

**IEA PVPS task 11 (Hybrid System within mini-grid)
Sub Task 40: Sustainability conditions**

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1 - Purpose

The sub-task 40 called “Sustainability conditions” and led by Transénergie is the fourth aspect studied in the frame of the Task 11 of the IEA PVPS programme.

Three main topics are studied; lead by three companies and three deliverables are expected.

Activity	41: Social and political framework	42: Financial and economic issues	43:Environmental considerations
Leader	Transénergie (France)	Fraunhofer-ISE (Germany)	Sun Technology (Japan)
Deliverable	Report on social & political issues for successful PV Hybrid System (HS) operation within mini-grid	Report on financial issues for successful PV HS operation within mini-grid	Report on environmental issues pertaining to PV HS within mini-grid

2 - Methodology

This study is in progress and will be achieved in seven steps described hereafter:

- Step 1: to write and deliver a “light” case studies template to all Task 11 participating countries and to produce a methodological tool to manage a data collection and analysis
- Step 2 : to analyse the answers and define a short list of « interesting » case studies for deeper analysis (considering the sustainability context), thanks to case studies proposed by all Task 11 participants (step 1.1), from all world areas in industrial & developing countries
- Step 3: to share the short list between this subtask participants and to gather the information according to the tool developed in step 1.2
- Step 4: to analyse the data according to the 3 topics : social, financial, environmental
- Step 5: to cluster the data collected per activity and to highlight key issues and recommendations (dedicated to the 3 topics)
- Step 6: to produce drafts of the final documents and to introduce them to Task 11 partners for comment
- Step 7: to improve and produce final documents

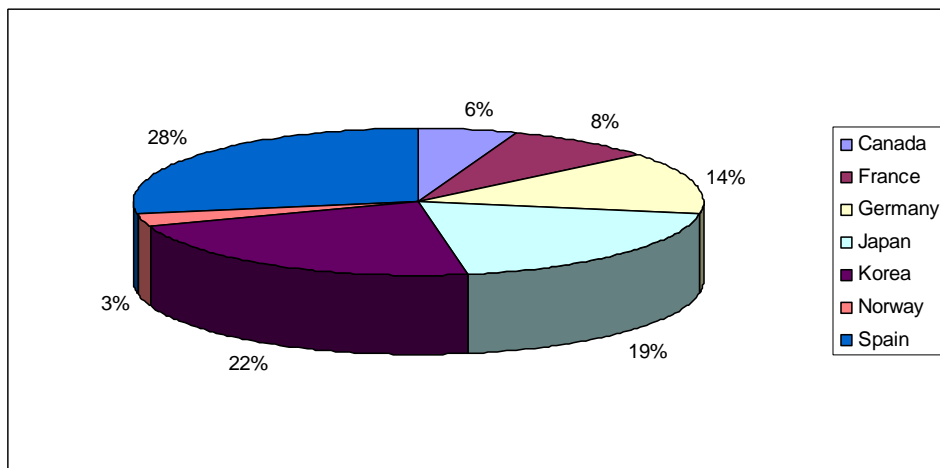
3 - Planning

Year 1 2006		Year 2 2007		Year 3 2008		Year 4 2009		Year 5 2010		Year 6 2011	
1	2	1	2	1	2	1	2	1	2	1	2
	Step 1-1+2	Step 1-2									
			Step 2								
				Step 3							
					Step 4						
							Step 5				
								Step 6			
									Step 7		
		Tool	Short list		Data collected		Data analyzed	Synthesis by topics	Final draft	Final report	
5 Years											

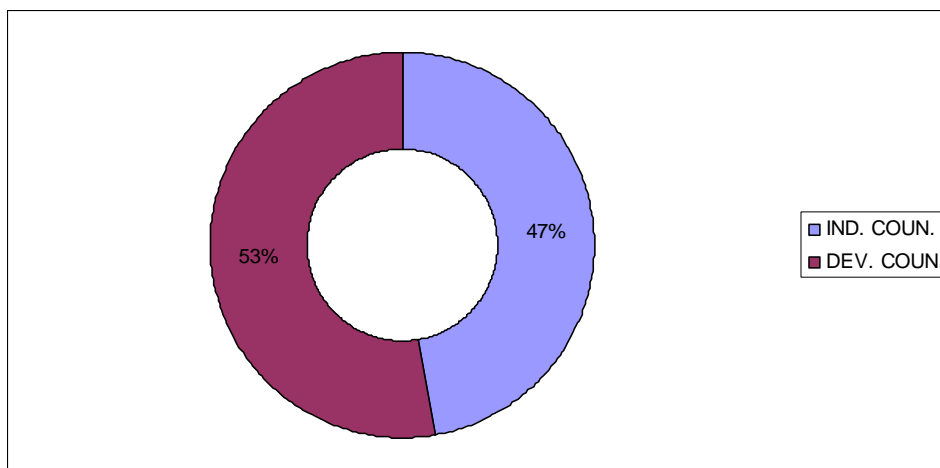
4 - First results

We received from participants, **35 site descriptions of installed hybrid systems** with a worldwide spread, with various architectures, power and data availability.

We proceed currently to select the short list of typical and interesting cases and, in parallel to select the various main indicators for the three activities in order to extract the sustainability conditions in the three expected deliverables.

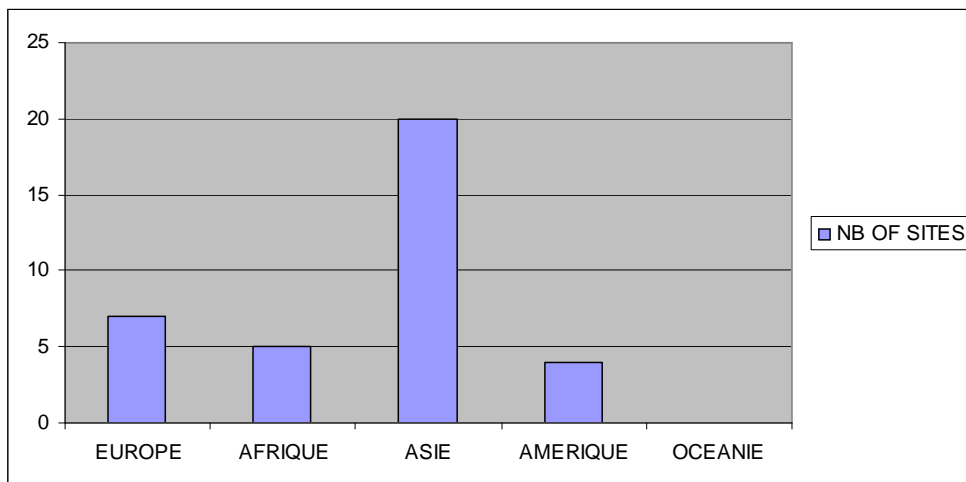


The contributing countries to case studies



The location of the case studies between industrialized countries and developing countries

Roughly there is fifty percents of the studied systems implemented in the developing countries and 50% in Industrialised countries.



The implementation of the case studies within continents

Last but not least, 60% of these sites are monitored with available data.

For the 36 cases, the global sums of various powers involved are:

- PV: 3 MWp
- Genset: 4 MVA
- Windmill: 180 kW
- Batteries: 90 kAh

The **average** typical case study has the following data:

- PV: 90 kWp
- Genset: 110 kVA
- Windmill: 5 kW
- Batteries: 5 kAh
- Autonomy: 3 days
- Population: 1500 inhabitant / Implementation in 2002

5 - Next steps

Currently, the next steps are the following:

- To select a short list of typical and interesting cases (10 to 12 typically) thanks to a vote between participating companies in Task 11 IAE PVPS programme
- To elaborate the various main indicators (linked with performances activity in this task) for the three domains (social, financial & environmental)
- To receive all the data coming from the selected sites
- To analyse these data
- To extract the sustainability conditions for the three expected aspects (financial, social and environmental)