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RENEWABLE ENERGY**

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1 Executive Summary

Citizenergy is a platform intended to provide engagement and investment by European citizens in sustainability projects. This document intends to pre-define the requirements for the development of the Citizenergy platform, from the RES promoter point of view. The update of such requirements is available in the deliverable 1.3 - Result Oriented Report and final reports.

In order to have a measurable value that demonstrates the effectiveness of the Citizenergy platform we use a set Key Performance Indicators (Specific and Strategic objectives). By monitoring these indicators, we will gain valuable insight into the performance of the Citizenergy platform and, more important, we will gain the strategic awareness that we make the right decisions at the right time.

At the initial stage of the project it was proposed that the set of key indicators was the one described in the proposal. As new projects were included in the platform, the set of key indicators was updated by collecting the feedback of the partners. In the end of the action, this feedback and data collected were used to build results reports such as D1.3 and final reports.



2 Specific Objectives, Key Outputs, Impacts and Performance indicators

The next tables summarize the specific objectives, key outputs, impacts and performance indicator within the duration of the action.

2.1 Development of an online platform, to serve as an EU-wide marketplace for citizen investment in RES projects

Key Outputs (products and services) including their quantification where appropriate	Work package	Impacts, with SMART performance indicators and quantified targets	Means of monitoring the achievement of your targets
An online platform for citizen investment in RES projects implemented and running	WP3	At least 50 RES projects from minimum 10 different European countries are registered in the platform	Number of registered projects
RES projects from different European countries are registered for citizen investment in the platform	WP4	At least 5 000 citizens are directly engaged and invest in RES projects, resulting in a 35 M€ citizen investments in RES projects secured in the scope of the action.	Number of funded projects
Platform user registration and investment pledge system.	WP5	At least 80% (of 50) of registered projects are fully funded with at least 30% obtained via platform.	Total budget of projects
Definition and typification of at least 6 most relevant business models of citizen RES initiatives	WP2	At least 12M€ of citizen investment in RES projects is gathered by projects in the platform.	
One helpdesk for promoters and citizens using the platform is implemented and running	WP5	At least 50 MW of RES installed capacity is implemented in projects registered in the platform	Total capacity of projects
		At least 10 community RES projects started through the REScoop 202020 project are registered in the platform	Number of REScoop 202020 projects registered
		Signed exploitation plan with an organisation ensuring sustainability.	Signed exploitation plan
		80% satisfaction rate from the helpdesk users	Feedback questionnaire to helpdesk users



2.2 Boosting effective citizen engagement and investment in RES projects

Key Outputs (products and services) including their quantification where appropriate	Work package	Impacts, with SMART performance indicators and quantified targets	Means of monitoring the achievement of your targets
Participation by RES promoters in the consortium in, at least, 1 regional/national event in their home countries	WP4	Participation of RES promoters disseminating the project and platform in at least 40 relevant events	Event registration document Event reports
One European Road Show of small side-events or workshops for project dissemination and citizen engagement (2 events in 6 countries in year 1 and 2 events in 12 European countries in year 2)	WP4	At least 5 000 citizens are directly informed and consider engaging in RES projects (small events and event participation)	
Creation of a handbook for RES project creation with at least 6 business models typified.	WP6	At least 5000 citizens engage in investment in projects registered in the platform	Total numbers of investor registered
Media coverage of the innovative project and solution for citizen RES investment	WP2	At least 10 000 visitors to the projects website within project duration and 1 000 video visualizations	Website analytics Social Media followers (eg: linkedIn, twitter)
Key Opinion Leaders, Social media coverage, and two motivational videos motivate citizen engagement	WP6	4 Citizen organisations from at least 4 countries outside of the consortium join the project to promote on RES projects in their countries (WP5)	
		At least 30 publications in 6 European countries (web or not) about the project, platform or RES projects on the platform.	Number of articles published
		At least 20 publications in specialized media (web or not) about the project, platform or RES projects in the platform	Number of publications in specialized media
		At least 2 TV coverage of the project/pilots	
		At least 1 internal award	
		At least 6 000 leads in total.	
		At least 1.000 social media followers gathered within	



project duration;

At least 12 Key Opinion Leaders engaged in each RES promoters country;

2.3 Setting up of an EU level network of stakeholders in citizen RES policy

Key Outputs (products and services) including their quantification where appropriate	Work package	Impacts, with SMART performance indicators and <u>quantified targets</u>	Means of monitoring the achievement of your targets
An alliance of stakeholders for citizen RES projects is created	WP5	An alliance of organisations for citizen investment in RES projects with at least 35 members from at least 10 countries is implemented	Number of members of the alliance
Consortium participation in 3 EU level events on policy for RES, environment and/or citizen empowerment	WP6	At least 3 aggregate position papers on national/EU legislation are published on the projects website (or the alliance) and delivered to relevant EU stakeholders	Number of position papers published
Interaction with the REScoop EU level organisations	WP5	Feedback from policy makers/ policy influence	Collection of feedback from policy makers

2.4 Identification of national/EU legal barriers to investment by national and foreign citizens in RES projects

Key Outputs (products and services) including their quantification where appropriate	Work package	Impacts, with SMART performance indicators and <u>quantified targets</u>	Means of monitoring the achievement of your targets
One report synthesizing the barriers identified and the difference between EU member-states in the consortium	WP2	Recommendations on at least 6 countries or EU level are delivered	Number of countries in reports
Identification of recommendations for the creation of an EU framework for citizen investment in RES projects	WP2	At least 100 entities, authorities, policy-makers and other stakeholders EU countries are informed of identified barriers and recommendations	Number of entities addressed by report mailing



3 Strategic Objectives and Long-term Impacts

The next table summarizes the strategic objectives and long-term impacts beyond the duration of the action until 2020.

Strategic Objective(s) of your proposal	Expected impacts by 2020
Contribution to the EU 20-20-20 goals	<ul style="list-style-type: none"> • 282 MW of installed capacity projects include financing by citizens using the platform¹ • 522 GWh green electricity produced • 161 820 tCO₂/year emission reduction • Project will have an exponential effect on citizen RES project promotion
Preparing the ground for the creation of a common EU framework for citizen investment	<ul style="list-style-type: none"> • 288 new RES projects are registered in the platform • Similar initiatives are developed in other areas of activity, from general crowdfunding to environmental protection or social projects
Contribute to the development of a long-term investment culture	<ul style="list-style-type: none"> • 351 M€ invested in projects registered in the platform • Citizens will be more sensitive to the sustainability and real added value of long term investments
Job creation through the implementation of a greener economy	<ul style="list-style-type: none"> • 1147 green jobs are directly created in Europe during RES project implementation phases • 399 long term green jobs are created by management and O&M needs of the projects implemented^{2 3}

¹ Data explanation relevant to understanding the RES project data is given in next page

² Number of jobs created was obtained benchmarking 4 different studies on job creation by renewable energy projects: EWEA industry report (2009), EPIA/Greenpeace solar generation 6 (2011), "Green jobs and clean energy economy", D.Kammen, D. Engel, Copenhagen Climate Council (Vestas and Berkeley University, 2009), "Putting renewable and energy efficiency to work", M. Wei, S. Patadia, D. Kammen (2009)

³ Figures on number of jobs may be multiplied by 7,5 if component production is made in Europe



4 IEE Common performance indicators

The next table summarizes IEE common performance indicators.

Overall objective	Target within the action duration	Target by 2020
To contribute to the EU 2020 targets on energy efficiency and renewable energy sources	14,6 M€ Cumulative investment made by European stakeholders in sustainable energy (Euro)	351 M€ Cumulative investment made by European stakeholders in sustainable energy (Euro)
	1 900 Cumulative Renewable Energy production triggered (toe/year)	179 536 Cumulative Renewable Energy production triggered (toe/year)
	n.a. Cumulative Primary energy savings compared to projections (toe/year)	n.a. Cumulative Primary energy savings compared to projections (toe/year)
	6 851 Cumulative Reduction of greenhouse gas emissions (t CO₂e/year)	647 280 Cumulative Reduction of greenhouse gas emissions (t CO₂e/year)

In order to calculate GHG emission reduction and RE generated, Citizenergy will use the estimation provided by each project. When inserting a project on our website, the responsible platform will have to insert the estimated energy generation, capacity, total investment, CO₂ emission reduction, etc. This information will be asked in project forms and allow the calculation of IEE indicators. Project forms will be always verified before approval.

4.1 Installed capacity and cumulative investment

For a matter of simplification, because they are the most common citizen RES project types, only solar and wind plants were considered (currently there is a total installed capacity in Wind and PV energy in Europe of respectively, 105 635MW and 51 537 MW).

When predicting the project's results, both during the action and on a 2020 horizon, only projects registered in the European platform for citizen investment in RES projects were considered. Other developments and market conditions in the EU shall provide for an even large development of RES capacity.

It is predicted that 12 projects (7 PV and 5 Wind) will be implemented within the action and, by 2020, already 288 projects have been registered in the platform. An average power of 0,25 MW was used for PV projects and average 2 MW was used for Wind resulting in an average installed capacity of almost 1 MW per RES project (0,97 MW). This makes a total of 11,75 MW installed during the action and 282 MW by 2020.

This was estimated recurring to the product adoption curve and benchmarking with the inclusion of new projects in national platforms and RES promoters in the consortium. In example:

- Abundance Generation, for example, had two projects available for financing in the first year (one solar and one wind) and already have five (3 wind and 2 solar) in their second year of activity;
- Boa Energia started with one pilot solar PV project in 2012 and currently has 3 more PV projects under development;



- Som Energia had 2 PV projects in 2012 and 3 PV projects and one Biomass in 2013;

The leveraging and transferability factors have also been considered and it is expected that starting in 6 EU countries by the end of the project there will be promoters from, at least, 10 countries. In 2020 the platform will include RES promoters from 16 European countries.

The table below synthesizes the realistic estimations made:

	Total number of Countries	Pilot projects (WP4)	Expansion stage (WP5)	Total RES promoters registered	New projects a year to 2020	2020 (4 years)
Consortium	6	6	(6) ⁴	6	3	72
Engaged RES promoters (WP5)	10	n.a.	6	12	3	72
Leverage (4 years to 2020)	16	n.a.	n.a.	24	1,5	144
Total projects promoted	288 citizen RES projects (168 solar PV and 120 wind)					
Average capacity	282MW (considering 1,125MW per RES project)					

Investment estimations were based on the experience of consortium members, and generally accepted costs for the sector, and were considered at €1,5 million/MW for PV projects and €1,2 million/MW, mounting to a total of 14,6 M€ by the end of the action and 351 M € by 2020.

4.2 Electricity generation, oil equivalence and CO₂e

Electricity generation estimations considered a rate of 1200 MWh/MW for PV and 2000 MWh/MW in Wind energy. These values were obtained by experience of the project consortium but it is important to take in account that these values, vary a lot from one country to another. The PV production values, for example, may vary from 945 MWh/MW a year in Copenhagen (DK) to 1600 MWh/MW a year in Faro, southern Portugal⁵.

The International Energy Agency reference value of 11,63 toe/MWh in Europe was used in calculations of toe/year savings while CO₂e savings were calculated using the ADEME⁶ reference value for the EU of 0,31 CO₂e per MWh generated from renewable sources.

⁴ These 6 projects have not been included in Project impacts as it was considered that the impact for RES promoters in the consortium had already been made in WP4. They count only for the estimation of the leveraging effect.

⁵ Source : PVGIS software

⁶ Agence de l'Environnement et de la Maîtrise de l'Energie, France



5 Conclusions

This document presented tables that summarized a set of key performance indicators such as specific and strategic objectives of the Citizenergy project. Although the document presented the list of indicators proposed in the DOW, during the project we will meticulously and continuously analyse the feedback of the partners for regularly update the key performance indicators.