island.	Data on energy consumption and CO_2 emissions for the island can only be extrapolated from national statistics.	There is no intention to develop an action plan.	There is no interaction with other levels of governance regarding clean energy transition.

Notes

Notes