Abstract

This project will provide a linkage between legislation, environmental and financial constraints with the development of operators of electricity services in rural areas, and will offer practical guidelines for their creation and strengthening. Decentralised RE facilities will be promoted as sustainable options for poverty alleviation, through proactive capacity building and networking between government agencies, utilities and other electricity operators and community users.

EU partners
- Fraunhofer ISE (DEU)
- Instituto de Energía Solar – UPM (ESP)
- PHK Consultants (FRA)

Coordinator
- Trama Tecnoambiental – TTA (ESP)
Project objectives:

• Link the current legislative, environmental and financial constraints with the development of decentralised operators for the provision of electricity services for remote areas in Ecuador and Peru, as a main driver for poverty reduction

• Develop a practical guidebook for the creation and strengthening of electricity operators based on decentralised RE facilities

• Contribute to the integration of RE systems within current policies for rural electrification, by supporting government agencies in ongoing activities in each country

• Conduct capacity building activities for all the key stakeholders, in order to facilitate the transfer of know-how north-south and south-south, with emphasis on sectoral links between regions and countries in the Andean community.

Potential Impacts of the action:

Encouraging the development of sustainable energy services as a vehicle for rural development will result in significant impacts in both the income and non-income dimensions of poverty.

<table>
<thead>
<tr>
<th>Income dimensions of poverty</th>
<th>Non-income dimensions of poverty</th>
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<tbody>
<tr>
<td>• Increased agricultural and small enterprise activity and productivity</td>
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</table>
| • Permit non-agricultural enterprises (ecotourism…)
| • Increased generation and productivity (extending the working day) | • Education
| | • Health
| | • Social Inclusion |
Main Deliverables (1):

<table>
<thead>
<tr>
<th>Work package Nº</th>
<th>Type of deliverable</th>
<th>Deliverable Nº</th>
<th>Deliverable name</th>
<th>Month of completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP2</td>
<td>Report</td>
<td>D2</td>
<td>Policy and relevant experiences study review</td>
<td>Month 5</td>
</tr>
<tr>
<td>WP3</td>
<td>Report</td>
<td>D3</td>
<td>Conclusion report on systems’ lifespan in past and present experiences</td>
<td>Month 7</td>
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<td></td>
<td>Publication</td>
<td>D 6-2</td>
<td>Support Guidebook for Decentralised RE Electricity Operators: Part 2 Institutional and Financial Toolkit</td>
<td>Month 19</td>
</tr>
<tr>
<td>WP5</td>
<td>Report</td>
<td>D7</td>
<td>Selection and socio-economic study of target areas and operators</td>
<td>Month 14</td>
</tr>
<tr>
<td></td>
<td>Report</td>
<td>D8</td>
<td>Operators Monitoring and Evaluation report</td>
<td>Month 21</td>
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</table>
Main Deliverables (2):

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<tr>
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</thead>
<tbody>
<tr>
<td>WP6</td>
<td>Website</td>
<td>D9</td>
<td>Project web page</td>
<td>Month 6</td>
</tr>
<tr>
<td></td>
<td>Event</td>
<td>D10</td>
<td>Meeting with working parties and National seminar in Ecuador</td>
<td>Month 12, Novth 21</td>
</tr>
<tr>
<td></td>
<td>Event</td>
<td>D11</td>
<td>National seminar in Peru</td>
<td>Month 22</td>
</tr>
<tr>
<td></td>
<td>Report</td>
<td>D12</td>
<td>Summary of seminars in Ecuador and Peru</td>
<td>Month 24</td>
</tr>
<tr>
<td>WP7</td>
<td>Report</td>
<td>D13</td>
<td>Training Plan</td>
<td>Month 6</td>
</tr>
<tr>
<td></td>
<td>Toolkit</td>
<td>D14</td>
<td>Training Material</td>
<td>Month 11</td>
</tr>
<tr>
<td></td>
<td>Regional workshops in Peru</td>
<td>D15</td>
<td>Regional workshops in Peru</td>
<td>Month 12, 18</td>
</tr>
<tr>
<td></td>
<td>Regional workshops in Ecuador</td>
<td>D16</td>
<td>Regional workshops in Ecuador</td>
<td>Month 18</td>
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</table>

Main achievements:

- Project DOSBE has provided the grounds for the initiation and continuation of the discussion of key elements for the development of more adequate electricity service schemes for rural population.
- Key decision makers in the rural electricity sectors in Ecuador and in Peru, both at the ministerial level and at the users or community level, have been involved in all phases of the project. When political changes have occurred, the project consortium has made special efforts to update the newly appointed actors, and eventually adapt the work previously done.
- Completion of the review of reference experiences in both countries, pinpointing the successes and pitfalls, which has been the basis for the elaboration of the support guidelines and tools.
- Completion of support guideline package for decentralised rural electricity operators, including adapted tools covering institutional, technical, financial, managerial and training aspects.
Main achievements (2)

- Pilot implementation of the tools in on-going projects, adaptation and adoption by service operators. Elaboration of a draft decree within the national regulation for rural electrification with renewable energy in Peru.
- Organisation of all the previewed events (regional workshops, national seminars, and several meetings with key stakeholders), with a satisfactory attendance and participation from key actors.
- Networking between key stakeholders at the national and international level; the project has enabled the transfer of know-how. Draft constitution of the Ecuadorean Association of Renewable Energy and Energy Efficiency.
- Dissemination of the project progress and results at the national, regional, and international level.
- The European, Ecuadorian and Peruvian teams have been consolidated and worked coherently toward the objectives.

Project profile:
- IEEA Coopener - countries: Ecuador, Peru
- Grant Agreement EIE/06/255/SI2.447982 –DOSBE
- Participants:
  - EU partners
    - Fraunhofer ISE (DEU)
    - Instituto de Energía Solar – UPM (ESP)
    - PHK Consultants (FRA)
  - Coordinator
    - Trama Tecnoambiental (ESP)
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Main Conclusions and lessons learnt

• There is a generalised acceptance of the potential of decentralised electrification via small renewable energy systems as the adequate solution for many rural communities which lie far away from the national grid. Public policies recognise this potential; however, there is a lack of effective technical, organisational and financial mechanisms to allow the materialisation of these policies. It is the demonstration on the field, that, concerning electricity services projects, a lot of energy must be spent to solve non technical aspects before optimizing technical issues.

• There have been several initiatives (both top-down and bottom-up) in decentralised rural electrification schemes with small renewable energy systems in Ecuador and Peru (mainly individual PV systems); however detailed life-cycle ex-ante planning has not been generally taken into account, resulting in many financial problems after a few months of operation. Despite the several initiatives given, there is a lack of effective knowledge on technical quality requirements, comprising equipment quality and capacity, achievable yields, and safety aspects.

• There has been a good acceptance of the DOSBE support by key stakeholders both in Ecuador and in Peru, especially regarding the availability of adapted tools and the possibility to implement them in on-going projects.
Main Conclusions and lessons learnt (2)

• There are significant socio-economic differences between the Amazon region and the other two main regions in both countries (Sierra and Costa), which clearly conditions the service operator schemes to be implemented.

• Local stakeholders, being closer or more familiar with the energy needs of rural population, are very willing to accept new ideas and consider new tools, but they need full support to implement this know-how. This support is crucial and much appreciated.

• Decision makers in higher political or sector levels (ministries, national administration) are often not familiar with local needs, which is a crucial aspect of rural electrification; carefully planned communication and dissemination events, and a participatory approach has helped to bring and discuss local needs to these decision makers, empowering and stimulating discussion and thoughts on complex policy issues.

• The project DOSBE has provided another step in the promotion of effective tools for the provision of quality decentralised rural electricity services. Further steps are recommended to be taken in the direction of replicating the pilot implementations carried out within DOSBE, and continue the adoption of the guidelines and tools into enforcement regulations within stakeholders.