



StoRES

Promotion of higher penetration of Distributed PV through storage for all

Priority Axis 2: Fostering low-carbon strategies and energy efficiency in specific MED territories: cities, islands and remote areas

2.2: To increase the share of renewable local energy sources in energy mix strategies and plans in specific MED territories

Deliverable n°: **2.4.3**

Deliverable Name: **Targeted policy recommendations for
authorities outside the partnership**

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4. Project Summary

The project addresses the development of an optimal policy for the effective integration of Renewable Energy Sources (RES) and Energy Storage Systems (ESS). The primary challenge is to achieve increased penetration of RES and predominantly Photovoltaics (PV), in the energy mix of islands and rural areas in the Mediterranean (MED) region without compromising grid stability. The main objective of StoRES is to boost self-consumption in the MED region with the integration of optimal storage solutions. Testing coupled PV-ESS solutions in different pilot sites and taking into account local particularities for optimization, current barriers concerning grid reliability with higher RES deployment will be eliminated. In addition to this, the development and integration of the proposed solution at both residential and community levels and the application of different policy scenarios will lift the barriers related to the grid integration of ESS and will extend the practical knowledge about this technology. It is expected that all the shortcomings regarding the intermittent nature of PV energy for increased penetration into the energy mix will be addressed whilst maintaining smooth operation of the grid.

The project started on the 1st of November 2016 and is expected to be completed within 36 months.

5. Introduction to Deliverable 2.4.3

The aim of this document is to provide policy recommendations addressing responsible authorities in Europe, considering the lessons learnt during the implementation of the StoRES project, as well as the developed tools (StoRES Living Lab and StoRES Online Storage Optimisation Tool) and the Cost-Benefit Analysis (CBA) undertaken.

Since the StoRES project's results have been presented into details in other deliverable reports, this report consists an operational synthesis of the already existing material, aiming to facilitate the analysis by other countries and to help them better assimilate the StoRES results in order to develop supporting schemes for storage.

This synthesis is proposed through a one-page scheme. It mainly focuses on:

- **The recommendations issued from the Cost & Benefit Analysis (Del. 3.7.1)**

During Deliverable 3.7.1, a comprehensive computational method of residential ESS projects centred on a CBA was performed. The StoRES project is used as a case study to demonstrate the developed CBA and to illustrate the proposed assessment framework. The assessment framework is structured into a set of

guidelines to tailor assumptions to local conditions (the main focus of this study is the MED region) in order to identify and then monetise costs and benefits associated with a residential ESS installation. A sensitivity analysis of the most critical values was also performed. Lastly, externalities and social impacts of the ESS installation that cannot be easily monetised and factored into the cost-benefit computation, were presented.

- **The recommendations issued from the Tariff, Policy and Market Rules Recommendations (Del. 3.7.3)**

This document is specifically addressed to policymakers/decision-makers. It provides recommendations regarding tariffs, policies and market rules for the countries involved concerning (among others) regulatory barriers, market access, technical obstacles and economic viability of PV-ESS solutions.

- **The recommendations issued from the Lessons Learnt (Del. 4.2.1)**

This document has been established on the basis of the experience gained during the installation of the project's pilot systems. It gives a detailed feedback on the installation of the storage systems, the choice of the equipment, the permissions and standards which had to be respected, the way the batteries were operated, the monitoring which was set up, the way data were collected, etc. Social aspects are also tackled, such as the residential household consumption behaviour, the attitude of the Distribution System Operator (DSO) or the educational impacts. On the basis of the above, recommendations are listed.

- **The StoRES Living Lab (Del. 2.3.9)**

The StoRES Living Lab aggregates all the data collected from the pilot sites and displays them on a dedicated web portal (stores-livinglab.eu). Average profiles are calculated for each season as well as key indicators such as self-consumption or self-sufficiency rates, efficiency, average State-of-Charge (SoC), etc. Different pilot plants can be compared between each other and a parametric study is also included to assess the sizing of the PV and of the battery.

- **The StoRES Online Storage Optimization Tool (Del. 3.8.1)**

This online tool (storestool.eu) enables an installer or a prosumer to evaluate the economic viability of a PV-and-storage system. The tool takes into account many parameters such as detailed load and production profiles, detailed electricity costs, various supporting schemes, etc. At the end, the Levelized Cost of Electricity (LCOE), the NPV and the Internal Rate of Return (IRR) are provided. The tool can also be used to find out the best sizing on an economic point of view.

Figure 1 below illustrates the one-page document, which briefly describes the general policy recommendations that countries outside the partnership should follow for the further promotion of PV through residential storage.

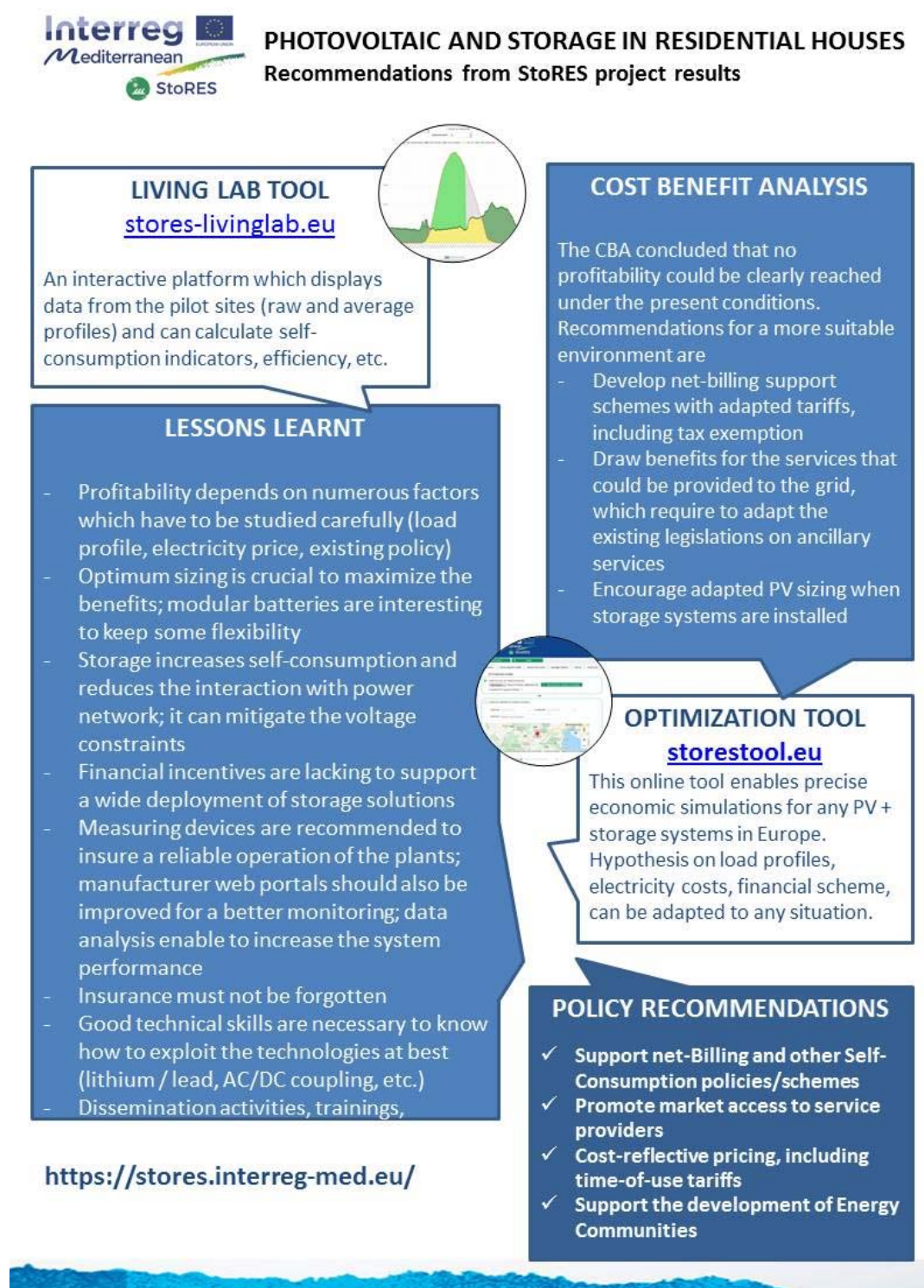


Figure 1: One-page synthesis of recommendations based on the StoRES project's outcomes.

6. Dissemination

It is proposed to disseminate this synthesis towards European stakeholders, outside of the StoRES partnership. Some possible beneficiaries are listed below

- Solar power Europe: 200 members representing the entire solar value chain.
- European Distribution System Operators (EDSO): 25 countries represented, key interface between European DSOs and European institutions.
- European Renewable Energies Federation (EREF).
- Association of European Renewable Energy Research Centers (EUREC).
- European Association for Storage of Energy (EASE).
- European federation of energy agencies (FEDARENE).

Other transversal dissemination can be organized through the horizontal project GREENCAP or the stakeholder beneficiaries' database of the StoRES project.

7. Conclusions

The results of the StoRES project can be of high interest for other stakeholders outside of the partnership. For this reason, this deliverable report summarizes the main outputs of the project.

A one-page synthesis has been designed so that external members could catch at a glance the main results and understand the recommendations to follow.

It is proposed to spread these global recommendations throughout Europe, relying on the main federations involved in energy and smart-grid topics. Furthermore, it is highly proposed to the responsible authorities in Europe to proceed to energy policy analyzing scenarios, which include ESS facilities and various possibilities for optimizing such policies, utilizing the tools developed in the context of the StoRES project, as well as the overall work carried.