FACTSHEET 11

Policy Roadmap Toolbox

SESA
Smart Energy Solutions for Africa

Dreamstime / Lucian Milasan

About the Sustainable Energy Solutions Catalogue

The Sustainable Energy Solutions Catalogue provides an introduction to the solutions deployed during the SESA project. The catalogue targets energy practitioners, policy makers and civil society, especially at local level. In the catalogue, readers can find key facts about specific sustainable energy solutions (technologies, business models, impact areas), or learn about approaches and concepts that help ensure the viability and long-term success of sustainable energy in the African context.

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1. Introduction

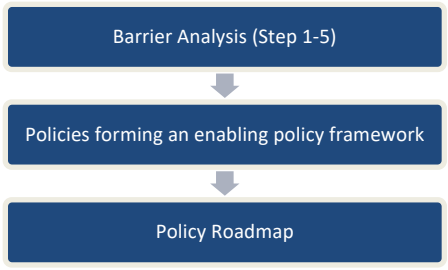
A policy roadmap is often seen as an official document containing fixed targets and target years as well as the corresponding actions to realize these targets to which national governments have committed themselves. However, developing such a roadmap requires an approach (or methodology) to support the creation of an enabling policy framework for specific smart energy technologies in different country contexts. The objective of this toolbox is to provide guidance on a methodology on how to design such a policy roadmap for specific smart energy technologies in different country contexts.

Please note that this factsheet is closely linked to other factsheets in the SESA solutions catalogue.

2. The Methodology

While many methodological approaches can be used for the creation of a policy roadmap, this toolbox shows a mixed-method approach based on 3 key phases as shown in Figure 1

Figure 1: Steps to create a Policy Roadmap

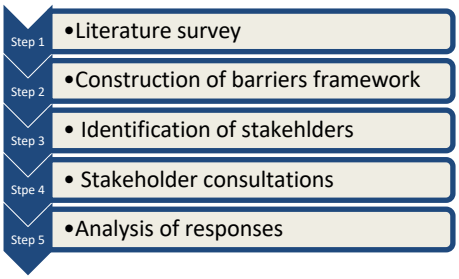


The key assumption for this approach are: 1. Barriers hinder the deployment of technologies or innovation. 2. Appropriately designed policies can overcome these barriers and, thus, facilitate technology deployment 3. Given the existence of multiple barriers hindering technology deployment, a set of policies – collectively referred as the enabling policy framework - needs to be developed and implemented to address these barriers 4. An implementation plan – referred as the policy roadmap - is necessary to coordinate the implementation of the enabling policy framework. The policy roadmap includes timeline, resources needed, institutional mechanism and responsibilities for implementation of the identified policies.

2.1 Barrier Analysis and Enabling Policy Framework Methodology

The introduction or scaling of new technologies in any country first step in formulating an enabling policy framework is to carry out a systematic barrier analysis. A step-wise approach for the identification of barriers is illustrated in Figure 2 and explained in this section.

Figure 2: Identification of barriers to the technology



Step 1: Literature survey
Desk research needs to be conducted to identify barriers to deployment of the selected technology from existing studies. The desk research can help initial construction of a barrier framework, and it also provides a basis for validating the findings from primary data collection on barriers through stakeholder surveys.

Step 2: Constructing a Barriers Framework
The barrier framework can be constructed on three levels.

Level 1 barriers
It contains barriers at the highest level, which are divided into various categories including economic and financial barriers, technical barriers, policy barriers, legal and regulatory barriers, and awareness and information. A variety of classifications of barriers exists in the literature on barriers. We suggest to build up on the PESTEL framework, which refers to Political, Economic, Social, Technological, Environmental and Legal barriers.

Level 2 barriers
A level 2 barrier is made up of several barriers within a Level 1 category barrier, and therefore can be referred as a "sub-category" of a Level 1 barrier. The sub-categorisation of barriers helps in a better understanding the barriers. For example, economic and financial barriers may include sub-categories such as limited access to credit from finance institutions, high cost of capital, or insufficient market infrastructure. These have been termed as sub-categories of the economic and financial barriers. One or more sub-categories of a Level 1 barrier can be present, which may have implications for the enabling framework needed to address the barrier.

Level 3 barriers
A Level 2 barrier can be further broken down to the next lower level (level 3), termed as "components" of the Level 2 barrier. The lowest level in the hierarchy, this (level 3) is important for identifying specific policies and measures to address the identified barriers at the sub-category level (Level 2), and eventually at Level 1 since there is a cause-effect relationship from lower levels to upper levels. For example, in case of "economic and viability issues" (a sub-category of the economic barrier level 2), the product can be uncompetitive due to a variety of "reasons" such as high production price of the end product, high taxes, and duties, high import tariffs, high payback period, low rate of return for the business etc. These "reasons" are termed level 3 barriers and the presence of one or more of them can cause a Level 2 barrier (economic viability) to exist. However, often, it is not necessary to address all these level 3 barriers; addressing one or more of these may be sufficient to address its parent barrier at Level 2. The same is true for level 2 barriers, as it may not be necessary to address all Level 2 barriers for removing the barrier at the highest level (i.e., Level 1), though often this may not be the case.

Step 3: Identification of stakeholders
Stakeholders' consultations play an important role in identifying barriers and enabling policy actions to remove them. Generally, in case of the introduction of a new technology, six categories of stakeholders can be consulted. These include: (1) policymakers (relevant government authorities), (2) end users of the technology, (3) suppliers of the technology, (4) experts from academia and other institutions, (5) NGOs, and (6) funding agencies. Stakeholders need to be identified from all these categories for consultation.

Step 4: Stakeholders' consultation
Stakeholders' consultation can be carried out using a variety of methods including surveys through questionnaires, interviews, facilitated workshops, focus groups discussions etc. In most cases, the consultations can be in person, through digital survey methods (e.g., email surveys), online, or a combination of these depending on the availability of resources. In the case of facilitated workshops,

adequate background material can be provided to participants in advance, and break-out/focus groups can be used for input. In case of interviews, a customised questionnaire should be developed based on desk research. Once ready, the questionnaire can be administered to the identified stakeholders. However, before administering the questionnaire to a specific category of stakeholders, it should be decided what questions are relevant for that category, and only relevant questions should be administered.

Step 5: Analysis of responses

The data analysis part of the barrier analysis consists of two steps, namely the tabulation of responses and the response analyses. Both are further explained below.

Tabulation of responses: The first step in the analysis is the tabulation of responses for each stakeholder category as well as combined responses where relevant.

Analysis of responses: The questionnaire usually is a mix of qualitative and quantitative responses. It may contain three types of questions: (i) Background of the responder in terms of age category, income category, education, size of the house, rented/owned, job/profession etc. relevant for the analysis of technology. (ii) Questions that require qualitative opinion/information from the responder about their knowledge of technology, its attributes, and its use. (iii) Objective-type questions requiring responders to indicate the importance of selected features and barriers to technology, on a five-point scale for example. The questionnaire can also include open-ended questions on policy measures that respondent thinks should be taken to address a barrier.

The responses from (i) and (ii) part of the questionnaire can be analysed qualitatively in terms of age category, income category, education, the size of the house, rented/owned, contains, job/profession etc. relevant for the analysis of technology. The purpose is to identify patterns across demographic and socio-economic groups. This should be done without identifying personal details. Responses from the (iii) part of the questionnaire can be analysed quantitatively- as follows for example, in case of five-point scale:

- Respondents rate the significance of various barriers on a 5-point scale, with 1 indicating “extremely important” and 5 “least important.”.
- Numerical responses are aggregated to calculate weighted average scores for each barrier. These are then ranked to determine their relative importance from the perspective of stakeholders.

2.2 Policies forming an enabling policy framework

The enabling policy framework is the result of policy measures identified to overcome relevant barriers so far not addressed. It is recommended to identify individual (barrier specific) and national level policies. The following two research question can be utilized as guidance questions.

Research question 1: What additional priority policies need to be implemented to overcome barriers to deployment of the technology and to create an enabling policy framework? To answer this question data/information needs to be collected e.g., in the form of a table which can contain the following information:

- Name/Type of the policy measure: Specify a generic name or title of the proposed policy measure
- Barrier addressed: Reference the specific barrier(s) identified in the previous barrier analysis, and explain how the proposed policy would address them.
- Policy design details: Describe concrete design elements, such as financial incentives (e.g., percentages differentiated by target groups), regulatory mandates (e.g., phaseout of fossil-fuel-based technologies for specific end uses), or other mechanisms. Responsible Institutions (Identify relevant governmental institutions, responsible for developing and implementing the policy.

Guidance for a Policy Road mapping Process

Given that the policy roadmap is a plan for implementing the priority policies identified, it should outline how actions and resources are to be allocated over short-, medium-, and long-term horizons to support the creation of an enabling policy framework.

Research question 2: How should activities and resource needs of additional priority policies be organised in the short-, medium- and long-term to form a policy roadmap? To answer this question relevant information /data needs to be collected again, in a tabular form, which can contain the following information.

- Key Activities: Identify important activities for policy implementation, for example conducting ex-ante assessments, creation of a dedicated agency, setting up systems for monitoring and enforcement and capacity development of an appropriate authority for that.
- Timeline: Indicate sequencing of these activities in short, medium and long-term.
- Resource needs: Identify and indicate financial and human resources need for overall policy implementation as well as for the individual activities).

In order to identify activities relevant for policy measures, the “policy cycle framework” described in Textbox 1 can be used as a reference to identify key implementation steps and resource needs. Note that it is not necessary to apply every step of the policy cycle to every policy measure in detail. Instead, the framework may help search relevant information and data for your respective case/country.

Textbox 1: The "policy cycle framework"

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The "policy cycle" as a framework to identify relevant activities to realize policy measures

Agenda setting: This step scopes "new issues that may require government action". Example: A study may expect an increasing energy consumption per capita. Meeting this demand while reducing emissions, may require an expansion of renewables.

Formulation: This step asks what goals need to be realized, what are the costs, what are stakeholders' reactions? Example: Should governments facilitate start-ups for low carbon innovation by offering funding or rather support for end-users? What might be the effects of these actions?

Adoption: Policies need formal approval before becoming effective. Example: Policies to increase wind power capacity will require a vote in Parliament.

Implementation (incl. monitoring and enforcement): The relevant actors to implement the policy need to have human and financial resources for their activities. Example: Administrative processes to apply subsidies need to be created, funding needs to be secured.

Evaluation: The effectiveness and success (or failure) of the policy needs to be assessed in this step. This includes an analysis whether unpredicted effects have occurred. Example: Several countries introduced highly popular solar energy policies. Occasionally more energy is being produced than is needed, which leads to further questions about how to handle the 'excess' energy.

Support / maintenance: This step scrutinizes how instruments can be advanced to become more successful. Example: Shall support for certain low carbon innovations, an awareness raising program or training activities be continued?

(taken from European Geosciences Union n.d.)

Good practice for Inspiring the Policy Roadmap

In addition to providing a broader enabling policy landscape and strategies to realise it, developing a policy brief can be helpful. Such a policy brief can include good practice policies already implemented in other countries to overcome relevant technology-specific barriers. Ideally, the country from where the good practice policy example is taken should be similar in terms of socio-economic, technical and institutional contexts to the country for which road map is being developed. Never the less, whenever good practice policies examples of countries facing similar barriers was difficult to find, relevant examples from other countries can also be used. These good practice examples serve as illustrative models for policy makers and provide a starting point for informed discussions on policies and policy implementation. For a description of these good policy practices, the following information categories of can serve as a guidance:

- Name of the policy,
- Policy type (regulatory, financial etc.),
- Location of implementation (country and region)
- Context before the policy implementation
- Policy description (Outline the policy aims, including the specific barriers addressed, who initiated the policy, and when it was implemented)
- Outcomes: highlight the results of the policy e.g., GHG emission reduction, socio-economic impact like job creation, air quality improvements etc.
- Success factors: Identify key factors that contributed to the success of the policy, particular focusing on the design features that were effective in achieving the desired outcomes.

Data collection

The information for developing the policy roadmap should be collected through desk research combined with semi-structured, qualitative interviews with key relevant stakeholders. This process is similar to the earlier barrier analysis. The recommended key stakeholders in this case also include: Policymakers (relevant governmental authorities) End users of a technology (e.g., citizen organisation) Suppliers of technology, Experts from academia and other institutions, NGOs, Funding agencies.

2.3 Policy Roadmap

Once all the preceding steps are concluded, the final output is a policy roadmap. In order to enhance clarity, it is recommended to consolidate the findings into a single, well-structured document. This document should include an introduction, the barrier analysis, description of the data collection process, the enabling policy framework including the table addressing the research question 1, guidance for the policy roadmap development including the table addressing research question 2, good practice examples, and summarizing remarks.

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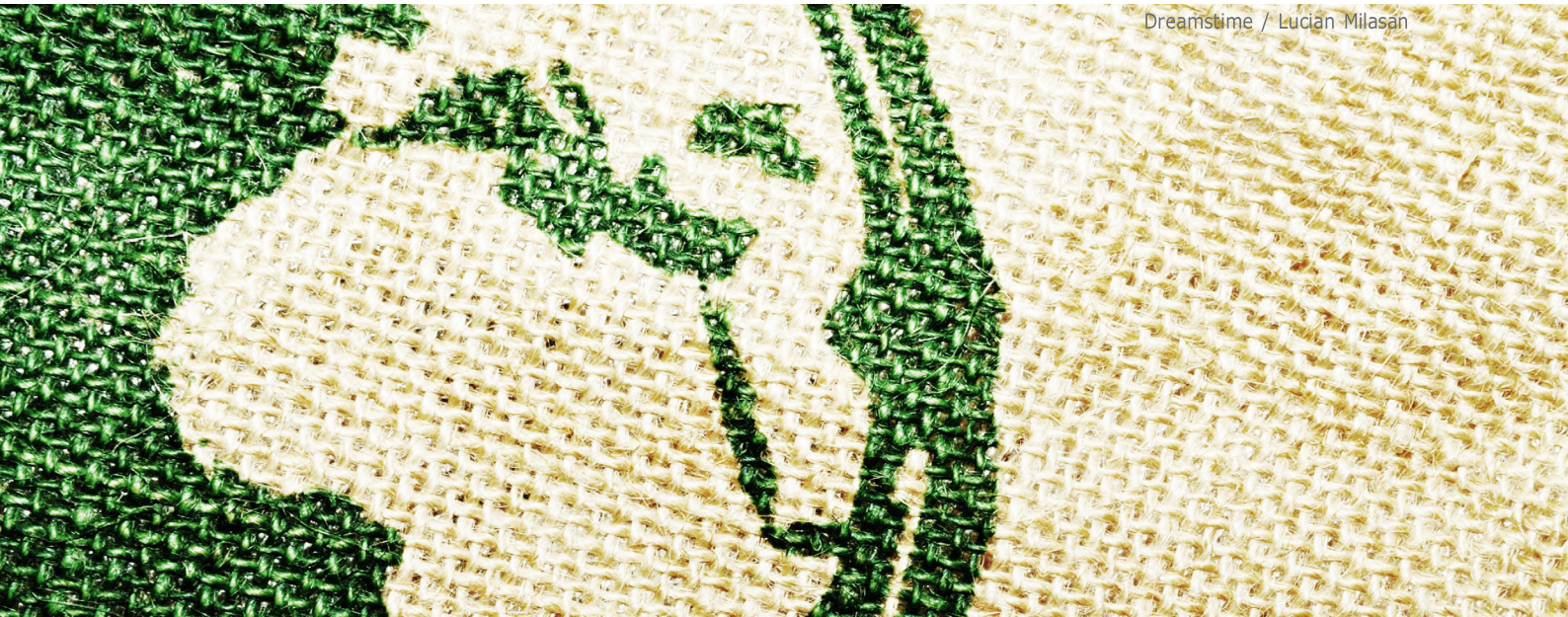

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