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ADE, PEM Consult and IRAM
Consortium leader: ADE s.a
Contact Person: Edwin Clerckx
Edwin.Clerckx@ade.eu

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This report has been prepared by

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Evaluation team members having contributed to this report:
Dr. Eric Buhl-Nielsen (Team Leader)
Dr. Stephanie Robert Oksen
Mr. Jens Lorentzen
Mr. Julio Castro
Mr. Kris B. Prasada Rao
Mr. Getnet Tesfaye
Mr. Kelvis Kasonkomona
Mr. Makuza Aloys Kanamugire
Mr. Pierre Claver Koukou
Professor Jacob Sandikie,
Professor Sakariyou Mahman,
Mr. Michael Mkombozi
Mr. Muza Mzumbe
Mr. Stanley Ljeoma

The evaluation is being managed by
the DG DEVCO Evaluation Unit.

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List of acronyms and abbreviations

ACP	African, Caribbean and Pacific Group of States
AEEP	Africa-EU Energy Partnership
AFD	Agence Francaise de Developpement
AfDB	African Development Bank
AFUR	African Forum for Utility Regulators
AREI	Africa Renewable Energy Initiative
ASEAN	Association of South East Asian Nations
CAAP	Central Africa Power Pool
COM	Communication
COP	Conference of the Parties (to the UNFCCC)
CRIS	Common RELEX Information System
DCI	Development cooperation instrument
DEVCO	European Commission Directorate-General for International Cooperation and Development
DFI	Development Finance Institutions
DfID	Department for International Development
DG	Directorate General
DP	Development Partners
EAMR	External Assistance Management Report
EC	European Commission
ECHO	European Commission Humanitarian aid and Civil Protection department
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
EDF	European Development Fund
EDFI- PSDF	EU- European Development Finance Institutions Private Sector Development Facility
EE	Energy efficiency
EEAP	East Africa Power Pool
EEAS	European External Action Service
EF	The ACP-EU Energy Facility
EFSD	European Fund for Sustainable Development
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIP	European Investment Plan
ElectriFI	The Electrification Financing Initiative
ENRTP	Thematic Programme for Environment and Sustainable Management of Natural Resources (including Energy)
EQ	Evaluation Question
ESMAP	World Bank Energy Sector Management Assistance Program
EU	European Union

EUD	European Union Delegation
EUEI PDF	EU Energy Initiative Partnership Dialogue Facility
EUR	Euro (also abbreviated € in some graphs and tables)
FSU	Former Soviet Union
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GHG	Green House Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GTF	Global Tracking Framework
HQ	Headquarters
IEA	International Energy Agency
IFI	International Financi Institutions
IL	Intervention Logic
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contributions
IPP	Independent Power Producer
IRENA	The International Renewable Energy Agency
ISG	Inter-services Steering Group
ITF	EU-Africa Infrastructure Trust Fund
JC	Judgement Criteria
JICA	Japan International Cooperation Agency
JD	Joint Declaration
KfW	Kreditanstalt für Wiederaufbau
MS	Member State
M&E	Monitoring and evaluation
NDC	Nationally Determined Contributions
NIP	National Indicative Plan
NGO	Non-Governmental Organization
NRM	Natural Resources Management
ODA	Official Development Assistance
OECD/DAC	Organization for Economic Co-operation and Development – Development Assistance Committee
PIDA	Programme for Infrastructure Development in Africa
PPA	Power Purchase Agreement
RE	Renewable energy
RECP	Renewable Energy Cooperation Programme
RFSF	Regional Fund Support Facility
RIP	Regional Indicative Plan
RISE	Regulatory Indicators for Sustainable Energy
ROM	Results Oriented Monitoring
RSP	Regional Strategy Paper
SADC	Southern African Development Community
SAPP	South Africa Power Pool
SE	Sustainable energy
SEADS	Strategic Energy Advisory and Dialogue Services

SE4ALL	Sustainable Energy for All Initiative (also referred to as SEforALL)
SDG	Sustainable Development Goal
SIDS	Small Island Developing States
SME	Small and Medium-sized Enterprises
SRC	Sector reform contracts
TA	Technical assistance
TAF	Technical Assistance Facility
tbc	To be confirmed
TOR	Terms of Reference
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organisation
WAPP	West Africa Power Pool

Executive Summary

Purpose, context and scope of the evaluation

This external evaluation of the EU's sustainable energy cooperation (2011-2016) aims to: provide an independent assessment of the past and current cooperation, identify lessons learned and make recommendations to inform current and future strategy and delivery.

The context for the evaluation is the rapidly increasing focus on sustainable energy in global fora, around the developing world, and in the donor community. This includes the EU's Agenda for Change in 2011, the advent of the Sustainable Development Goals with their strong focus on energy, and the Paris Agreement on Climate Change, which led to a rapid increase in the scope and intensity of the EU cooperation within sustainable energy. Overall, between 2011 and 2016, EU has committed more than EUR 2 billion, positioning itself as one of the main donors in the sustainable energy cooperation arena. The scope of the evaluation includes eleven initiatives that were operational during the evaluation period of 2011-2016 to deliver EU sustainable energy support to partner countries in three main intervention areas: i) policy dialogue, ii) capacity development, iii) investments. The scope includes both geographic and thematic instruments. The main geographic focus was on Sub-Saharan Africa and to a more limited extent Asia and the Pacific and the Caribbean.

Methodology and challenges

The methodology for this evaluation followed DG DEVCO's methodological guidelines for thematic and other complex evaluations, which are based on the OECD-DAC approach. The evaluation process followed a well-defined sequential approach with inception, desk, field, synthesis phases during March 2017-May 2018, to be followed by a dissemination phase in mid-2018. The evaluation was managed by the DG DEVCO Evaluation Unit, incorporating all relevant EU services in a Reference Group that oversaw the process. Seven evaluation questions were formulated in a structured process based on analysis of EU policy frameworks and reconstruction of the EU's intended intervention logic. An inventory of EU support was prepared, and judgement criteria and indicators were defined to guide data collection and analysis. Field visits were made to 8 countries in Sub-Saharan Africa. The evaluation used a combination of tools and techniques for primary and secondary data collection, including analysis of policy and strategy papers, literature review, meta-analysis of earlier evaluations/audits, and interviews with stakeholders. The stakeholders consulted included end beneficiaries, implementing organisations, national partners, EU delegations, DG DEVCO and other EC Directorates and the EU External Action Service, and multilateral and bilateral development partners. The main challenges were related to: i) obtaining data on all the sample projects and the confidential nature of some projects with private sector partners; ii) the split time period of the evaluation which straddles two programming periods; iii) the fact that many of the projects and initiatives associated with the most recent strategies of cooperation in sustainable energy are not yet at the implementation stage. The methodological approach served to mitigate as much as possible these limitations.

Conclusions

The EU's sustainable energy cooperation was well-conceived and has led to results that have improved the policy environment and increased capacity and prospects for sustainability (Conclusion 1). Through the ongoing programmes, access to clean

energy is being improved and the share of renewable energy is increasing and, in some countries, improvements are also underway within energy efficiency.

The EU's sustainable energy cooperation was partner owned and well-aligned to national, global and EU policies (Conclusion 2). The EU's cooperation with the public sector was backed up by thorough country and regional analysis of government policies, strategies and plans. Interventions were well aligned where the national/regional sector framework was sound, and EU's response was generally appropriate in areas where the sector framework was weak. However, EU support was also relatively unambitious in its aim to bring about reform, and the strong alignment and close partnerships established were to some extent at the cost of taking a more active change agent and reform role at country level. The EU's sustainable energy cooperation was fully in line with EU and global policies although more use could have been made of tools developed by multilateral development partners under the Sustainable Energy for All Initiative and the EU's Joint Research Centre.

The EU took a lead in establishing a strong coordination and added value to member state efforts. In all countries visited, the cooperation had well-chosen and strategic interventions although a clear niche in sustainable energy cooperation was not yet achieved in all countries (Conclusion 3). EU facilitated a greater joint effort with Member States. The scale of allocated funds also added value to the general contribution of the Member States - between 2010 and 2014 EU and Member States were the largest donor in sustainable energy development cooperation. In all the 8 countries visited, the EU had close coordination with other donors and especially Member States and often a leading role in donor coordination groups. Whilst different components of support had a sound rationale, a cumulative and strategic approach that supported firm policy directions and reform was not strongly evident. The support packages were, in a number of countries, fragmented over a variety of areas, and the scale of the financial resources available and their relative flexibility was not exploited to the full.

Where the EU sustainable energy cooperation focussed on the end use of energy there were impressive results but often the link to end-use was weak (Conclusion 4). Examples of effective end use in the EU sustainable energy cooperation was the introduction of solar powered irrigation pumps or electrification of high potential agricultural areas where jobs were created. However, in many cases the EU cooperation was focussed on delivery of electricity and energy services without a clear enough link to a productive end use. Many of the countries cooperating with the EU on sustainable energy have increased their energy generation and developed transmission lines without (affordable) connection to the population and/or support to development in other sectors that had a potential use for productive energy use i.e. a link between enterprise development and the availability of energy or introducing mechanisms to make connections and the purchase of electrical appliances affordable. Where schools and health clinics were prioritised, results were promising. Although the EU recognised sustainable energy as a broad enabler of social and economic development, the situation in practice was highly complex and the cooperation often fell short of exploiting the opportunities for energy to act as an enabling factor for other sectors. An over-focus on reaching energy access targets tended to lead to access to energy becoming a short-term end in itself, rather than a means to many ends.

The EU's sustainable energy cooperation integrated environment, climate change and gender issues (Conclusion 5). Particularly for the large investment projects, high quality environmental and climate change assessments were carried out. The contribution to and reporting on gender was also generally good but mixed between the initiatives. The EC Methodological Note on Budget Support in Sustainable Energy and its 81 guiding questions reflected sound policy messages that pay attention to both environment/climate change as well as gender.

The focus given to promoting private sector engagement in the sector was well conceived but was hampered by the enabling environment, capacity constraints and support that did not match with the local private sector capacity (Conclusion 6). The EU cooperation on sustainable energy increasingly recognised and supported the private sector as an important agent of change. The procedures that governed the Energy Facility were not agile enough to follow the rapid changes in market demand and technology needed to be effective in supporting the private sector. The new financial instruments such as ElectriFI and GEEREF and to some extent blending were better adapted to support the private sector. But the scale, complexity and modalities of support did not match with the relatively low capacity of the small-scale national private sector. In some countries the enabling environment for the private sector was found difficult if not hostile.

Policy dialogue was closely linked to operational interventions and was in many cases successful – but there were opportunities for stronger engagement at strategic level in some countries (Conclusion 7). The EU policy agenda addressed key sustainable energy issues in partner countries, took account of support by other development partners, and EU promoted sound policy messages that also emphasized social, economic and environmental dimensions of sustainability and, where relevant focused on enabling private sector participation. Policy dialogue was most effective and impactful when closely linked to operational interventions. The EU also had an increasingly strong role in coordination of energy sector development partners. EU policy influence was found to be on an increasing trend but still often not at par with its weight given the volume of EU cooperation. Some stakeholders interviewed saw opportunities for a stronger EU engagement in policy dialogue at strategic level. The cooperation and related policy dialogue could often have benefited from deeper political economy analyses, in order to ensure that EU engaged with key drivers of transformational change in partner countries. Much political capital was invested in Joint Declarations, but the policy reform potential of these declarations was not achieved. The follow up was weak and action plans either not made or not implemented. Sector budget support indicators were relevant in monitoring progress in related policy dialogue for budget support reform contracts. Neither the EU nor more generally other development partners had adequate tools for measuring the progress and success of their energy policy and reform dialogue and related interventions. The opportunity to develop the Joint Declarations into joint tools for monitoring and measuring policy and reforms was not capitalised on.

EU capacity development technical assistance was demand-led and professionally delivered but the creation of lasting institutional results was still challenging especially in weak policy environments (Conclusion 8). Most technical assistance provided was responsive to needs and demand-led, but in some cases, partner ownership of the technical assistance was limited, mostly due to lack of partner absorptive capacity. Capacity development was not sufficiently results-orientated – inputs were provided and

verified, in most cases outputs delivered and verified but the outcomes were not subject to measurement or verification. Although the capacity development support was flexible and provided high quality services, opportunities were lost to make use of a wider range of capacity development approaches (institutional twinning/peer-to-peer, embedded advisers) or engage with European research and development. Capacity development of the private sector was not a high priority of the EU technical assistance. Technical assistance supported the integration of cross-cutting issues such as gender and the incorporation of environmental and pro-poor considerations in policy reforms and project implementation, although monitoring of results should be strengthened.

Physical investments and related interventions through conventional grant funding were pro-poor and successful in creating access but less successful in creating conditions for replication (Conclusion 9). The grant initiatives contributed to social development goals and were in a few cases highly innovative especially when it came to management and institutional arrangements, but there were very few cases of autonomous or non-supported replication of energy projects financed through grants. Cross-cutting issues were taken into account in most conventional grant funded projects.

The evolution from grant financing of investment towards use of financial instruments was sound although not without challenges (Conclusion 10). The use of blending and instruments such as GEEREF and ElectriFI enabled for the same level of grant resources a far greater level of investment in the energy sector than could have taken place with grants alone. However, projects financed through the financial instruments do not present a strong rationale at design stage or consistently report on how they reach marginalised groups or how they respond to gender and job creation challenges. EU does not have the monitoring tools to determine the value added of the projects financed through these instruments, and whether they avoid distortion of the local market and de-risking investment that would otherwise not occur.

Overall the efficiency of the EU's cooperation in sustainable energy improved over the evaluation period (Conclusion 11). EU support was geographically and operationally fragmented particularly in the early period where the cooperation extended to more than 50 countries. In the second financing period (2014-2016) the efficiency improved as the number of countries was reduced to 30 and the interventions were systematically programmed into or supportive of National indicative Programmes. An overriding factor that influenced the efficiency of the different interventions was the challenging context of the energy sector with weak institutional, policy and regulatory frameworks. The challenges of working in a new and complex sector were not fully reflected in the staffing made available, particularly in the early period from 2011- 2013. From 2014 onwards, the situation improved as the Delegations become better staffed with energy expertise and the TAF was more actively used to support programming and operational activities. Delays in implementing projects were a major cause of low efficiency. It was found that the demanding procedures of the EU which were often not well understood by the implementing partners, despite training, were a main cause of delays and operational inefficiencies.

EU sustainable energy cooperation has strategically addressed sustainability issues. However, some challenges persist (conclusion 12). EU has contributed to increase country partner ownership and sustainable energy development through policy dialogue,

technology transfer and technical assistance. EU policy support emphasized social, economic and environmental dimensions of sustainability and engaged in strengthening the enabling environment through supporting regulatory reforms, institutional strengthening and sound sector strategies. The Energy Facility contributed to the demonstration and mainstreaming of sustainable energy through technology transfer and most projects are still functional even when implemented in challenging conditions. More recently, due diligence and project appraisal mechanisms under GEREEF, ElectriFI and blending have also increased partner attention and capacities to address cost recovery issues.

Visibility conditions were largely met but dissemination of the EU sustainable energy cooperation results was weak, especially at country level (Conclusion 13). Although project partners complied with visibility requirements, the visibility of EU support was relatively low compared to other development partners. At country level, the EU delegations are engaged in making the EU energy support more visible, through public events and production of communication and outreach material. However, the dissemination of results of EU sustainable energy cooperation was weak.

Recommendations
The recommendations are listed below. The proposed actions and responsible parties are further outlined in the main report:

Recommendation 1: Focus sustainable energy cooperation on the end use and promote productive use of energy in other sectors. This recommendation can be implemented by promoting the energy, food and water nexus concept and supporting the link between delivery of more reliable energy and the productive, income generating uses of energy. Moreover, the focus on end use should strengthen the contribution of energy as a basic service in order to enhance governance, peace and stability in fragile and conflict affected situations. Special attention should be given to increasing support for modern fuels, biomass and biogas for cooking and energy efficiency in general in all sectors.

Recommendation 2: Increase the policy contribution of EU sustainable energy cooperation by taking a proactive approach. This recommendation can be implemented by monitoring and engaging early with sector reforms in the energy sector and in particular subjecting partner policies, plans and practices to stronger assessment of relevance and credibility and, being prepared to delay disbursement on capacity and investment until the conditions are suitable. It will be important to develop and adapt financial and other mechanisms so that the policy leverage is stronger in practice and creates a constructive sequence of policy, capacity and investment. The policy contribution can be strengthened by focusing on developing actions for fewer policy related initiatives rather than launching new initiatives. Finally, there is much to be gained by reviving the Joint Declarations country by country and widen their scope to include Member States and other development partners.

Recommendation 3: Adopt a stronger results-orientated approach to capacity development and enhance sustainability This recommendation can be implemented, by ensuring that all terms of reference and intervention designs explicitly identify, test and monitor what capacity in the energy sector should be developed. It will also be

important to increase the sustainability of capacity development by training trainers and making use of and enhancing local capacity building facilities. Finally, deeper analysis should be made of the wider institutional constraints within and outside the energy sector that affect the development and use of capacity.

Recommendation 4: Develop tools to determine and monitor the additionality of innovative financial mechanisms in the sustainable energy sector. This recommendation can be implemented by developing guidelines, with key developing financialinstitutions, on how to determine additionality and the type and level of grant funding that will be effective in catalysing the private sector and avoid crowding out effects. Guidelines on how to enhance the pro-poor effect of market-based instruments for the energy sector should also be made. Tools for monitoring the achievement of additionality at all stages of implementation are also necessary.

Recommendation 5: Strengthen the private sector through engaging with business member organisations and private sector fora. This recommendation can be implemented by building on the network and contacts of EU and Members States' initiatives in the energy sector to develop a strategy for longer-term engagement with energy related SME business fora in countries where energy is a focal sector. It will also be important to engage proactively with the research efforts of the EU.

1. Introduction

The Evaluation Unit of the European Commission (EC's) Directorate-General for International Cooperation and Development (DG DEVCO) commissioned PEM to conduct an independent evaluation of the European Union's cooperation with sustainable energy (2011-2016). The purpose of this Report is to present the answers to the evaluation questions (EQs) and also the evaluation's conclusions and recommendations.

Objectives and scope
As stated in the Terms of Reference (TOR) the generic purpose of the evaluation is:

- to provide an independent assessment of the past and current cooperation and
- to identify lessons learned and make recommendations to inform current and future strategy and delivery

The scope consists of the following dimensions:

- Geographic scope: European Development Fund (EDF), the Development Cooperation Instrument (DCI), intraACP and PanAfrican for sub-Saharan Africa and Asia (with priority on sub-Saharan Africa);
- Temporal scope: 2011-2016

Methodology
The synthesis report is the outcome of the third phase of the evaluation, which has been devoted to data analysis and formulation of conclusions. Data were collected through desk research, interviews and field visits in eight countries. The methodology guiding the entire evaluation is presented in volume 2.

Structure of the report

- Executive summary
- Chapter 1 Introduction
- Chapter 2 presents the context for EU cooperation in sustainable energy
- Chapter 3 outlines the general methodology supplemented
- Chapter 4 presents the answers to the evaluation questions
- Chapter 5 presents the overall conclusions and recommendations of the evaluation

Annex 1 presents further expansion on the context and Annex 2 presents a summary evaluation matrix. The report also contains a number of annexes (separate volume) as shown in the table of contents.

2. Context

2.1 EU and Global context

EU development of its energy cooperation agenda. The overarching objective of EU support to sustainable energy is linked to the Sustainable Energy for All Initiative (SE4ALL) and the achievement of the Sustainable Development Goals (particularly SDG7 ("Ensure access to affordable, reliable, sustainable and modern energy for all") and SDG1 ("End poverty in all its forms everywhere"). The key EU policy document guiding its development cooperation, "An Agenda for Change" (COM(2011) 637 final) clearly states that under the priority area "*support for inclusive and sustainable growth" EU should "focus its support to sectors that have a strong multiplier impact on developing countries' economies and contribute to environmental protection, climate change prevention and adaptation, notably sustainable agriculture and energy".* It is significant that in the current programming period as many as thirty partner countries have included energy as one of the main focuses of their bilateral cooperation with the European Union from less than 10 in the earlier period (2007-2013). Energy cooperation also forms an integral part of regional and thematic cooperation efforts. The present evaluation is the first[1] thematic evaluation of EU's sustainable energy cooperation.

The situation in 2011. The time-period covered by this Evaluation begins in 2011, which was a momentous year for the international community's focus on sustainable energy. The UN General Assembly declared 2012 the "International Year of Sustainable Energy for All" and 2011 was also the year that the Sustainable Energy for All Initiative was launched. These milestones clearly recognized the growing importance of energy for economic development and climate change mitigation. It also attempted to address the issue that energy was not a priority in the Millennium Development Goals (which did not include energy as a separate goal).

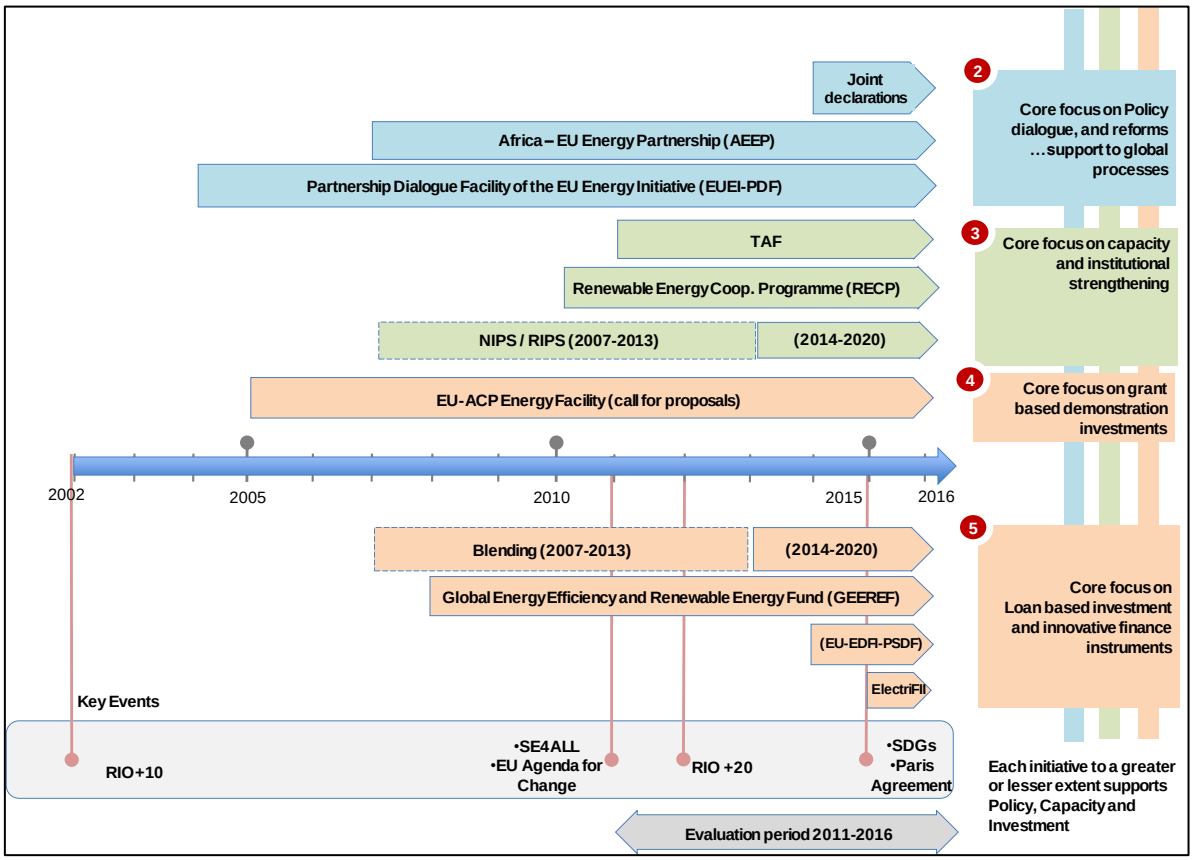
Progress since 2011. In April 2012, European Commission President Barroso committed to contributing to providing access to sustainable energy services for 500 million people by 2030 in developing countries. As a reflection of action toward this objective, the EU committed around EUR 3.7 billion to bilateral and regional energy cooperation for the period 2014-2020. Also, with the increasing focus on climate action, energy has been highlighted as a key priority for the EU. The EU demonstrated its commitment to global climate objectives by dedicating at least 20% of its entire budget from 2014-2020 to climate-related actions. The work on the post 2015-agenda further shaped international policy focus on sustainable energy, and 2015 was another momentous year for SE cooperation. In May 2015, the EC published "Empowering Development - Delivering Results in the Decade of Sustainable Energy for All", a publication dedicated to explaining EU action in the field of sustainable energy. The United Nations Sustainable Development Summit in September 2015 adopted the 17 Sustainable Development Goals of which SDG7 reflects the SE4ALL goals. At the Paris climate conference (UNFCCC

1 An evaluation undertaken in 2008 highlighted a number of issues in EU's energy cooperation (briefly summarized in Section 2.4, see also the annotated bibliography in Annex 4 (volume II).

COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal, the Paris Agreement on Climate Change. The EU in November 2016 issued a "Proposal for a new European Consensus on Development Our World, our Dignity, our Future (COM(2016) 740 final)" which among other things addresses the EU's responses to the 2030 Agenda and the 17 SDGs. It stated that energy is a critically important development enabler and central to solutions for a sustainable planet and sets out a number of policy actions. Lastly it is noted that a joint Communication from the European Parliament and the Council (JOIN(2016) 52 final) in November 2016 summarized lessons learned from Africa, Caribbean and Pacific Group States (ACP) cooperation and set new directions for renewed partnership with the countries of Africa, the Caribbean and the Pacific. The Communication reiterated the EU's position that the partnerships should work towards providing universal access to clean, modern, affordable, secure and reliable energy services. Energy conservation, efficiency and renewable energy solutions should be promoted, also in view of the impact on climate related global challenges.

EU energy initiatives for poverty reduction and sustainable development[2]. As of 2016, eleven initiatives or instruments were operational to deliver EU support to SE in partner countries, with a focus on three main intervention areas: i) policy dialogue, ii) capacity development, iii) investments

Figure 2.1 Overview of EU support initiatives



[2] This section builds upon the chronology of EU initiatives and their objectives. A brief description of each initiative is provided in volume 2 Annex 3.

Overall, between 2011 and 2016, EU has committed more than EUR 2 billion, positioning itself has one of the main donors in the sustainable energy cooperation arena (OECD data). In the earlier period EU use grants and co-financed grants as its main modality of intervention. However, the various instruments developed over the years show that implementation modalities have expanded from calls for proposals and project support approaches, to subsidising and guaranteeing loans as well as budget support.

EU cooperation in the global context. Annex 1 in this volume outlines further the changing global environment in which EU has been and is operating. It reviews the main global challenges and opportunities for increased energy access, Renewable Energy (RE) deployment and Energy Efficiency (EE) improvements to better understand EU sustainable energy cooperation intervention logic and positioning.

2.2 Inventory

A more detailed inventory is provided in Volume II Annex 3.

General Overview during the period 2011-2016
Prior to 2011, the main expenditure in energy was for the Energy Facility and through blending. There was also some geographic expenditure for a limited number of countries that had energy as their focal sector in the 2007-2013 and earlier programming periods.

For the timeframe 2011-2016, the total EU funding amount allocated to energy projects was EUR 2.3 billion (Table 2.1). Contracts signed under decisions taken during 2011-2016 sum up to 1.39 billion. The total amount for all contracts signed during 2011-2016 irrespective of when the decision was taken was EUR 1.7 billion[3]. For the timeframe 2011-2016 a total of EUR 717 million had been paid. In total some 90 decisions and 214 contracts have been considered in the inventory.

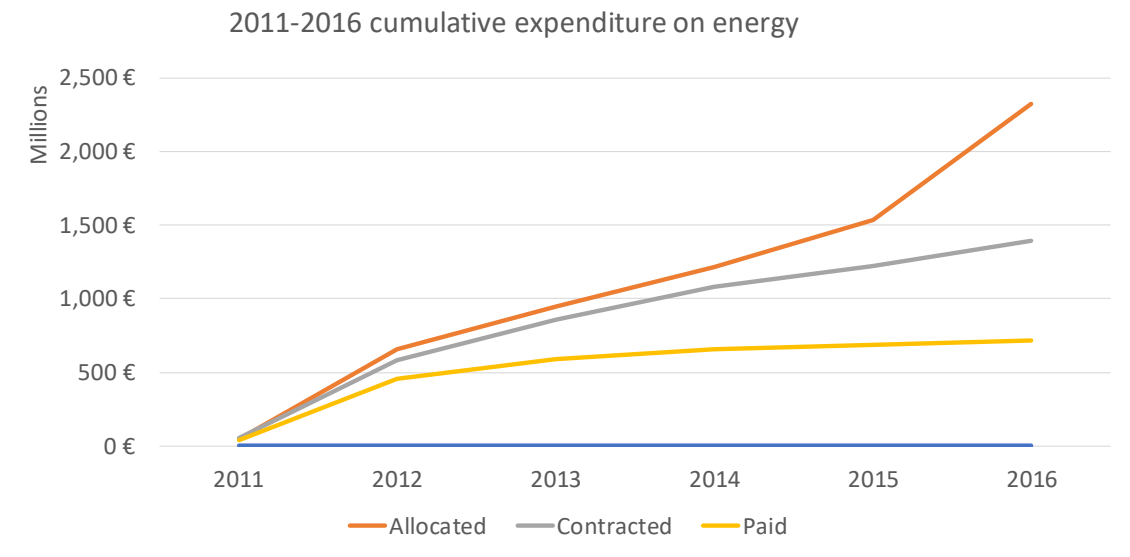
Table 2.1 Overall expenditure (EUR)

Years	Related to decisions in scope (2011-2016)			All contracts 2011-2016*
	Allocated	Contracted	Paid	
2011	48.023.464	51.046.124	35.616.112	135.538.402
2012	607.973.665	530.059.471	421.662.243	445.445.276
2013	290.350.827	274.690.254	130.012.570	300.816.348
2014	266.845.031	225.405.710	68.102.930	314.683.656
2015	319.380.236	144.647.985	30.915.124	343.424.550
2016	790.106.412	165.036.302	30.899.415	440.956.730
Total	**2.322.679.634**	**1.390.885.845**	**717.208.395**	**1.980.864.962**
* all contracts irrespective of decision year				

3 This amount is larger as it also includes contracts related to decisions taken before 2011.

Figure 2.1 shows the expenditure on energy cumulative for the period 2011-2016. As the figure indicates, there was a strong increase in expenditure from 2011 to 2012 from an annual contracting level from around EUR 50 million in 2011 to over EUR 500 million in 2012 - perhaps this can be explained as a timely reflection of the new policy directions of the Agenda for Change (2011). Thereafter the expenditure has been at a constant rate of allocation between EUR 150 -300 million per year with a sharp increase in 2016 up to over EUR 700 million - probably in response to the new programming period where a new cooperation in energy was taking place in many countries, which had energy as a focal sector.

Figure 2.1 Cumulative expenditure on energy 2011-2016



Geographic allocation

Figure 2.2 illustrates the allocation of funds and the geographical focus. More than half of the funding to energy is allocated to country specific activities, which is followed by regional projects and global projects.

Allocation according to country income status

Figure 2.3 shows the allocation of decisions according to the income status of the country using the World Bank classification. The highest amount of funding allocated to energy projects is allocated to lower middle-income countries, followed closely by low income countries which together account for 97% of the allocation, indicating a strong focus on poor countries.

Figure 2.2 Geographic allocation

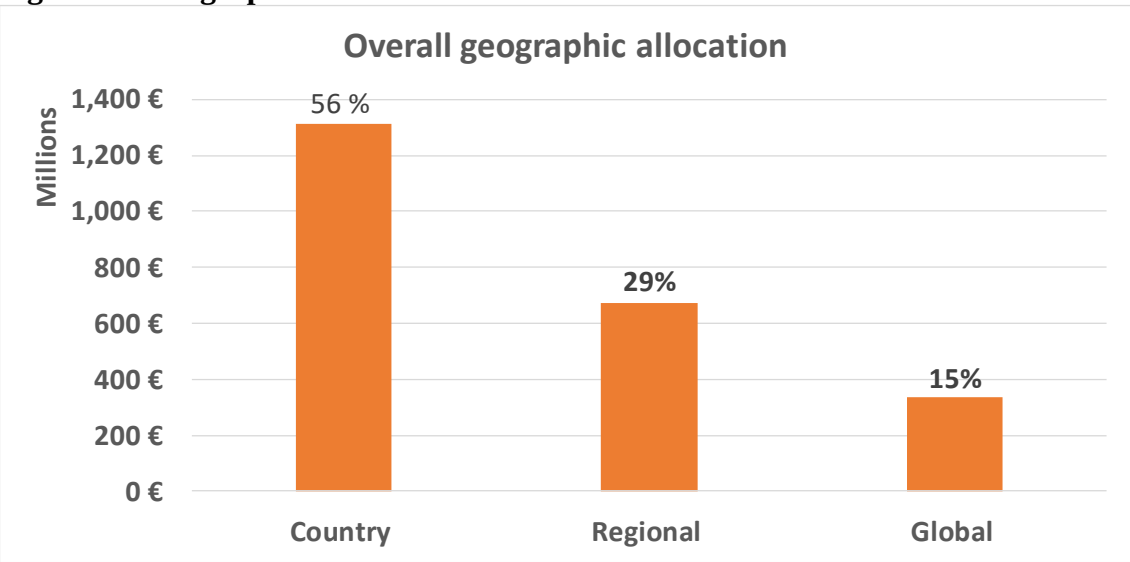
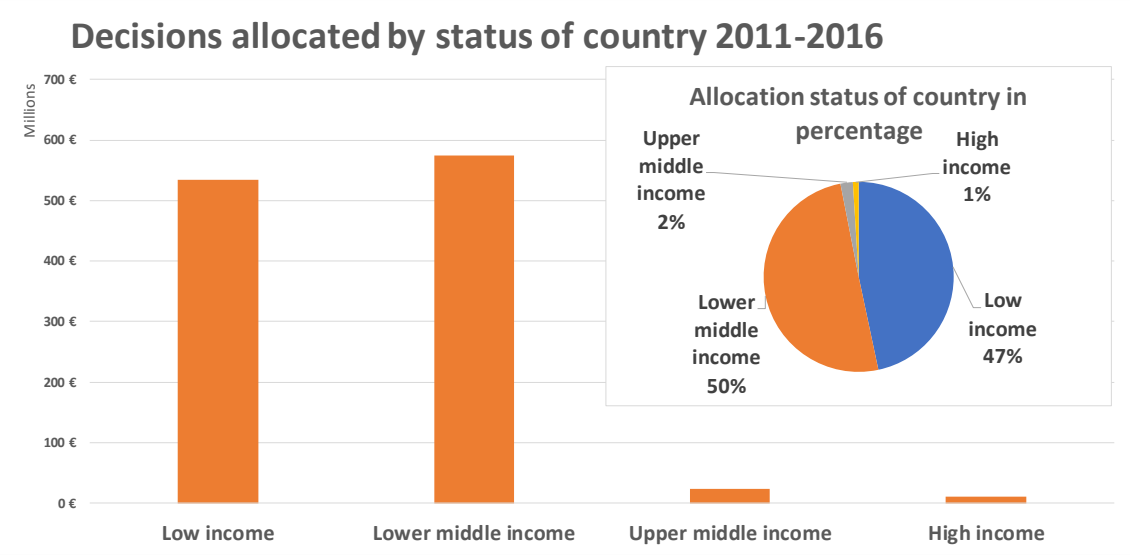


Figure 2.3 Allocation by income status of country within ACP 2011-2016

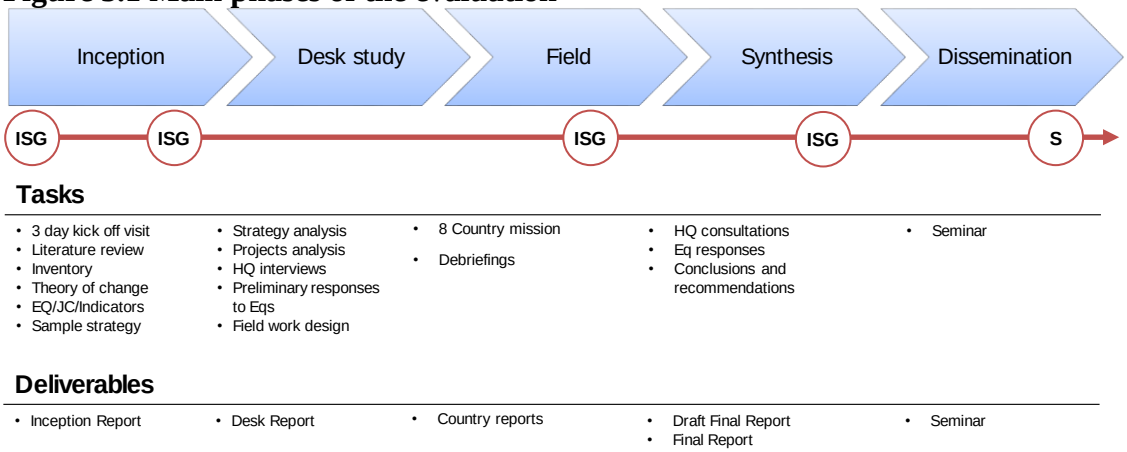


3. Outline methodology

Overall approach

The methodology for this evaluation followed DG DEVCO's methodological guidelines for thematic and other complex evaluations, which is itself based on the OECD-DAC approach. It also took account of good practices developed for evaluations of aid delivery instruments. The evaluation process followed a well-defined sequential approach, with further details given in volume II. The phases with the main activities, deliverables, and meetings with the reference group (also referred to in the TOR as the Inter-services Steering Group (ISG)) are presented in the figure below:

Figure 3.1 Main phases of the evaluation



Theory of change and development of evaluation questions

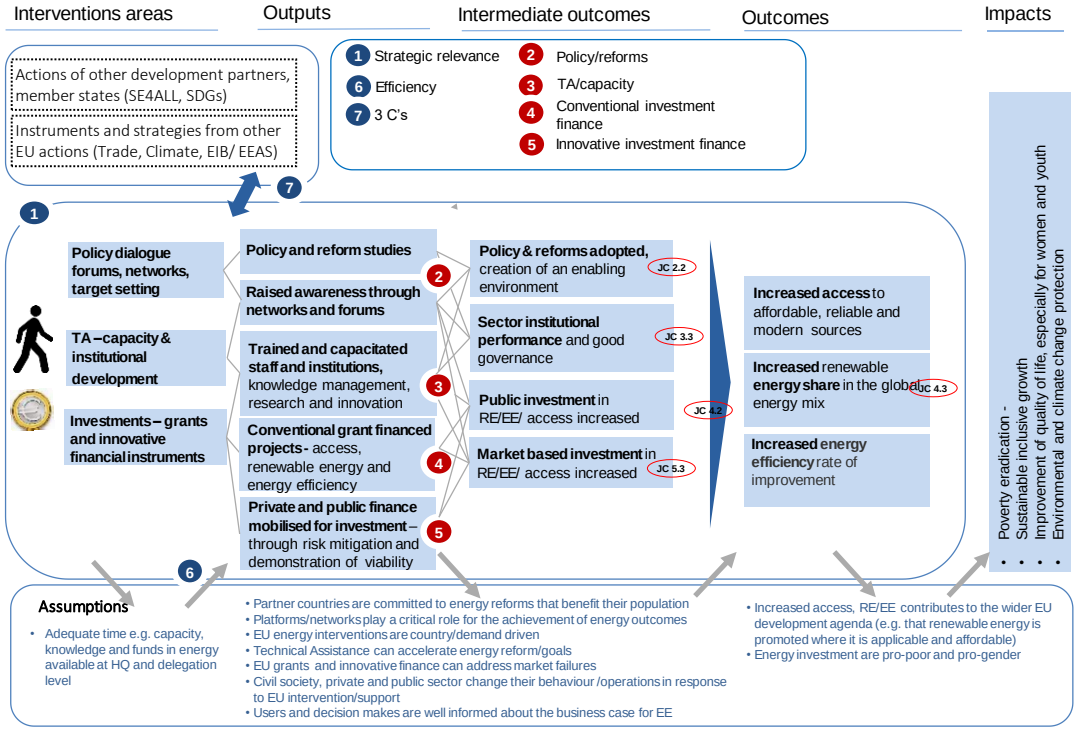
The EU proposed in the TOR an intervention logic, which has been reconstructed based on extensive discussion with the Reference Group. This intervention logic and the underlying theory of change (see figure 3.2) was used as a starting point for developing the evaluation questions and judgement criteria. The evaluation questions are presented in table 3.1 below. Each evaluation question had a number of judgement criteria and underlying indicators, which are outlined in Volume II, Annex 6.

Table 3.1 Evaluation questions

EQ1 Strategic relevance	To what extent has the EU sustainable energy cooperation responded to the evolving energy needs of partners in developing countries and is aligned to the wider EU and global development agenda?
EQ 2 Policy	To what extent have the policy dialogue and networks established led to partners adopting and implementing policy and sector reforms that create an enabling environment?
EQ 3 Technical Assistance	To what extent have the various forms of TA interventions (including the role played by expertise available in EUD and HQ) strengthened capacities in institutions in partner countries?
EQ 4 Conventional grant funding for physical investments	To what extent have the conventional EU grant funding for physical investment and related interventions contributed to sustainable energy goals?

EQ 5 Innovative financial instruments	To what extent has and is EU support using innovative financial instruments contributed to sustainable energy goals?
EQ 6 Efficiency	To what extent are the EU resources allocated and used efficiently?
EQ7 coordination, complementarity and added value	To what extent were EU interventions in sustainable energy cooperation coordinated, complementary and of added value?

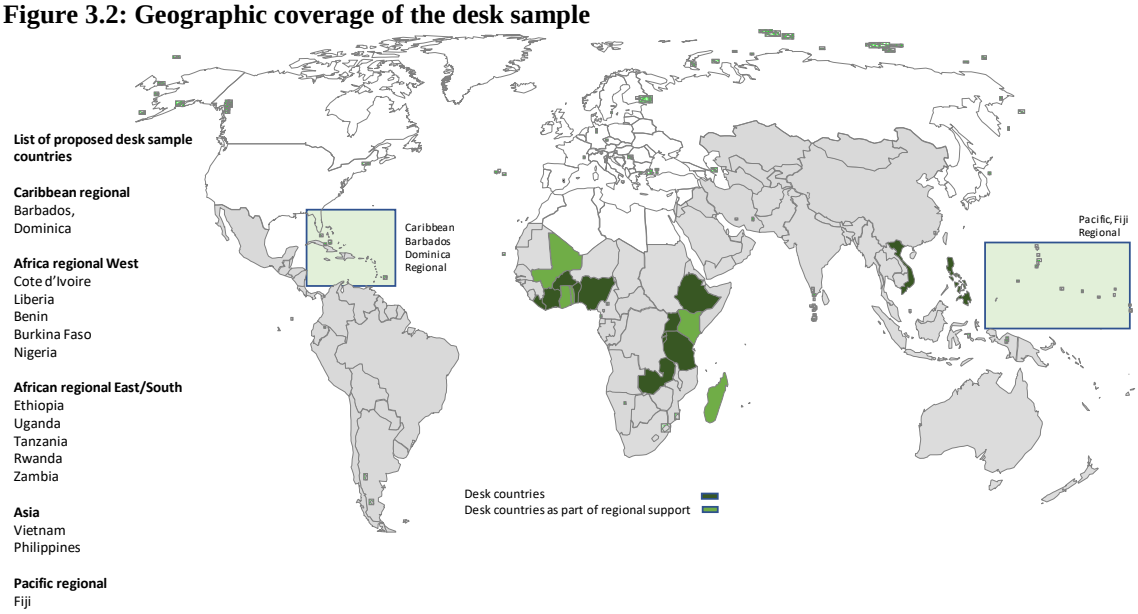
Figure 3.2 Intervention logic showing evaluation questions



Sampling and field visits

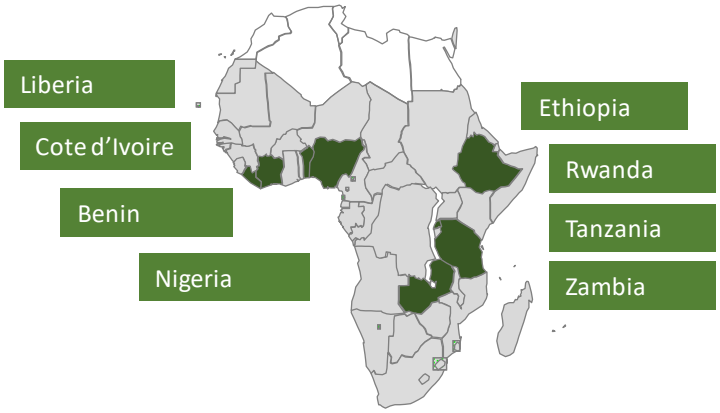
A selection of projects was made to better understand the cooperation through concrete cases, and to provide clear examples to enrich and illustrate answers to the evaluation questions. The selection of projects aimed at covering most important projects in the key sectors to be examined, and at covering a variety of parameters to be addressed in this evaluation. This included coverage of: geographic spread; country as well as regional and global interventions; the range of initiatives supported by the EU; access, renewable energy and energy efficiency; policy, capacity and investment interventions; different types of modalities including budget support; older and newer projects as well as projects that apparently succeeded and those that did not. In total some 62 interventions were chosen which are documented in Volume II, Annex 2. The geographic spread of the desk sample is shown in figure 3.2.

Figure 3.2: Geographic coverage of the desk sample



As outlined in the TOR, field work was carried out in eight countries. The rationale for selection is provided in Volume II, Annex 2 and was centred on a focus on sub-Saharan Africa and ensuring an even representation across the parameters mentioned above. Figure 3.3 shows the countries visited. The field was guided by a detailed methodology outlined in Volume II Annex 2.

Figure 3.3: Geographic coverage of the field work



Limitations

The evaluation team faced a number of challenges and limitation. The methodological approach served to mitigate as much as possible these limitations. The main limitations encountered were related to: i) obtaining data on all the sample projects and especially the confidential nature of the financial related information for some projects, especially GEEREF and ElectriFI (mitigation action taken: meet the relevant people for verbal exchange where copies of documents cannot be obtained); ii) the split time period of the evaluation which straddles two programming periods; iii) the fact that many of the projects and also initiatives associated with the most recent strategies of cooperation in energy are not yet at the implementation stage e.g. the Africa Renewable Energy Initiative

(AREI) - (mitigation action taken: look in detail at the preparation process and intervention design).

4. Answers to the evaluation questions

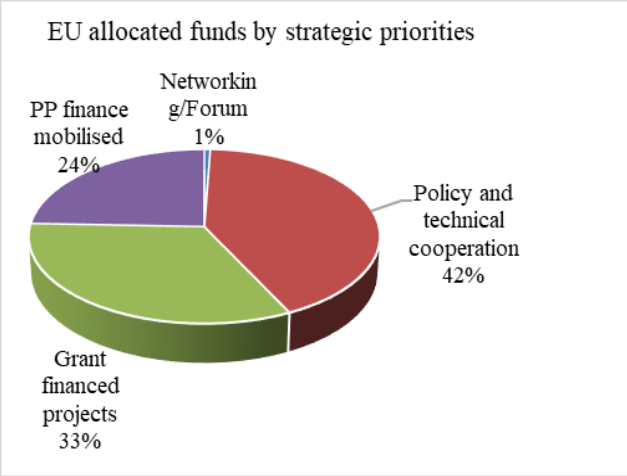
The answers to the seven evaluation questions are provided in this chapter and supplemented by Annex 2 where a summary evaluation matrix is given. The full assessment down to indicator level is given in Volume II, Annex 6.

4.1 EQ1 – strategic relevance

EQ 1 To what extent has the EU SE cooperation responded to the evolving energy needs of partners in developing countries and is aligned to the wider EU and global development agenda

The EU strategically allocated funds and the sequencing was pragmatic and adapted to the changing context of sustainable energy cooperation. EU initially focussed its sustainable energy cooperation on physical investments and project implementation, with the aim to increase energy access for the poor and stimulate "technology transfer" to demonstrate the role of energy in development. In the period 2011-2013 67% of funds were allocated to investment, mainly transmission and distribution. These projects were largely financed through the blending and the energy facility – this also reflected the fact that prior to 2013 there were very few countries with energy as a focal sector (out of the sample of eight, only two countries (i.e. Tanzania and Nigeria). In the subsequent period there was more attention paid to policy and capacity. For EU's overall SE cooperation funding between 2011 and 2016, policy and capacity (taking into account networking and technical cooperation) took 43% (see figure 4.1.1) with 57% being investment directed.

Figure 4.1.1: ***EU allocated funds by strategic priorities 2011-2016***



The sequencing situation in each country was different and some of the country specific considerations are outlined in table 4.1.

Table 4.1 Context for support in the visited countries

	Policy	**Capacity**	**Investment**	**Overall comment**
Rwanda	The budget support cuts across all three areas with indicators related to key policy issues. Less policy influence than could be expected was evident because of the political steadfastness of the Rwandan government. Capacity tended to get under prioritised and investment over-prioritised particularly in terms of generation.			The political space for change in the sequence of policy – capacity – investment was too narrow to follow a linear and theoretically optimal path. Overall the step-by-step approach of the budget support seems promising with signs of positive change in the national policy directions.
Ethiopia	Early support via TAF but in general policy support was low key and informal and influenced by the earlier presence of other donors.	Low priority and demand for capacity change made more difficult due to low absorption capacity. Support to the Ethiopian Energy Authority was timely.	Strong support to investment for conventional biogas projects – but blending type investment low due to macro-economic and institutional constraints.	A low-key approach has been selected for policy influence with some impetus given through the addition of a nationally seconded energy expert. Capacity and investment has been chosen in areas not strongly affected by the policy environment and well-matched and sequenced due to co-funding of well proven programmes (Biogass/ ENDEV) that build capacity at local level.
Zambia	EU policy support was dominated by the dynamic but also positive changes in Zambian policy environment especially on the role of the private sector. Policy support under EDF11 was timely but could have been better informed by early political economy analysis to better engage with drivers of transformational change in the dynamic context The energy facility and blending projects carried out under the EDF 10 period tended to go ahead of policy interventions taking advantage of the agility of these instruments and recognising that the EU did not have the entry point to support policy and deep institutional change.			Capacity development challenges of the private sector were recognised but too low to match sector policy goals and the EU expectations for private sector led engagement in ElectriFI. Institutional reform of the public sector was recognised as important but also subject to a complex and dynamic context which were more likely to succeed when done in parallel with investments.
Tanzania	Geographic support cuts across all three areas. Specific institutional strengthening was provided to key sector institutions such as the utility (Tanesco) but long-standing challenges and a changing political environment has to some extent undermined the support efforts. The EU was previously involved via energy facility projects and provided training for a few key institutions that have helped shape some important (renewable energy) policies.			In hindsight the early investment focus on the energy facility projects was appropriate given that they are still working and providing benefits . In hindsight for this particular situation the subsequent, sudden and unsound macro changes in the policy and regulatory framework might not have taken place with greater policy support (or it could be concluded that no matter how much policy support was given the sudden changes would have happened anyway)

	Policy	Capacity	Investment	Overall comment
Nigeria	There was limited space for policy influence and other well qualified development partners were engaged. But EU did contribute to the formulation of the Renewable Energy and Energy Efficiency Policy and the development of mini-grid regulations.	EU was also engaged in Capacity Development, supporting the emergence of a training centre (NAPTIN), as well as developing the state energy planning system.	There were few investments during the first phase of support (EDF 10). EU targeted the setting of business models for mini-grids. During the second phase, EU invested by supporting existing member states programmes/initiatives.	EU approach was reasonably well sequenced and took advantage of working with other donors who were well established. An opportunity to build capacity of the private sector was missed– one could say that investment went ahead of capacity- especially for mini-grids operators.
Liberia	Limited policy support via an energy facility project on the policy and regulatory framework	Low absorption capacity, institutional weaknesses. EU did not intervene much at the level of the utility, despite its large investment in the company asset.	Was a high priority. In 2014 energy facility projects allowed to speed up investment, while the blending projects were delayed. Investments in grid extension were also constrained by the lack of generation capacity.	EU first entered the sector within the framework of the emergency and recovery plan, with a focus on investment in emergency electricity supply. Efforts were made to address issues on a politicised energy system and weak governance, but outcomes were limited by political instability. Low success in policy and capacity environment threaten the sustainability of blending projects.
Benin	Early investment support through energy facility and blending projects (grid extension) and regional projects (transmission) in EDF 10. Within EDF 11, increased attention to the investment environment, through the RECASEB project. There was an increasing recognition that Benin's ability to make sustainable use of external investment was constrained by a low absorption capacity. In EDF 11 an increasing amount of support was directed towards institutional strengthening (with a policy component).			In EDF 10 period, there was a focus on investment via blending the energy facility. Later, once energy was a focus, EU provided more policy and capacity support but could have gone further in supporting reforms on the status of the utility to sustain investment in grid extension.
Cote D' Ivoire	Policy was not a priority area of intervention, although the TAF supported the formulation of decrees to operationalise the Electricity Law. The Zanzan project (2012) also demonstrated decentralised (off-grid community operated) energy systems, within a very centralised political and technical context. The EU also supported the Government with subsidising connection of poor households. There was not much institutional strengthening, nor capacity development support, although EU supported the Regulatory Agency.		Strong and early support to investment in grid extension and distribution, through the energy facility. Investments in grid extension remains the priority. However, ENERGOS 1&2 provide support both to capacity and investment.	EU entered the energy sector early and in a context of crisis (post-civil war). In 2007, three EF projects aimed at expanding the grid in peri-urban and rural areas, for security reasons. In a reconstruction context and an unstable political regime, there was limited space for policy and capacity development. EU supported the delivery of services, which could be argued as a pragmatic sequencing in a post crisis context. Without a stable political regime, investment in policy and capacity development could well be lost at the next election.

EU cooperation with the public sector was backed by a thorough analysis of government policies and plans – reflecting a systematic and deliberate attempt to respond and align in a well-informed way to partners' sustainable energy needs**.** All of the National Indicative Plans (NIPs) in the 17 sample countries, Regional Indicative Plans (RIP) in 4 regions, and country fiches that were assessed, reflected analysis identifying strengths and weaknesses of the sector framework as part of the rationale for the chosen intervention strategy. For instance, in Ethiopia, the country programming identified eight key issues including low participation of the private sector in energy investments. Action fiches reflected evidence of similar analysis as part of the detailed rationale for the intervention. For budget support, the sector reform contracts in Rwanda and Vietnam clearly illustrated that such analyses had been carried out. A detailed Commission methodological note on budget support and sustainable energy was available to guide the requisite sector analysis and the formulation and implementation of sector reform contracts.

For private sector-oriented cooperation, the initiative to analyse and align to national sector frameworks was less systematic and done on a project by project basis. For initiatives such as the Global Energy Efficiency and Renewable Energy Fund (GEEREF) and ElectriFi, the investors (applicants) of each project were themselves required to take responsibility for an investment decision and therefore to undertake relevant analysis of national sector frameworks to ensure compliance with relevant regulations and to make informed decisions on their risk associated with the investment (compliance was checked both by national authorities and internally within ElectriFI/GEEREF). There is not a strong documentary trail for the private sector initiatives, also given their limited history. However, it was noted that DI Frontier (one of the funds supported by GEEREF) had actively engaged in not only analysing the national sector framework but also improving it (for the case of creating bankable power purchase agreements). A related, general finding was that local private sector capacity to prepare bankable projects was weak. This was for example reflected in Zambia, where over 30 applications to ElectriFi only resulted in one application selected for due diligence.

The analyses provided through Joint Declarations and available through the EU supported networking platforms were not systematically taken advantage of in programming and implementation. Joint Declarations were generally backed up by analysis of the sector policy framework with which to align. While it was evident that significant political capital had been invested in preparing and signing the Declarations, they were generally weak in identifying the specific areas of deficiencies in the national framework that support was intended to address, and specific institutional aspects were mostly not addressed in any detail. Most Declarations mentioned indicative roadmaps, but in 7 of the 8 countries visited the roadmaps were not found. In one of these cases (Rwanda) the attempt to develop a roadmap was halted by the government itself. The absence of an agreed concrete plan for follow-up limited the possibilities for tracking the actual degree of alignment and holding parties accountable for timely action and progress. It was also found that many key stakeholders (in a few cases, even EU Delegations) were not well aware of the Declarations. This further limited their strategic relevance for subsequent programming and implementation. The services provided under the networking platform of the EU Energy Initiative Partnership Dialogue Facility, were demand-driven through the respective stakeholders (partner governments, private sector,

etc.). These platform services therefore directly addressed expressed partner needs. However, the available network platform analyses did not appear to have been used for designing EU interventions at country and regional level.

EU cooperation recognised sustainable energy as a broad enabler of economic and social development - but in many cases, there were opportunities to further mainstream energy in other sectors and focus on productive end use. In many partner countries the energy sector was dominated by a strong "sector" focus based on traditional institutional structures and an energy infrastructure/supply orientation. Over the period 2011-16, the international framework provided by SE4ALL, SDG7 and to some extent the Paris Agreement on Climate Change, increasingly provided a workable definition of sustainable energy, also at country and regional levels since these international agreements had almost universal agreement and buy-in from partner countries and development partners. In recent years there has been increasing focus on the nexus of energy, water and food security where multiple end use benefits arise. This has been facilitated by the SDGs that have illuminated the broader importance of sustainable energy in other thematic areas and sectors. For example, in designing the Rwanda budget support 2015-2021 it was found that initial discussions with national authorities focused mainly on supply of electricity. However, the Government's commitments in the framework of SE4ALL and EU policy support led to the inclusion of biomass and energy efficiency in the scope of interventions. This also had the benefit of strengthening cooperation among different public services in charge of energy and sustainable management of natural resources.

Figure 4.1.2. Examples of EU energy projects that were end use focussed; promotion of wood stoves in Ethiopia (top); energy for large-scale agriculture, Zambia (bottom)

Where EU cooperation focused on productive end use, tangible results were created (see figure 4.1.2). In Ethiopia, an example of highly beneficial results of an energy facility project was productive use of energy in the agricultural sector with solar pumping for small scale irrigation led by women farming groups. However, in many cases, EU could have made better use of such opportunities, which also required a clear identification of the end user groups and their needs for sustainable energy services. For example, while an overall objective of the Kariba Dam project in Zambia was to "increase the reliability of supply of clean energy to Zambian and Zimbabwean households and productive users", the link to productive end use was indirect. As one key stakeholder interviewed during the Zambia country visit put it "…*wish to see the EU zooming-in on end use of power*". In Ethiopia, the Tendaho Geothermal project, aiming to meet the domestic and regional demand, would also contribute to the Ethiopian economic growth by developing a new power generation capacity in the medium-term – here the link to productive end used was

also more indirect. In 2015 the Africa-EU Energy Partnership together with the Alliance for Rural Electrification published a report on The Productive Use of Energy in Africa, which provided a series of case studies and made 8 recommendations (including raising awareness, stimulating the enabling environment, engaging with local communities and supporting local capacity building, as well as adopting a systematic and market-near approach) – it is not clear how the specific follow-up has been to these recommendations.

Public-sector interventions were well-aligned where the national/regional sector framework was sound. And for most of the initiatives there is evidence of an appropriate intervention strategy when the sector framework was inadequate. For instance, as regards budget support, identified weaknesses were addressed through "supporting measures" in budget support operations and use of the Technical Assistance Facility. For the 8 countries visited, a brief overview is given of the assessment of EU alignment of public sector interventions where the national framework was sound and examples of EU's response where the framework was inadequate.

Table 4.1.1 – EU public sector interventions and the national sector framework

Country programme	Degree of alignment of EU support to a sound sector framework	Appropriate EU intervention strategy when sector framework inadequate
Benin	High, particularly for access and renewable energy	Supporting cross-border interconnection aimed at reducing reliance on diesel power plants
Cote'Ivoire	High, particularly for access and energy efficiency	Support to adoption of regulatory reforms through technical assistance and a collaborative formulation process
Ethiopia	High degree of alignment to SE4ALL action agenda embedded in national policy	Adjustment to private sector engagement in the national biogas strategy
Liberia	High degree of alignment to national energy policy	Addressed policy constraints for rural electrification through the Rural Strategy and Master
Nigeria	High degree of alignment with national energy sector reform agenda	Addressed policy constraints for off-grid systems through supporting the development of the mini-grid regulations
Rwanda	High degree of alignment of budget support to SE4ALL action agenda	TAF to develop a biomass strategy for Rwanda
Tanzania	Sector Reform Contract dialogue and the EU interventions through the project approach were well aligned with the national objectives they supported	Grants for mini-grids had significant impact in showing viable alternatives for grid extension and informing the policy dialogue
Zambia	High, for access and renewable energy	Recent support for capacity development and demonstration projects in energy efficiency

An example of a multi-country intervention: The 2012 Results Oriented Monitoring report on the multi-country Triodos project concluded that the project was well designed, and its objectives were consistent with the EU strategy, the Regional Indicative Plans and Governments' policies for rural electrification.

EU's sustainable energy interventions were coherent with the EU development and global development agenda. All interventions examined were strongly aligned to the EU Agenda for Change. Initiatives post-2011 were strongly aligned to SE4ALL (particularly its access and renewable energy goals) and initiatives from 2015 and later were strongly aligned to SDG7 and where relevant also linked to other SDGs (e.g. SDG13, climate action). For the 8 countries visited, the main focus areas for support are reflected in Table 4.1.2.

Table 4.1.2 – EU main sustainable energy focus areas in the 8 countries visited

Country programme	**Support areas – main focus**			
	Access	**Renewable energy**	**Energy efficiency**	**Areas outside SE4ALL/ SDG7**
Benin	Major	Limited	Limited	None
Cote'Ivoire	Major	Some	Some, but recent	None
Ethiopia	Major	Major	Major, but recent	None
Liberia	Major	Limited	Limited, indirect	None
Nigeria	Major	Major	Limited	Shale gas
Rwanda	Major	Major	Major	None
Tanzania	Major	Major	Major	None
Zambia	Major	Major	Limited, recent	None

Support to energy efficiency increased over the evaluation period. SE4ALL and SDG 7 have facilitated the increased awareness in partner countries of the importance of energy efficiency, but it was found to be a challenging and complex area. The thematic evaluation of the EU support to environment and climate change in third countries (2007-2013) found that while GEEREF has led to a significant leverage in investment in renewable energy, its risk capital model had not led to significant investment in energy efficiency. More recently, further advantage could perhaps have been taken of SE4ALL flagship tools such as the Global Tracking Framework and the Regulatory Indicators for Sustainable Energy, to address the status of energy efficiency and it's increasing importance - but there are several examples of EU support in this area. Energy price is an important driver energy efficiency; in Ethiopia for example, the extremely low and heavily subsidised electricity prices were a clear disincentive for energy efficiency and there was very limited data available in this area. However, EU Technical Assistance Facility (TAF) support facilitated the formulation of a National Energy Efficiency Strategy in 2015, which clearly helped paving the way for energy efficiency; many industries were interested, but the market was not ready, and there were no energy auditors. In Rwanda, high energy prices made energy efficiency of paramount importance for all sectors of the economy and EU supported the project "Energy Efficiency through Reduction of Losses in Kigali Grid Network". In Cote d'Ivoire, EU support focused on energy efficiency and several decrees were adopted to facilitate further interventions.

Interventions from 2015 and later were aligned to the implementation of the Paris Agreement on climate change to which most partner countries were signatories. While EU cooperation was aligned the climate change mitigation goals, the specific references to the Nationally Determined Contributions were more limited than might have been expected in most of the key documents examined.

4.2 EQ2 - Policy

EQ 2 To what extent have the policy dialogue and networks established led to partners adopting and implementing policy and sector reforms that create an enabling environment

Considering the overall context in 2011, EU entry in the sustainable energy cooperation arena reflected an approach that was a pragmatic combination of building relationships, raising awareness through global and regional energy dialogue, and direct investment through blending and the energy facility. During the programming period 2007-2013, EU was actively engaged in policy dialogue through the European Union Energy Initiative and the Africa-EU Energy Partnership that contributed to increased awareness and commitments to sustainable energy, both from the EU, MS and partner countries. This included priority to the enabling environment, which was consistent with EU overall development cooperation strategy to support countries in reforming the sector, so they could raise domestic and commercial finance for energy projects. However, there was recognition that in the financial period 2007- 2013 the EU had not allocated enough resources in their energy cooperation to policy and technical assistance. For the 8 sample countries[4] visited, the share of EDF geographic funds allocated to these areas increased significantly from the first programming period to the second programming period 2014-2020. Thus, within EU sustainable energy cooperation in these 8 countries, policy and TA support was increased by more than a factor of three from around 8% to 29% of EDF funds.

Policy dialogue was relevant and constructive, but in some cases lacked deeper political economy analysis to ensure that the EU engaged with the key drivers of transformation and contributed to ambitious change. For most initiatives, there is evidence of effective dialogue with partners in programming, preparation, and implementation processes aimed at strengthening the enabling environment for sustainable energy[5] solutions. The process for most of the geographic support was participatory and sought to involve partners, respond to and align to needs and demands and ensure ownership. However, the resources and time available for such partner dialogue and engagement was more limited for some of the thematic initiatives, especially for countries where energy was not a mature EU focal sector. The Joint Declarations and other supportive analyses were less than adequately specific on the political economy landscape and on undertaking a stakeholder analysis and identification of the most relevant dialogue partners. EU policy dialogue was most effective when linked to operational interventions- but in the wider context relatively unambitious in its strategic aim to bring about reform given the magnitude and potential leverage of EU support.

The EU policy agenda addressed key sustainable energy issues in partner countries and took account of support by other development partners. As also mentioned under EQ1, interventions were backed by analysis of the national policy framework. Table 4.1.2. illustrates the focus on key sustainable energy issues in the 8 countries visited. And as further discussed under EQ7, EU was proactive and initiated Development Partners coordination groups and took the lead for half of the countries reviewed (in the 8 countries visited, EU had – or until recently had - a leading role as chair of co-chair in development

[4] Zambia, Rwanda, Tanzania, Ivory Coast, Benin, Liberia, Nigeria and Ethiopia

[5] This evaluation is focused on sustainable energy – a sub-set of the broader energy sector. In a very few countries EU is also engaged in other energy solutions, e.g. gas in Nigeria through DG ENER.

partner coordination in 6: Ethiopia, Zambia, Tanzania, Cote d'Ivoire, Benin, and Nigeria (until 2016)). An example from Asia; in Vietnam, the detailed strengths, weaknesses, opportunities, threats analysis made in September 2015 for EU engagement was an example of analysis of the realistic scope for policy influence in a "crowded" field where several development partners provided support in the energy sector. The TAF report issued in October 2015 assessed Energy Policies with a specific emphasis on sub-sector policies related to renewable energy, energy efficiency, and access in rural areas as well as power market reform; the report also looked at and provided the basis for ensuring consistency with the policy messages being delivered by other development partners. This identified critical issues in the sector (such as low quality of rural electricity services, low penetration of renewable energy technologies, and the absence of structured information). These policy messages were, in turn, reflected in indicators in the budget support action document for the programme on electricity supply to rural, mountainous and island areas over the 2013 – 2020 period. However, this evaluation also finds that EU cooperation at the delegation level could have more use of knowledge products and tools from multilateral knowledge management actors in the SE4ALL architecture.

The policy messages promoted by the EU emphasized social, economic and environmental dimensions of sustainability and where relevant focused on enabling private sector participation. For example, the GEEREF Impact Methodology set out sound principles that were specified in eligibility criteria and impact criteria. The thematic evaluation of EU support to environment and climate change concluded that EU and donor partners used their position on the board of GEEREF to bring attention to the need to ensure that the projects benefit more stakeholders than just the risk capital investors and to make this a reality, the EU insisted on reporting of non-financial benefits – and GEEREF in recent years has published a detailed impact report. Another example is ElectriFi, where investments in the following areas will be prioritised: (i) improving the life of women and girls; (ii) productive uses of energy; (iii) provision of social services to the bottom of the pyramid (health, education, security, etc.); (iv) actions in the energy-water-food nexus; (v) clean mini-grids with a provision to be connected to the main grid in the future; (vi) green hybridisation of existing systems; (vii) establishment of local mini-utilities; (viii) innovative solutions in terms of organisation, financing or delivery of energy services. The Evaluation of Blending (2016) found that until end 2013, blending mechanisms had only lightly emphasized poverty-related challenges, but that this changed with the guidance framework improvements since 2014.

Key issues raised in EU policy dialogue and reform studies were addressed in national and regional enabling policy frameworks in many but not in all cases. The evaluation team's visits to 8 countries found varying degrees of evidence to support this finding: in Benin, where policy support had not yet been a major area of EU intervention, it was found that EU policy influence worked well through Sector Group coordination and technical interventions such as the 105 localities project that demonstrated the potential for grid extension to rural areas. In Cote d'Ivoire, the EU delivered demand-led and timely support to policy reforms and the enabling environment for private sector investments, and within a quick period two key decrees (PANER and PANEE) were delivered and approved. In Ethiopia, it was found that the SE4ALL rapid assessment and gap analysis supported by the EU in 2012-2013 was particularly constructive as it provided a solid base for identifying future cooperation areas and helped Ethiopia to become the second African nation to opt in to SE4ALL and lead the way to the country's

SE4ALL National Action Plan financed under EU technical assistance; Ethiopia then modified its targets that are now reflected in the 2016-2020 5-year Plan. In Nigeria, however, there was limited space for EU and other development partners to engage in wider sector dialogue because of limited interest of the Government in dialogue, and EU policy messages on sustainable energy were mainly conveyed at the programmatic level. The 2013 Independent Evaluation of four activities under the EUEI PDF found that in the case of the Burundi energy strategy and action plan, the direct policy related outputs of the activity were used although it did take two years before it finally was recognised and adopted as a national directive for the energy sector.

Network platforms supported by the EU contributed to the policy environment at the partner country, regional and global levels but not in all cases. The EU Energy Initiative Partnership Dialogue Facility (EUEI PDF) Results Report 2004-2015 showed that in most cases the services and products provided by two of its service lines, the Strategic Energy Advisory and Dialogue Services (SEADS), and the Renewable Energy Cooperation Programme, were in fact used and adopted by the partners. However, during the country visit to Zambia, no evidence was found of the contribution of network platforms to the policy environment (e.g. the EUEI PDF service line Africa-EU Energy Partnership (AEEP) organised a stakeholder dialogue in 2013, but this was not known by stakeholders interviewed by the evaluation team). In Ethiopia, the EUEI PDF service line SEADS had mixed results: the biomass energy strategy study was rated unsatisfactory, while capacity-building for off-grid rural electrification planning was rated very positive. The evaluation team's visit to Liberia found no clear contribution of the network platforms and some stakeholders interviewed noted that regional platforms were not seen as efficient in policy dialogue.

EU SE budget support policy dialogue contributed to the policy environment in partner countries. In the sample for this evaluation, there were 3 examples of budget support: Rwanda, Tanzania, and Vietnam – in these cases, it was evident that the design of interventions contributed to the policy dialogue while evidence of the contribution from the implementation phase is weaker (as in most cases not enough time has elapsed). In Rwanda, as earlier mentioned, the policy dialogue resulted in the inclusion of biomass and energy efficiency in the scope of interventions. In Tanzania, the joint evaluation of budget support (2013) found evidence of important achievements, which add up to an overall positive balance sheet. The primary contribution of Budget Support has been to assist in scaling up funding within the six priority sectors that include energy. However, while budget support supported the creation of an effective structure for dialogue, based upon the definition of policy targets and a framework of annual monitoring, comprising sector reviews and a national level policy dialogue, the contributions of the Budget Support partners to this framework have not served to generate an open, strategic and problem-focused dialogue. In addition, complementary inputs for technical assistance and capacity building have been limited and the potential wider effects of Budget Support on aid effectiveness have not been exploited. The evaluation identified policy weaknesses in energy. The evaluation team's visit to Tanzania in 2017 found that the sector policy dialogue had been recently quite difficult due to the turmoil caused by a financial scandal around a power supply contract, due to policy directives that were apparently changing quite rapidly (related to power tariff increases that were shortly after reversed, and due to the dismissing of important leaders of key institutions). However, EU delegation continued to engage in a high level of policy dialogue and when it took place, it showed

a high degree of country involvement and ownership. In Vietnam, the sector reform contract action document stated that in 2015, the Ministry of Industry and Trade (responsible for sustainable energy) had responded positively to the EU proposal to set-up an Energy Partnership Group that would serve as an official platform for energy policy dialogue and optimize donor coordination – this Group was formally launched on 19 July 2017 with the participation of more than 100 representatives from State agencies, financial institutions, non-governmental organisations and Vietnam's development partners. As illustrated by the Tanzania example, it is important to consider how factors such as opportune timing, the right entry points, and partner commitment - that are beyond the influence of a delegation – can affect the success of policy dialogue.

By virtue of the high-level signatures to Joint Declarations they contributed to strategic commitment to improving the SE policy environment, **but there is little evidence of effective follow-up to JDs.** For example, the Liberia Joint Declaration committed, on paper, the Government to constructively engage with partners in sector dialogue and facilitate frank and open exchange of information related to funding and project preparation in the sector. However, the evaluation team's visit to Liberia did not find that the Joint Declaration had contributed significantly to enabling policy and reform or had brought additional policy leverage; at operational level the engagement with the Rural and Renewable Energy Agency and the Energy Facility cross border project had more tangible influence on the policy and reform. During the country visit to Zambia, no strong evidence was found of the contribution of the Declaration of Intent signed by the EU with five member states and five other key development partners at Conference of Parties (COP22) in Marrakech but there were some indications of follow-up at the political/Ambassador level with high level government partners.

T**able 4.2.1 Overview of Joint Declarations (JDs)**

JDs	Number of JDs
Signed only by EU and the partner country	10
Signed also by one or several EU Member States (MS)	10
Signed also by other bilateral non-MS and multilateral Development Partners	2[6]
Total number of JDs signed	22[7]
Number of roadmap follow-ups prepared	2

There are examples of how policy engagement at the sub-national level has shown results but further engagement at this level may be important for sector development. The independent evaluation of four EUEI PDF activities found that in the case of the Secretariat of the Pacific Commission, the outcomes of the project on development of energy indicators and support to the regional implementation plan were being used and implemented throughout the Pacific Islands region. An indicator for sustainability was the fact that regional activities followed up on the use of the energy security indicators. A key lesson was that sustainability of EUEI PDF activities could be enhanced when successful projects were followed by the development of in-house policy and policy implementation capacity of "downstream" organisations, i.e. organisations that may have been secondary beneficiaries, but whose role in local regulation was key.

[6] One (Liberia) signed by Norway, another (Zambia) also signed by Japan, USA and World Bank.

[7] Benin, Cameroun, Cape Verde, Indian Ocean Commission, Cote d'Ivoire, Kenya, Liberia, Uganda, Zambia, Madagascar, Nigeria, Togo, Rwanda, Senegal, Sierra Leone, Tonga, Republic of Marshall Islands, Palau, Niue, Nauru, Micronesia

During the evaluation team's visit to Ethiopia, interviews with stakeholders reflected that sustainable energy might not always be a local priority (road access, water, and health often tended to take priority). This underlines the importance of policy engagement at the sub-national level, particularly in federal countries such as Ethiopia and Nigeria where regional governments have an important role in sustainable energy development, but where development partners' policy dialogue has often focused at the federal level. In Ethiopia, a positive example were efforts at sub-national level to enhance prioritisation of biomass energy programmes, which appear to have been a success.

The adoption and results of policy measures was not systematically monitored except in the case of budget support operations and the EU did not always have or use adequate tools to measure the progress and success of their policy dialogue. Apart from budget support operations, there is little evidence in routine progress and monitoring reports of how policy messages and policy related outputs communicated as part of the energy focal sector support were used in practice. The Results Oriented Monitoring report for the Technical Assistance Facility for West and Central Africa concluded that the Facility contributed to its overall objectives through its support to improving the policy and regulatory framework condition but that there was a systematic absence of quantitative indicators to measure and document this contribution. The European Parliament Committee on Budgetary Control in its Special Report (2015) on the Energy Facility support for renewable energy in East Africa noted there was room for improvement for the monitoring of the projects in the field and recommended to select projects more rigorously, strengthening project monitoring of the policy impact. In contrast, the budget support operations in Rwanda and Vietnam closely monitored adjustments in the policy framework especially (but not only) where such adjustments were related to tranche release indicators. While indicators under EU budget support cooperation were found helpful in monitoring progress and achievements in policy dialogue and policy support (e.g. Rwanda) the specific tools to monitor progress and results in these areas was challenging. Recent tools such as the EU Joint Research Centre's renewable technology mapping, the Global Tracking Framework and the Regulatory Indicators for Sustainable Energy may have been useful for EU and other development partners in this regard.

Although EU policy has remained stable, there have been many new initiatives, which puts a strain on limited EU capacity and could dilute policy impact if not fully followed-up. An example is the Joint Declarations, as discussed in the foregoing. The Africa Renewable Energy Initiative (AREI) is another example of a major new initiative. The number of initiatives placed a significant burden on the EU Delegations and cooperation programmes to catch up with and follow in their dialogue with partners. During the period there were also shifts in emphasis such as the emerging priorities on job creation and stemming irregular migration, which add to the strain on limited capacity in effective policy engagement with partners.

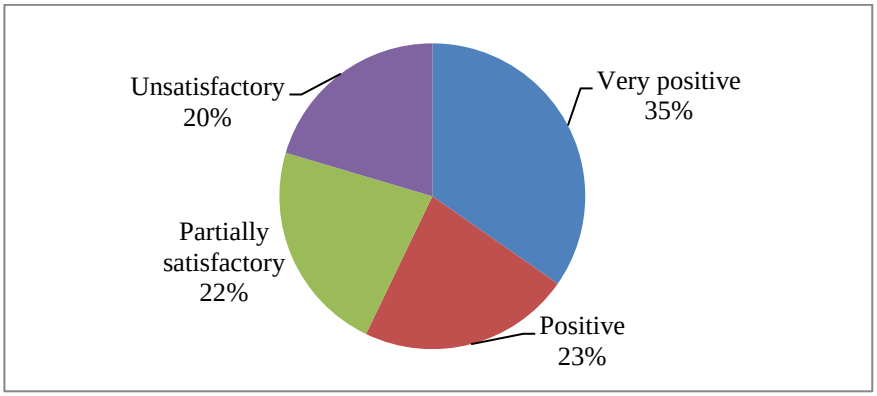
4.3 EQ3 – Technical assistance

EQ 3 To what extent have the various forms of TA interventions strengthened capacities in institutions in partner countries

The EU support to capacity development was largely demand-led and partner-owned. The geographic support, Energy Facility and EU Energy Initiative Partnership Dialogue Facility (EUEI PDF) / Africa-Europe Renewable Energy Cooperation Programme (RECP) projects analysed during desk phase and country visits indicated that the technical assistance responded to the needs and was clearly demand-led. In all eight countries visited the majority of the capacity development provided by the EU was found to be demand-led and partner owned[8]. An example is in Ethiopia where Ethiopian Energy Authority was fully involved in the drafting the TOR for a range of technical assistance interventions and was active in adjusting the outputs and changing consultancy inputs when needed. Another example was in Rwanda where the government partners did not accept the proposed allocation of large resources for capacity development to be delegated under the management of a member state cooperation agency and argued for a needs-based allocation of the capacity development envelope.

Although results were achieved by technical assistance projects they were not sufficiently result orientated. Out of a sample of 16 EUEI PDF/RECP projects analysed[9], only three did not achieve tangible outputs and for two of these projects it was noted that the outputs were achieved in a narrow sense, but the organisations that had to put the outputs into practice failed to do that. An evaluation of the services and products provided by EUEI PDF showed that they were in fact used and adopted by the partners, although 20% of the interventions were not successful with a further 22% being only partially satisfactory.

Figure 4.3.1 Degree of intended outcome achievement of the EUEI PDF/RECP projects[10].



However, for these projects and for the capacity interventions under TAF and geographic instruments an explicit results orientation was only rarely noted. In most cases, the terms of reference and design of these interventions concentrated on achievement of concrete

[8] Reference is made here to the EU Backbone Strategy on capacity development (2007): That technical assistance should be demand-led, partner owned and results orientated and clearly directed towards one of four main purposes i.e. policy and expert advice; project preparation; project implementation; capacity development.

[9] Summary of findings of EUEI PDF external project evaluations in 2013, 2014, 2015, 2016.

[10] EUEI PDF Results Report 2004-2015. Energypedia consult GmbH.

outputs (for example, the development of a strategy on biomass) but did not identify specific capacity development goals for how to adjust the strategy, update it and develop into implementation plans. The issue of "Whose capacity should be built and for what" was, generally speaking, not addressed. Neither was the capacity achieved at the end of the intervention explicitly tested or monitored. The technical assistance was held to account for achievement of concrete outputs but the joint responsibility of the trainer and learner to achieve a development capacity outcome was not sufficiently well-defined and monitored. This is not to say that capacity was not developed in individual projects and programmes but rather to point out that systematic setting of and testing of the achievement of attainable capacity goals was absent due to insufficient attention on capacity development results orientation.

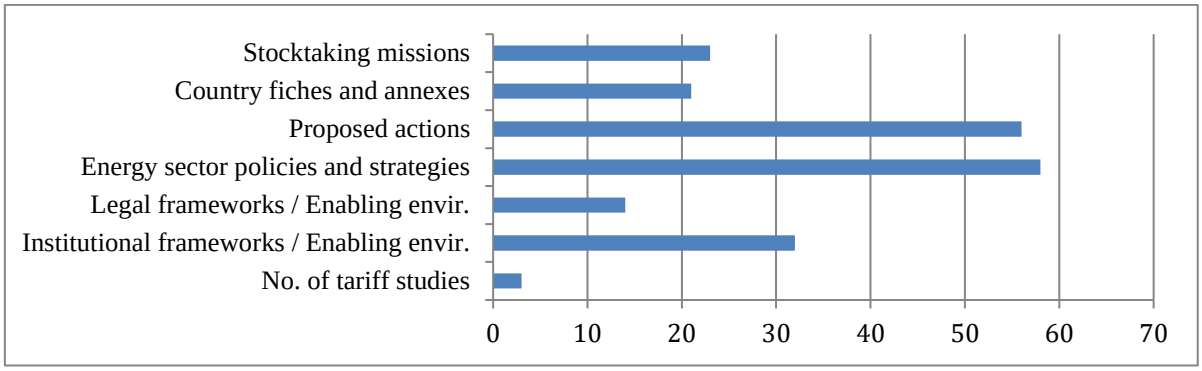
Capacity development was constrained by the low absorption capacity of partner institutions. Even though the technical assistance was professional and generally of high quality, the capacity development and skills transfer was limited. A key reason was the low absorption capacity of the government partners. In Ethiopia for example, the Ethiopian Energy authority has by some accounts a vacancy rate of over 50%. Institutional changes in the structure of Ministry of Water, Irrigation and Energy and the shift of responsibility for public-private-partnership to the Ministry of Finance and Economic Cooperation have also complicated capacity development efforts, as have the presence of many development partners that offered and provided support in similar areas.

Many of the energy facility projects attempted to build capacity within the private sector, civil society and local government but on a project-by-project basis, which did not generally lead to cumulative results. It has not proven easy to develop capacity in the local private sector as shown by the large number of projects rejected by ElectriFI and domination of external companies in GEEREF and other initiatives that engage with the private sector.

The Technical Assistance Facility responded to demand, was closely monitored and had significant value added. The TAF-Western and Central Africa has specific indicators for most activities. An impressive number of actions within each activity area were implemented (see example in figure below), and significant added value was attained. The quality of outputs of TAF-Eastern and Southern Africa was deemed as good, based on a large number of country-specific deliverables. For both TAFs, there have been individual evaluations / appraisals from the EUDs following each TAF mission, none of which have resulted in the rejection of the mission's deliverables. In around 10% of the cases, adjustments were requested by the EUD prior to the approval of the deliverables. During country visits it was indicated by the government partners in four countries (Ethiopia, Tanzania, Rwanda and Zambia) that they would appreciate an approach to technical assistance with more twinning / peer-to-peer and embedded advisers. The flexibility of TAF support was highly appreciated.

Figure 4.3.2 TAF Western and Central Africa Activity Area 1 (*one of the six*) - Initial stocktaking and establishing national energy sector policies[11].

[11] Sustainable Energy for All Initiative West and Central Africa - Sixth Progress Report, 01/07/2016 - 31/12/2016.



The TAF-Western and Central Africa monitoring found out that there was good evidence that the TA has contributed to the longer-term sustainability of institutions, projects and activities. An important contribution has also been the support provided for the creation of an enabling (legal, regulatory, etc.) environment for private sector involvement in sustainable energy projects. Implementation of policies and strategies however, requires sufficient and continuous (financial and human) resources to achieve the defined targets. Ensuring that these resources were raised and ensuring that capacity and skills were transferred to key individuals and institutions was mostly not part of the short-term advisory services offered. However, even though the TAF was more closely monitored than most forms of technical assistance, as noted earlier there was still considerable scope for improvement in results orientation and especially on the monitoring and testing of capacity attained at the end of the intervention.

The EUDs had initially some difficulties in adapting to the increasing demands of the strengthened focus on energy and they did not have the resources in terms of staff and adequate technical knowledge to appraise energy project proposals and to monitor project implementation. A number of independent evaluations and analyses[12] showed several gaps about the capacity of EUDs to deal with the increased load of energy sector related work. It was also apparent that monitoring of the EU projects was not adequate and that when some projects gave clear indications of failure, early action was not taken. The monitoring of the project "Energising Access to Sustainable Energy in Nigeria - Report date 31/12/2015" is an example where the EUD could have been more involved with the implementation and where its role should have been clearer to all. As indicated in evaluation reports there were deficiencies in the EUD monitoring of the "Rural electricity infrastructures and small-scale projects in Zambia" but the EUD has learned important lessons from these interventions that have informed subsequent interventions (EUD had now sufficiently qualified staff and made sure that partners and external consultants better understand EU rules and procedures). The evaluation of the "5 cross-border rural electrification projects in West Africa" showed that supervision should

[12] (1) ACP–EU Energy Facility support for renewable energy in East Africa. Evaluation audit Energy Facility. European Court of Auditors, 2015.
(2) Mid-Term Evaluation of the 1st Call for Proposal of the Energy Facility under the 9th EDF. Final Report. Volume I – Main Report. February 2012.
(3) Implementing the Agenda for Change. An independent analysis of the 11th EDF programming. Discussion paper. www.ecdpm.org/dp180. September 2015.
(4) The Netherlands and the European Development Fund - Principles and practices. Evaluation of Dutch involvement in EU development cooperation (1998-2012). March 2013.

be improved by the EUD either by increasing the amount of Results Oriented Monitoring missions or the direct supervision by EUD task managers. The country visits confirmed that the EUDs have had difficulties but have adapted to the situation and their staff levels have been increasing with staff of adequate technical knowledge and, even if it was not the case in the past, they were now sufficiently monitoring the implementation of projects.

The EU technical assistance has strengthened the enabling environment at sector level for key partner institutions. Four (out of fourteen) geographic support projects that provided relevant information, aimed by design at strengthening the enabling environment at sector level for key partner institutions. The Energy Facility project "Developing and Demonstrating a Rural Energy Strategy and Master Plan for Liberia has strengthened the enabling environment at sector level for key partner institutions, and another Energy Facility project (TA in support of the African Power Pools and the African Forum for Utility Regulators) has partly done that. The evidence from the 16 EUEI PDF/RECP projects externally evaluated showed that the enabling environment at sector level for key partner institutions has been strengthened. Only one of their projects showed clearly that this was not the case. The country visits of Ethiopia, Nigeria, Tanzania and Zambia confirmed the strengthening of key partner organisations.

Sustainability of capacity building of the institutions and the projects and activities that they carry out has not been assured in some technical assistance projects. Sustainability was by design and implementation addressed by many projects e.g. the above-mentioned geographic support project in Nigeria (Energising Access to Sustainable Energy) where prolonged capacity building was provided in an effort to sustain capacity that was developed. The above-mentioned project in Liberia has contributed to develop the skills of core personnel. A geographic support project in Barbados, the "Smart Renewable Energy Program for the Public Sector" showed clear deficiencies in strengthening the skills of core personnel in the targeted institutions. In the Energy Facility project (technical assistance in support of the African Power Pools and the African Forum for Utility Regulators) the sustainability of the intervention was well assured in the Western and Central Africa Power Pools regions. For the Eastern Africa Power Pool there has not been sufficient appropriation by the beneficiaries and for the Southern African Power Pool sustainability was assured in terms of capacity building, as competencies and skills of individuals have been strengthened. The monitoring report of the Energy Facility project "TRIODOS - Expanding Sustainable Energy Markets through Microfinance -Energy Enterprise partnerships" states that over 50 Rural Micro-finance Institutions and Savings and Credit Cooperative Societies were trained on energy finance and marketing in Kenya, Uganda and Tanzania. Of the 16 evaluated EUEI PDF/RECP projects 4 had problems, of varying severity, concerning sustainability. In most cases this was due to insufficient capacity of the targeted institutions to assimilate the results of the projects or by the continuous drainage of skilled personnel.

Capacity development of the private sector was not high on the agenda of the EU technical assistance. The involvement of the private sector was initially mostly carried out through the Energy Facility with more recent attention given by the RECP, Blending, GEEREF and ElectriFI mechanisms. A number of country visits showed that private sector groups were not involved or even adequately aware of EU's technical assistance activities (e.g. Tanzania). The TAF was also not convincingly providing technical assistance to the private sector, a likely consequence of the TAF being demand-driven by

government and by more immediate EUDs' needs for programming assistance. In Ethiopia for example, a flawed approach through an energy facility project of trying to develop private sector grouping individuals together into micro enterprises was, not surprisingly, unsuccessful. In contrast, in Rwanda the EUD had a sustained dialogue on energy issues with the private sector that is much appreciated by all concerned. In Nigeria there was a good example of how technical assistance could effectively support the private sector through a component under the GIZ managed "Nigerian Energy Support Programme" which engaged and provided capacity development for the private sector.

Technical assistance has supported the integration of cross-cutting issues such as gender and the incorporation of environmental and pro-poor considerations in policy reforms and project implementation, although monitoring to get evidence of results should be strengthened. Nine geographic support projects (out of fourteen for which evidence was found) and one Energy Facility project (Improving reliable access to modern energy services through solar photovoltaic systems for rural areas of the outer islands of Tuvalu) had by design incorporated gender issues. The country visits showed that gender was mostly taken into account at least in the project design. EUEI PDF/RECP had a strong focus on gender and by design and implementation took gender aspects into consideration in its projects. The EUEI PDF/RECP developed specific gender briefing notes, which targeted the different stakeholders participating and implementing their projects (own project managers, partner institutions, consultants and beneficiaries). The EUEI PDF/RECP also monitored gender impacts and several projects have shown evidence of positive impacts on the position of women.

Women in the Development of Biomass Energy Strategies: The development of Biomass Energy Strategies carried out by the EUEI PDF in Ethiopia, Mozambique, Sierra Leone and Tanzania has culminated in the revision of the existing Biomass Energy Strategy Guide. When deciding on intervention options for policy-making, potential positive or negative externalities affecting vulnerable groups such as women, were considered along with other criteria, in order to ensure informed decision-making.

Most geographic support projects took environmental considerations into account by design and by implementation due to their objectives (promoting renewable energy and energy efficiency) and the strategy and manner they carried out those objectives. Environmental Impact Assessments were performed when required and for the blending and GEEREF projects were one of the comparative advantages offered by the facilities as they tended to lead to better considered and more sustainable projects (e.g. ensuring adequate water resources for hydropower schemes). The geographic support project ENERGOS (Projet d'appui au secteur de l'énergie en Côte d'Ivoire) had as objective "Support to the environment and mitigation of climate change" and the components of the project were subject to appropriate environmental and social impact assessment studies according to the legislation in force. In Burkina Faso, a photovoltaic geographic support project[13] incorporated environmental considerations and controlled compliance during project implementation. The geographic support project "Barbados Smart Renewable Energy Programme for the Public Sector" incorporated environmental

[13] Travaux de construction de la centrale photovoltaïque de Zagtouli et équipements réseaux annexes - Rapport de contrôle et de suivi environnement/ hygiène/ sante/ sécurité de la période de mars 2017

considerations by design but failed to have proper follow-up during project implementation. Evaluations of the TAF-Western and Central Africa and TAF-Eastern and Southern Africa projects concluded that the projects strongly addressed environmental sustainability. The EUEI PDF/RECP projects incorporated environmental considerations by design and implementation either directly via support to renewable energy investment projects or indirectly via policy advice and support to business plan development, including guidance on environmental impact assessments.

The country visits indicated that most Energy Facility projects benefited disadvantaged rural populations and EUDs support for energy access activities ultimately had an impact on poverty alleviation. Some of the geographic support projects such as the biogas and wood stove programmes in Ethiopia were also directly linked to supporting the very poorest and most vulnerable populations. By contrast the budget support, blending, GEEREF and ElectriFI projects tended to support at the enabling and macro-economic development or to the private sector where the direct link to poverty was less immediate.

4.4 EQ4- Conventional grant funding for physical investments

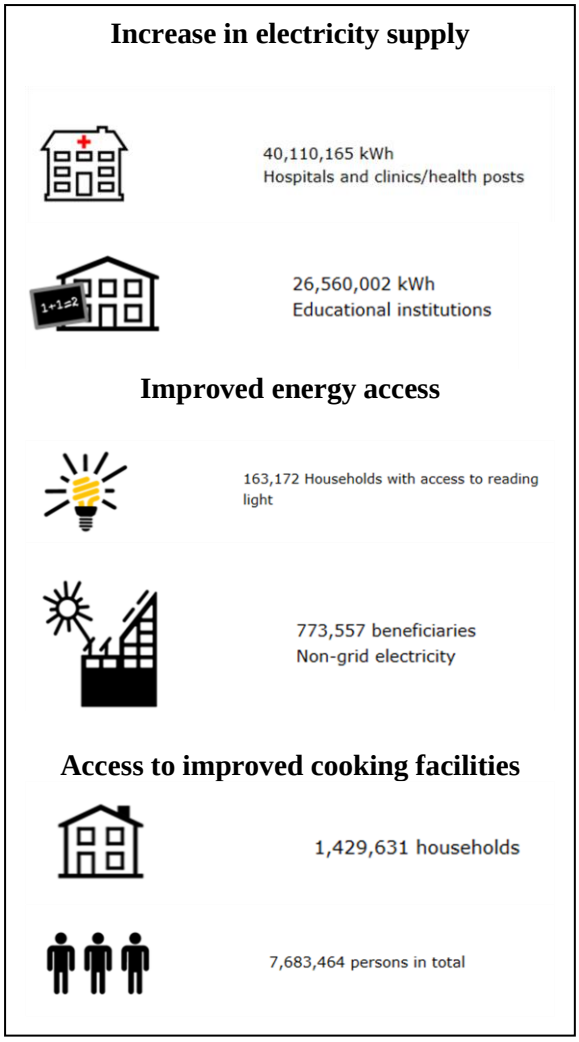
To what extent has the conventional EU funding for physical investments and related interventions contributed to achieve the sustainable energy goals

The formulation, design and implementation of the energy facility projects indicated their pro-poor nature.
Most information relevant for this EQ was found in energy facility projects. The energy facility projects were meant to promote access to modern energy services for the poor in rural and peri-urban areas, mostly in sub-Saharan Africa. The 2012 Mid-Term Evaluation of the 1st Call for Proposals of the Energy Facility under the 9th EDF reported that for a selection of 27 energy access projects in poor rural areas, more than 2.1 million beneficiaries have been provided with access to modern energy services. The energy facility "5 cross-border rural electrification projects in West Africa" were being implemented in isolated rural areas where one can assume that the majority of the people were poor. Of the other seven energy facility projects from the sample used in this evaluation, five provided strong evidence of delivering benefits for poor households, one had no indication about this and of another (Rwanda prepaid photovoltaic) doubts exist that it attained this objective. All country visits results showed that projects succeeded in connecting a large number of mostly poor households. In five geographic support projects for which relevant information was found there was evidence supporting this finding at the design level, but due to the fact these were recent projects, it was difficult to find factual information on implementation.

The projects removed, or were by design intended to remove, barriers and have demonstrated innovative technical, institutional and/or managerial alternatives.
Even though in most cases the renewable energy technologies (which accounted for 85% of the grants) or energy efficiency measures introduced were cost-effective, there were significant barriers for their implementation, for example a first-cost barrier. Many projects also have contributed to institutional and managerial arrangements that were innovative and involved risks that otherwise would have been an insurmountable barrier (e.g. the Mwenga project in Tanzania that was first in providing electricity outside of the

state monopoly). Many projects were able to attract the private sector to provide services in countries and regions that would otherwise remain without access to electricity (e.g the Mobisol and solar kiosk projects in Rwanda and Ethiopia/ Kenya/ Madagascar).

Figure 4.4.1: Highlights of Energy Facility pro-poor achievements
(Energy Facility website)



By design, replicability was taken into account, but there were few projects that provided information on whether replicability had taken place in reality. Tentatively one can say that limited replicability was achieved. Projects which were innovative in their institutional and managerial approach, such as the "5 cross-border rural electrification projects in West Africa", removed barriers and demonstrated the approaches to be used, and consequently these projects had a high potential of replicability. The mobile prepaid concept for "renting-to-own" Solar Home Systems applied in Rwanda was not new and had been used in neighbouring countries but the approach at the time of the grant was not yet fully demonstrated and had not taken root in Rwanda. It was observed in Rwanda, after the project, that other companies entered the market with the same concept and the mobile pre-paid concept is now widespread. One cannot prove a causal effect between the grant project and the new entrants in the market (without subsidies) but it is plausible and confirmed through interviews that the market concept introduced by the energy facility project was a strong factor in the replication of this approach. During the country visits evidence was not found that the large grant percentage (up to 75% of the investment costs) was necessarily a barrier for replication. One example was the Mwenga Hydropower project in Tanzania, which has been followed by an extension of the grid to other areas (partly also with EU grant funding). However, its big achievement was the establishment of the first private electricity utility in the country, which broke the monopoly of the state-owned company. This has had very important wider effects for the energy sector in Tanzania and can be considered a breakthrough progress in implementing energy sector reform.

Figure 4.4.2 Mwenga hydro power plant (source: Rift Valley Energy Ltd / EU)

There were very few projects that targeted improved cooking. In the sample analysed, there were only two projects that targeted improved cooking. However, it was assumed that people would substitute wood and charcoal with electricity (this assumption does not hold, as electricity is mostly too expensive for people to be able to afford for cooking, and most poor families cannot afford the initial costs of an electric stove, maybe only a rice cooker). In three (Ethiopia, Nigeria and Tanzania) of the eight countries visited there was evidence of EU support to biomass improved cookstoves or cooking on biogas.

Cross-cutting issues were taken into account although not in all projects. Only a small amount of sampled projects with relevant information have taken gender into account at design and also at implementation stage. Of the grant financed investment projects examined under this evaluation question only 10 had analysed gender benefits (two geographic support and eight energy facility projects) at design stage and six projects (all energy facility) of these projects had evidence of gender-related benefits being actively achieved during and after implementation. The country visits showed that gender aspects had been taken into consideration at least during planning stage. Reduction of greenhouse gasses was being achieved by the nature (renewable energy and energy efficiency) of the projects but was mostly not recorded. The projects took into account environmental impacts, and mitigation measures to deal with possible negative impacts. There was very little relevant information found in the sample and mostly was related to the design stage, but because of its nature, the projects were likely to have positive environmental impacts at the implementation stage. The guidelines of the call for proposals of the energy facility included cross-cutting issues. In those projects with a potentially large negative environmental impact, an environmental impact assessment was required, prior to the approval of the proposal.

Most projects gave attention to maintenance and operational issues and to sustainability, and also undertook skills transfer. The European Court of Auditors evaluation found that by design the energy facility projects used appropriate evaluation criteria to assess sustainability. The country visits confirmed that in most cases attention was given to operation and maintenance issues, for example by developing operation and maintenance manuals, providing skills training and seeking robust cost recovery mechanisms. The evaluation of the Energy Facility "5 cross-border rural electrification projects in West Africa" found that all the component projects, except one, were

sustainable. Three (from a total of eight for which evidence was found) other energy facility projects had strong evidence of provision of sufficient skills for operation and maintenance, for the others the evidence was more implicit. For some projects sustainability was compromised by factors the project could directly influence (such as the assumption that power tariffs would be increased and were not, or that the partner organisation would allocate sufficient budget and personnel for maintenance and this was not the case).

For the small number of projects for which evidence was found a mixed picture was given about the benefits of the project being continuously delivered after completion. This was partly because most projects were still not completed. Of the 16 energy facility projects evaluated by the European Court of Auditors, four failed to deliver the majority of their expected results and the other 12 could be expected to continue delivering benefits after completion. A further two other energy facility projects analysed, appeared to be delivering the benefits for which they were intended, whilst another energy facility project in Liberia showed that the installations were properly functioning, but the potential sustainability and the delivery of the benefits might have been compromised by the failure to establish a maintenance unit at the Ministry of Health of Liberia. An energy facility project in Ethiopia on developing small business enterprises for small solar systems and improved wood stoves distribution and manufacture failed and the EU is undertaking a recovery order to recoup some of the investment. In this case, the failure was mostly related to design and project management weaknesses and conflict related vandalism rather than inattention to operation and maintenance.

4.5 EQ5 - Innovative financial instruments

EQ 5 To what extent EU support using innovative financial instruments contributed to sustainable energy goals

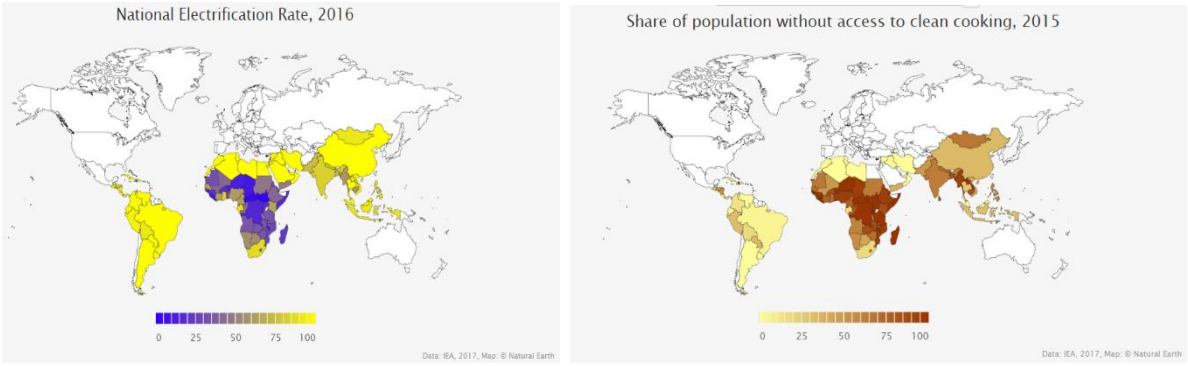
The sustainable energy investments carried out through blending and GEEREF have led to significant access and expansion of renewable energy. It is too early to verify ElectriFI results as the projects have not yet started. Table 4.5.1 provides an estimate of the number of people expected to benefit from access through the different instruments and also the additional renewable energy generated. The objectives, strategies and investment criteria of the financial instruments were clearly aimed at achieving SDG 7. The project identification, design and implementation have been professionally carried out and it is likely that the intended results will be achieved and match expectations. All the financial instruments are served by investment committees and decision boards that provide third party scrutiny and a number of projects have been refused or sent back for re-design.

Table 4.5.1 An estimate of the expected results from use of the financial instruments

Instrument	Access (million people)	Estimated proportion in Low Income countries	Proportion of funding on generation	Renewable energy generation (MW)	EU grant contribution (Euro million)	Period	Geographic coverage considered
Blending	10.1	64%	50%	7100	440	2007/16	sub saharan Africa
ElectriFI	1.3	50%	50%	50	50	first call	Global
GEEREF	4.5	25%	100%	1900	100	2012/15	Global
Note: based on documents provided by the instruments and on assumptions set out in volume 2. It is not possible to directly compare the instruments as the means of measurement is different e.g. for GEEREF the access is not counted as arising from new connections but as the number of people served at country average consumption rates by increased generation.							

Given the size of energy sector investments required to reach SDG7 targets it is clear that loans and mobilisation of private sector finance are required. The volume of grants available was simply not sufficient to meet the energy sector needs. According to the International Energy Agency (2017), annual investments of USD 32 billion will be needed to meet the goals. At the same time for many of the countries where the needs are highest (see figure 4.5.1) the enabling environment for investment in energy is challenging. The level of debt for many of the poorest countries means taking on new loans on commercial conditions is not possible. Blending enables the public sector, particularly in countries under the debt sustainability framework, to access loans on concessional terms. To a large extent they do this by bridging the gap between economic viability and financial viability and responding to special challenges in delivery of public goods. GEEREF, ElectriFI and increasingly also blending aim at mobilising private sector finance by de-risking investments and taking junior debt and equity positions.

Figure 4.5.1 Scale of the needs on access to electricity and clean cooking



Although the poor and underserved can and have been reached by the financial instruments, reaching the poor remains their greatest challenge. The objectives, strategy statements and investment/ selection criteria of the 3 innovative financial initiatives examined (GEEREF, ElectriFI, blending) explicitly aim at social development goals and improved access to energy with a focus on the unserved. In specific cases, the innovative financial initiatives have reached poor people.

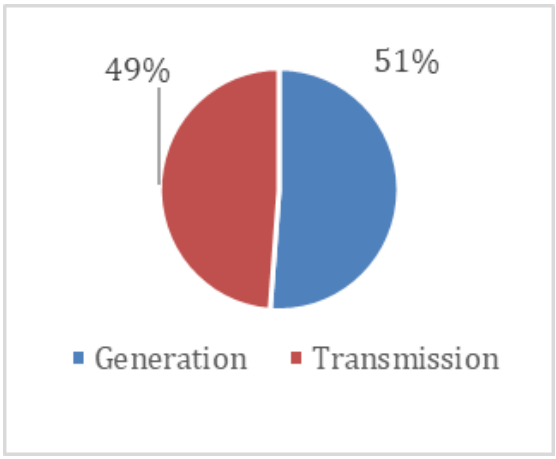
- GEEREF – The Evolution One fund in South Africa focused on ensuring services and ownership of the previously disadvantaged majority in South Africa (e.g. Red Cap wind farms in Eastern Cape where the community own 40% of the wind farm trust (80MW)). The projects developed in East Africa Uganda and Kenya by DI frontier fund (e.g Mombo and Kwira), were in relatively remote areas and although mostly connected to the national grid, ensured that local population benefitted (or will benefit) from access and also from employment during the construction and later operation phases. However, on a global scale, the four criteria set by the EU intended to sharpen the targeting on the poor were only partly met (table 4.5.2). All of the GEEREF projects involved renewable energy generation rather than transmission, distribution and/or mini grids. This tends to increase supply for those that already have access to electricity rather than bring access to new users. Improving the supply for those that already have access is still relevant as it can bring the level of service to stage where stable economic use can be made of the electricity.

Table 4.5.2 GEEREF criteria for project eligibility

Eligibility criteria	number of projects (up to end 2015)		% that met criteria
	Criteria met	Criteria not met	
ODA eligible country	48	0	100%
Off grid access	0	48	0%
under electrified region	12	36	25%
Less Developed country	9	39	19%
Source: GEEREF records			

- Blending - An earlier evaluation found that although it was not systematic, blending projects were able to reach out to poor populations with the Benin/Blending/Atlantique project being cited as particularly illustrative in that it enabled over 80 poor communities to obtain connection to the national grid. The 105 localities project (SBEE rural électrification extension – 105 localités) demonstrated that the national utility, through use of pre-paid meters, could extend the grid in unserved areas where the ability to pay was considered too low to be commercially viable. The Uganda/Blending/GetFit project is another example where the project aimed at facilitating and improving access by strengthening local grids. Approximately 50% of the energy investment financed under the Africa Infrastructure Trust fund (EU-AITF) was devoted to transmission and distribution. However, out of 43 energy projects in the EU-AITF portfolio only two were fully dedicated to developing connections for new users, the so-called last mile projects, (Uganda/Blending/rural electrification and the Kenya/Blending/last mile). Furthermore, only two projects were devoted to improving access to clean cooking.

Figure 4.5.2 Blending Projects (2007/16)



- Electrifi - It is likely that ElectriFI projects will, because of their focus on decentralised and stand-alone systems, lead to improved access by those that at present have poor or no access.

Overall, there is a tension, particularly for private sector financed projects, between ensuring viable and profitable projects and reaching out to the poor and unserved who are more expensive to reach and likely to be low consumers of energy.

The reporting on poverty, jobs and gender is inconsistent and, with some exceptions, weak. The potential poverty reducing effect of major energy infrastructure projects is not documented or referred to either in specific projects or in general terms as part of a theory of change for the projects. This effect is clearly part of the overall thinking behind the projects, which at least for the major infrastructure projects under blending are also prioritised in national and regional infrastructure planning frameworks. A systematic means of measuring how many people from poor or marginalised groups benefitted from the innovative finance projects was not in place. It is also admittedly difficult to measure this and conventional funded projects are also usually lacking a convincing monitoring of this aspect. Job creation was more strongly featured in the monitoring of the most recent projects than in the earlier projects. In general, a conservative view was taken and only direct construction and operation and maintenance related jobs were counted for GEEREF and blending. The reporting on jobs in blending projects was variable, reflecting that the new blending guidelines have only applied to projects since 2015. A systematic way for estimating the indirect or leverage effect on jobs through energy interventions was not used by the projects. Gender is targeted by the initiatives and systematically reported on in GEEREF but not as clearly reported on by blending or ElectrFI.

In many countries the use of EU's financial instruments was hampered by a weak enabling environment. In Ethiopia and Tanzania there was suspicion of the private sector that acted to suppress involvement of the private sector and optimal use of the EU's financial instruments. Even in Rwanda where the environment for private sector participation was encouraging, a weak overall sector oversight led to a situation where too much private sector engagement occurred. This in turn threatened to lead to an over capacity in generation and a short to medium term threat to those companies that had invested heavily in a future market. For all countries visited it was clear that one of the reasons for the low success rate of ElectriFI applications was that the entrepreneurs were not able to prepare solid bankable proposals.

Although the EU's financial instruments addressed special challenges they did not introduce significant technical or financial innovations. The projects financed through blending, GEEREF and ElectriFI responded, at a general level, to addressing market weaknesses and special challenges[14]. The increasing focus during the evaluation period on de-risking (e.g. ElectriFI and the returnable grant provided under the blending project for the Tendaho geothermal plant in Ethiopia) rather than providing a straightforward subsidy was found to be especially valuable. However, the GEEREF and ElectriFI projects sampled in Tanzania and Rwanda did not introduce special technical or financial

[14] As noted by the Blending Evaluation (2016, p5) the special challenges "encompass different areas that are suitable for the use of a grant: for example, technology innovation, millennium development goals, public goods and private sector finance in risky environments"

innovations. Instead, they involved a scaling up of technology and approaches, albeit with improvements, already in place in the country. It should be appreciated here that project investors would naturally prefer proven approaches rather than experimentation with innovations unless these were likely to bring very high returns.

The support was not found to be distortive although a more detailed analysis, case-by-case, was missing. Overall, the evidence from the field work and from independent sources was that the three financial instruments examined (GEEREF/ElectriFI / Blending- EU-AITF) fulfilled a needed niche and no cases were found where there was evidence of market distortion. The conditions offered by ElectriFI in particular were market reflecting and the easy route of handing out subsidies was not being taken. Nevertheless, there are concerns raised by some developers that in areas of high competition such as for developing limited hydropower sites, the presence of subsidies (from other donors) have had a distorting effect on the market by favouring those with access to the subsidies rather than those that were best at developing the project. Although no cases of market distortion were found, there was very limited documentation or analysis provided at a project level that the intervention proposed was not distortive.

The financial instruments have contributed more to implementation of policy reforms than to policy itself. The main contribution of the innovative finance initiatives was on policy implementation through capacity and institutional development rather than direct policy development. GEEREF has shown that there are opportunities where the innovative investment approach can have a special effect by working through other funds that in turn have a wider circle of influence. Particularly impressive was the enhancement of the voice of the private sector in the policy and reform debate and in the development of practical policies and procedures e.g. the development of bankable Power Purchase Agreements (PPAs) in East Africa that emerged from projects such as Uganda/GEEREF/Siti and Uganda/Blending/GetFit. Nevertheless, although the investment related initiatives can potentially support policy reforms, they are first and foremost dependent on a good enabling environment, in some cases even to get started.

The main additional benefit of the initiatives appeared to be in the quality of project preparation and development rather than access to finance or subsidy. An International Monetary Fund (IMF) study in 2015 noted that "*about 40 percent of the potential value of public investment in low-income countries is lost to inefficiencies in the investment process due to time delays, cost overruns, and inadequate maintenance. Those inefficiencies are often the result of undertrained officials, inadequate processes for assessing needs, and preparing for and evaluating bids and corruption."* Earlier evaluations of GEEREF and blending both concluded that much of the benefit of these initiatives arose from complex energy projects being professionally developed and managed. The failures and non-performance of renewable energy projects in the past often arose from poor site selection and a combination of inadequate demand projection, economic and financial analysis and project management. All of the projects examined were prepared to a high standard. Project developers noted that GEEREF and ElectriFI as providing highly valuable technical support. The high quality observed in project preparation of the EU projects ensured that the projects developed were well conceived and did not suffer from the gross inefficiencies experienced by much of the investment in low-income countries.

Across all the 3 initiatives there were systems in place for ensuring that environment and climate change assessment and reporting were undertaken. GEEREF and the regional funds that it supported were guided by EIB and in the case of funds their own environmental and climate guidelines. These guidelines reflected state of the art. ElectriFI and the IFIs involved in blending also adopted and used similar state of the art guidelines. Reporting on environment and climate change was systematic at the global facility level but also at the individual project level. GEEREF in particular provided clear reporting on the aggregated greenhouse gas emission savings across all the projects under its portfolio. This was not done to the same extent by the blending facilities or ElectriFI. The managing entities i.e. the International and Development Financial Institutions had dedicated environment and climate change professionals in place, which ensured high technical performance in adhering to guidelines.

There is insufficient oversight given the numerous facilities providing finance for energy in Africa – especially problematic when the instrument does not have a country base. There are numerous facilities aiming at providing finance for energy in Africa. Although attempts have been made at an overview there is also indication that the efforts were fragmented and did not necessarily pull together in the same direction. As many of the facilities were regional or even global and covered many countries, the country situation and needs were not easy to take into account. PowerAfrica have developed an overview of finance instruments and initiatives for energy in Africa and have identified 91 different instruments that provide debt finance/ equity/risk capital/loan guarantees/grant funding/ mezzanine funding/ insurance and others. ElectriFI and EU-AITF are noted in this list, but GEEREF is not.

Pipeline development, demand and awareness raising benefitted from long-term engagement and in-country presence for blending and GEEREF. Demand raising is the responsibility of international finance institutions and the fund managers for Blending/GEEREF. For these initiatives the pipeline development is largely decentralised to country or regional offices. In the case of lean and centralised initiatives such as ElectriFI it is more challenging to raise demand and there is a dependency on a "call for proposals" procedure. The long-term presence of the EU-AITF has been beneficial as it has become well known and respected as indicated by the recent granting of an award for best African project preparation facility.

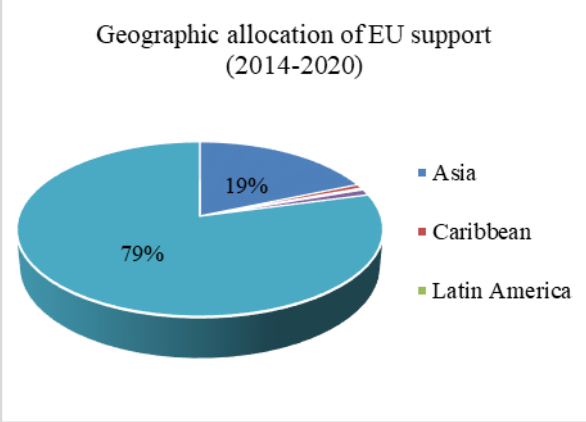
It is not easy to obtain an overview of the transaction and fund manager fee levels. An easily comparable Ongoing Charges Figure was not available to compare the full internal administrative costs of different initiatives or funds. The international and development finance institutions managing the funds have a number of sources of subsidy, which are not easily traceable. Their cost of capital and borrowing is also commercially sensitive information, which further hinders transparency.

4.6 EQ6 - Efficiency

EQ 6 To what extent were the EU resources (human and financial) allocated and used efficiently

EU support to sustainable energy was affected by geographic and operational fragmentation. Between 2011 and 2013 the EU supported more than 175 projects in around 50 countries. Although during the second financing period (2014-2016) the number of targeted countries were reduced, EU was still engaged in around 30 countries through geographic, blending and thematic support. 97% of allocated budget was directed towards low and low middle economy countries. Among the 27 countries with energy as a focal sector, half of them were fragile states and/or considered as "High Impact Countries" [15], with very few development partners engaged in the sector, and weak policy and regulatory framework. (RISE, 2016). Sub-Saharan Africa represented around 79% of allocated geographic funds, which is also the region with the highest energy deficit (see figure 4.6.1). However, the dispersion over the 20 countries supported in the Sub-Saharan region implied that the average allocated funds per country was around 90 Million Euros, while for Asia region this average reached 180 Million Euro. The geographic dispersion also meant that the EU had to engage with a wide range of different national contexts. The geographic fragmentation was also combined with a large number of different initiatives over the evaluation period (see figure 2.1).

Figure 4.6.2: Geographic allocation of EU support



Despite the geographic and operational disbursement over many initiatives, the aid mix provided flexibility and its efficiency improved overtime due to increased coordination and synergies between initiatives. There is evidence that "thematic", "African Caribbean Pacific-funded" and "regional" projects were not owned by the EU delegations during the first financing period. The EU delegations reported that they were often "*not well-informed*", as well as "*overlaps*", a "*lack of coordination between the different initiatives*", and "*limited internal resources*" (interviews with EUDs in Ivory Coast, Nigeria, and Liberia). The coordination at country level was not strong as most of the decisions were headquarter driven. However, during the second half of the evaluation period (2014-2016) the different EU initiatives/facilities were systematically programmed into the National Indicative Programmes. This created synergies between i) Policy instruments/institutional strengthening and implementation, ii) Loan and grant approaches, iii) Grid extension and off-grid to accelerate access to energy. Furthermore, the EU delegations were involved in the national indicative programme formulation[16] and therefore better prepared to manage projects (European Community, 2015). During field visits, country and development partners pointed out to the flexibility and complementarity of EU instruments. The technical assistance facility was praised for its quality, its complementarity and the flexibility of its inputs (Interviews in Benin, Zambia, Ethiopia, Liberia). This is less evident for the European Union Energy Initiative

[15] High Impact countries were defined as countries with: highest electricity access deficit, lowest electrification rate, Fragile States, and other indicators related to energy efficiency and renewable generation capacity.

[16] Instructions for the programming of the 11th European development fund and the development cooperation instrument – 2014-2020, 2017

contribution. Despite the number of studies produced and forums held, awareness on the European Union Energy Initiative remained low (Country interviews).

The challenges of working in a new and complex sector were not fully reflected in the staffing made available and the coordination of human resources. EU resources mobilization and coordination was not optimal during the earlier years under evaluation (2011-2013). EU delegations did not have the resources in terms of staff and adequate technical knowledge to appraise energy project proposals and to monitor projects' implementation (country sample 2011-2015). This is also reflected in request by EU delegations for additional staff. As a new programming period began in 2014 with many more countries taking on energy as a focal sector, the scale of demand on specialist human resources was not foreseen or taken into account, and as a result EU delegation also encountered challenges in managing the increased number of projects (Interviews DEVCO). The lack of EU human resources mobilization translated into operational challenges (e.g. for the Zanzan project in Ivory Coast, for the cross-border projects in Liberia). The appraisal of these projects did not foresee how the newly built infrastructure would be operated, and this resulted in delays and "*loss of credibility*". In other cases, such as the electrification of 105 localities in Benin, and the electrification of 16 rural areas in Ivory Coast, the lack of experienced human resources in implementing project resulted in high overrun costs.

One consequence of staffing shortage was that the EU initiatives and their respective interventions could not be systematically monitored. The energy facility, which became operational in 2005, was evaluated only once in 2012. The Court of Auditor report (2015) highlighted issues of inadequate project monitoring. With regards to the technical assistance facility it was only in 2016 that performance indicators were clearly defined. From 2014, experienced programme management staff were brought in to support the energy cooperation in many EUDs, although few were energy specialists. In some cases, e.g. Ethiopia, Nigeria and Liberia, the gap was met by nationally seconded energy experts, who were brought in. The technical assistance facility also covered part of the rising need for human resources through short-term interventions, providing training to the EU delegations as well as support to programmes/projects formulation – however the technical assistance facility could not itself substitute for inadequate resources at the EU delegations.

EU also faced coordinating issues due to lack of clarity on work division between the delegations and headquarters. The multiplicity of interventions and initiatives increased the workload of the EU delegations, adding to the pressure. The EUDs encountered difficulties in managing both activities at country and regional levels, and thematic and geographic initiatives. The programming of these interventions and initiatives through the National Indicative Programmes 2014-2020 facilitated the coordination, although EU delegations in some countries pointed out that the process was too much driven by headquarters.

Delays often related to EU procedures were one of the main causes for low efficiency. In Zambia, Liberia, Ethiopia, Benin and Ivory Coast, EU procedures were judged as a main cause of delays and inefficiency, especially with conventional grants. EU

procedures were perceived as a constraint at all stages of the project cycle. For example, energy stakeholders mentioned that they did not have the resources to apply for the energy facility call for proposal. The knowledge of EU procedures and the required documents were strong limitations to engage private and public stakeholders (Benin, Ivory Coast, Liberia). EU also spent time and resources on training local agents with their procedures.

Table 4.6.1: ***Source of efficiency by type of support***

Source of efficiency	Budget support	Conventional grant	Pooling funds - blending
Reducing direct Transaction cost			
Simplification of procedures	M	L	M
Decreased workload	M	L	M
Decreased resources spent on administration (financial)	M	L	M
Facilitate mobilisation and management of human resources	L	M	H
Reducing indirect transaction cost			
Strengthened partner capacity to deliver efficiently	H	M	M
Increased availability of funds	H	M	H
Increased predictability of funds	M	M	H
Reduced project unit cost	H	M	M

Delays were the main identified factor behind increased project costs and low project results (Country interviews in Benin, Liberia, Cote d'Ivoire), and while the efficiency varied with implementation modalities, there was no clear evidence that budget support and pooling funds between funding agencies reduced direct transaction costs. Table 4.6.1 shows the qualitative judgement on the level of transaction costs and efficiency related aspects across the eight visited countries. The analysis shows that budget support and blending were considered as the most efficient implementation modality in terms of reducing indirect transaction costs. Blending was found particularly efficient in mobilising additional finance (Blending Evaluation, 2016, Country interviews). In some cases, using a lead international finance institution led to a reduction in direct transaction costs. In Uganda, the administration and technical assistance costs of the Getfit project represented only 10% of the total project cost (Get fit annual report, 2016). This was, however, not generally demonstrated.

Overall, country partners and involved development partners did not notice that blending reduced the approval and implementation delays for large infrastructure projects. In fact, it often appeared to increase the appraisal delays due to the complex multi-International Financial Institutions coordination needed (Country interviews, Blending Evaluation, 2016). Co-financing was also confronted to challenges (e.g. alignment of procedures disbursements rules and timing, as well as tasks allocation). However, the use of delegated agreements resulted in an increased efficiency of co-financing, as it clarified responsibility and aligned procedures.

Although project partners complied with visibility requirements, the visibility of EU support was relatively low compared to other development partners. In all the projects assessed, project contractors were found compliant with the visibility contracts. All EU facilities and initiatives have a website where EU is clearly visible through signs, and flags. The description of instruments refers to EU funds and date of creation. The RECP website is highly visible and for example registered 50,000 visits in 2016. Despite all the material available the European Union Energy Initiative has a low visibility and is not recognised at country level (interviews and website statistics). At country level, the

EU delegations were engaged in making the EU energy support more visible, through public events and production of communication and outreach material. However, there was evidence that the indirect implementation modalities affected EU visibility, and that there remained a need to better communicate strategic studies, results and impacts.

4.7 EQ7 Coordination, complementarity and added value

EQ 7 To what extent were the EU interventions in SE cooperation coordinated, complementary and of added value

EU was actively engaged in policy coordination at all levels (international, national, and sector levels) and took several initiatives to ensure information exchanges and structured policy dialogue. Table 4.7.1 shows that EU, through a number of initiatives, was engaged in policy coordination on sustainable energy, involving a large diversity of entities and has reached out to all levels of energy stakeholders.

Coordination at policy level took the form of i) high level meetings and forums, ii) information and communication activities through the European Union Energy Initiative; iii) and most convincingly, joint-strategies and decisions through the engagement of partners in the governance structure of the Joint EU Africa strategy. Besides these major coordination mechanisms, EU was also involved in research, through participation on existing task forces and groups internationally, such as the International Renewable Energy Agency, and the Sustainable Energy for All initiative hub.

Structured policy dialogue initiatives had mixed results. On one hand EU policy coordination has led to alignment towards the Sustainable for All agenda and the Sustainable Development goals and has built-up trust towards its support. There was clear evidence that EU facilitation of policy dialogue has reinforced the harmonization of EU and Member States messages towards sustainable energy cooperation. It enabled the definition of a common position, which led at country level to EU and Member States being perceived as "*speaking with one voice*". Joint-events for the climate diplomacy reinforced this perception, for example multiple events at country level were organized to present a joint position. In Rwanda, a joint statement for the Green Diplomacy Day was formulated in 2015, in Zambia "*the European Union and EU Member States organized the COP21 Coalition Building*". According to the African European Energy Partnership report (2016) policy dialogue also led to the setting of political priorities, shared goals and increased financial commitments to the energy sector. EU was presented in the African European Energy Partnership reports (2016) as an "honest broker". During the field visits, local energy stakeholders also emphasized their trust in EU as a "*neutral*" and "*reliable*" development partner (as confirmed in interviews in Ethiopia, Liberia, Ivory Coast, Zambia, Nigeria, Benin).

Table 4.7.2: Overview of coordination mechanisms

		SGIEC[1]	AEEP[2]	EUEI-IAGE[3]	DPCG[4]	ESWG[5]
Type	International forum		●	●		
	Policy	●	●	●	●	
	Operational coordination				●	●
Members	European Community		●	●		
	EU Delegations	-			●	●
	Member States	●	●	●	●	●
	African Caribbean Pacific Partners		●	●	●	●
	European Investment Bank	-		●		
	European External Action Services	●	●	●	●	●
	Other Development Partners	-	●	●	●	●
Representation	Ministerial	●	●			
	Executive	●	●	●	●	●
	Technical		●	●	●	●
	Financial		●	●	●	●
	Public		●	●	●	●
	Private		●			●
Purpose	Informative		●	●	●	●
	Consultative	●	●	●	●	●
	Decision-making	●	●	●		
	Implementing				●	●
	Monitoring		●		●	●
Regular/Frequent meetings			●	●	●	●

[1] Strategic Group for International Energy Cooperation
[2] African European Energy Partnership
[3] European Union Energy Initiative Informal Advisory Group on Energy
[4] Development Partner Coordination Group
[5] Energy Sector Working Group

On the other hand, EU has not always succeeded in positioning itself as an influential policy actor at country level. While partners recognized that the Joint Declarations, for example, contributed to sharing common goals and aligning positions, they were also presented as a "*one-time event*". Furthermore, EU policy influence was not felt strongly at country level, compared to the level of efforts put into the policy dialogue and the volume of grants. In facilitating policy coordination, EU could have positioned itself more clearly in order to influence the political priorities of partners where they were not in line with the Sustainable Energy for All agenda. The African Development Bank in Nigeria mentioned "*EU is expected as a counterweight in the political arena. It could carry a strong message regrouping Member States and sharing its regional experience in the energy transition*". In Benin and Cote d'Ivoire energy stakeholders also pointed out the missing voice of the EU with regards to influencing large coal and diesel national and regional projects in pipeline in West Africa. In most of the countries visited the outputs of coordination in terms of policy dialogue has been limited because of the level of influence targeted by EU coordination initiatives. There was strong indication that EU approached policy dialogue at an operational level rather than through diplomatic channels. A few delegations raised the question whether "*energy was a priority*", despite the scale of financial commitments.

EU involvement and contribution to operational coordination (i.e. development partner groups at country level) strengthened cooperation in the sector. EU has been

actively engaged in operational coordination at country level. As for coordination at policy level, EU was proactive and initiated Development Partners coordination groups and took the lead for half of the countries reviewed. EUDs participated regularly at development partner coordination group meetings and energy sector working groups when they existed.

The EU leadership of coordination groups is appreciated by other development and national partners and they can point to concrete benefits. The annual sector reviews were, for example, used by development partners entering the sector, such as the Millennium Challenge Corporation in Benin, or the Swedish Embassy in Liberia. In Liberia, this coordination between the EU delegation and Sweden led to a strategic thinking of their comparative advantages in supporting the sector. While EU has a large envelope to address the sector needs, the Swedish Embassy could allocate funds to the transport sector and facilitate investments in transmission and distribution lines in areas not yet easily reachable by road. Furthermore, the EU could benefit from the Swedish Embassy experience with supporting Small and Medium Enterprises (SMEs) and private sector development, as they were involved in managing and implementing Power Africa initiatives in Tanzania and other countries. The European Union Energy Initiative platform and the Technical Assistance Facility also assisted with coordination at country level through strategic studies such as energy plans, strategies and sector overview, which provided a framework for donor coordination. The European Union Energy Initiative mid-term review found for example that "*The Biomass Energy Strategy (BEST) development for Mozambique was a good example of activity helping to create a platform for donor coordination and for (future) harmonization in the biomass sector."* Furthermore, increased cooperation was evident from the number of co-financing agreements. Among 33 projects from the sample (excluding studies, and policy dialogue activities) at least 15 of them were co-financed. Finally, the European Union delegations pointed to direct benefits from coordination mechanisms and engagement, such as: i) the strengthening of policy dialogue such as in Liberia and Nigeria, ii) the strengthening of EU position in the energy sector such as in Benin, Liberia, and Zambia; and iii) the strengthening of national institutions such as in Benin.

Although a detailed analysis of EU and Member States complementarity was missing in the programming documents, increased coordination at policy and operational levels resulted in strong complementarity between EU and Member States. The EU published a tool kit for the implementation of complementarity and division of labour (2009). The review of programming documents for the sample, show that the recommended steps were not systematically implemented. For example, donor matrix and Member States project mapping were not systematically available, and information provided was not consistent. Joint-programming is still at a nascent stage, and although it would be likely to be time-consuming, the EU support to energy would benefit from it as it would enhance synergies and efficiency. Co-financing was found in eight out of eight countries, cases of simple division of labour were identified in four countries out of eight countries; and cases of delegated agreements were found in two countries out of eight countries (i.e. delegated cooperation of the Energising Access to Sustainable Energy to the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in Nigeria, and delegated cooperation of the Energising Development project to GIZ).

EU has addressed the energy "*orphan gap*"[17], but there is still a need to better manage the division of labour. Sustainable energy is a focal sector in 12 out of 36 fragile states (OECD list, 2012), and EU was also involved in countries where the electrification rates were the lowest (between 5-30%), and where few developments partners had been engaged (OECD data). However, EU's engagement in Nigeria, Tanzania, Zambia, Philippines and Vietnam could be questioned considering the number of other development partners engaged in the sector. In Nigeria, EU has mainly been engaged as a support to scale-up existing Member States programmes and initiatives. Although, the analysis of the sector in Cote d'Ivoire tends to support the value added of EU's engagement in the energy sector a country evaluation team, currently evaluating the EU support to Cote d'Ivoire, questioned EU's entry in the sector considering the need and lack of development partners in the health sector (Country Evaluation, Cote d'Ivoire, 2017).

EU support has added value by improving coordination and through the scale of its support. The EU cooperation is guided by a common political agenda embracing at least half of EU Member States as noted above. Coordination of EU and Member States efforts, in large part initiated by the EU, leveraged political and financial commitment (EUEI, 2015, AEEP, 2016, EU 2016). In Rwanda, Zambia, Benin and Liberia, the financial resources mobilized were of a scale that went beyond the reach of individual Member States. In Zambia, EU intervention for example represented 50% of expected DPs contribution to the sector. Furthermore, EU through its co-financing "*scaled-up*" and "*made possible*" some Members States initiatives and innovation (Member States interviews in Nigeria, Liberia and Cote d'Ivoire). In Cote d'Ivoire and Benin, the EU grant to the Agence Francaise de Developpement and the European Investment Bank distribution projects ensured access to the poorest, through a subsidy mechanism to connection. EU intervention also resulted in greater availability of skills through network development and joint-implementation (EUEI, 2015, Member State interviews in Liberia and Cote d'Ivoire).

EU initiatives added value to global sustainable energy cooperation. As pioneer initiatives, the blending and the Global Energy Efficiency and Renewable Energy Fund filled a gap in sustainable energy cooperation: "*Only the Infrastructure Trust Fund provided interest rate subsidies; the other regional investment facilities did not, even though this was permitted by their regulatory and contractual framework*." (Court of Auditors Report, 2014). The spread of the energy facility projects (173 projects in ACP countries), the efficiency of blending (EU, 2016, Court of Auditors, 2014), as well as the sustainability of the Global Energy Efficiency and Renewable Energy Fund projects (GEEREF 2015 and 2015), added value in scaling-up results and impacts of EU sustainable energy cooperation.

The potential added-value of EU interventions at country level and through the global and regional EU initiatives were not systematically addressed in the programming documents. The review of EU documents for the sample projects show

[17] The orphan gap refers to geographical gaps in aid distribution, where Official Development Assistance fragmentation lead to an "accumulation of providers in some countries – so called "darlings" – and ***gaps*** in aid provision in others – commonly known as "***orphans***"". (OECD),

that the added-value is most of the time not mentioned in the NIPs and actions documents. The concept is not well defined and most of the time only considered through aspects of EU complementarity with Member States. The attempt to define and evaluate the added-value was only clearly found in the blending and the Global Energy Efficiency and Renewable Energy Fund related-documents.

5. Conclusions and recommendations

5.1 Overall Conclusion

Overall conclusion (1) - The EU's sustainable energy cooperation was well-conceived and has led to results that have improved the policy environment and increased capacity and prospects for sustainability. The investments through grants and blending operations have generally created and where still ongoing likely to lead to the desired results. Through the ongoing programmes, access to clean energy is being improved and the share of renewable energy is increasing and, in some countries, improvements are also underway within energy efficiency.

5.1.1 Context and conclusions related to strategic relevance of the EU's cooperation in sustainable energy

The EU's Agenda for Change in 2011 and the advent of the SDGs with their strong focus on energy led to a rapid increase in the scope and intensity of the EU cooperation within sustainable energy. Until 2013, there were only a few countries where energy was a focal sector of cooperation. The EU's energy cooperation was dominated by regional and thematic interventions such as EU Energy Initiative and Energy Facility and later by the blending operations mainly through the Infrastructure Trust Fund managed by the EIB. Country level cooperation started in earnest from 2014 with the new programming period where energy was chosen as a focal sector in over 30 countries. The thematic and investment initiatives created goodwill and provided some entry points for the country level cooperation. But they were not sufficient to develop a basis for a later coherent country level cooperation or to create capacity within EU delegations to engage with national partners. The SDGs and an increasing focus on climate change and economic growth led to a crowded field for development cooperation in sustainable energy and a proliferation of donor-led initiatives. A crowded field for energy cooperation globally and in some of the partner countries, a short history of engagement in the sector at country level, pressure for rapid disbursement, tension on how to combine serve growth and poverty objectives and country level partners that had limited capacity to absorb support, led to a complex environment for accelerating sustainable energy cooperation. In this context the conclusions related to the strategic relevance of the EU's cooperation in sustainable energy are:

Conclusion (2) Alignment - The EU's sustainable energy cooperation was partner owned and well-aligned to national, global and EU policies. The EU's cooperation with the public sector was backed up by thorough country and regional analysis of government policies, strategies and plans. Public sector interventions were well aligned where the national/regional sector framework was sound and a need for radical change was not indicated. The response of the EU cooperation in areas where the sector framework was not functioning well, or where reforms were sorely needed, was constructive and generally appropriate. The EU support was also relatively unambitious in its aim to bring about reform – to some extent influenced by the complex cooperation environment noted above. In some cases, a low-key approach was deliberate such as in

Rwanda, Nigeria and Ethiopia as it was judged, due to the political situation and the overall credibility and leverage of the EU support, that more results would come about from a constructive, step-by-step approach than from a confrontational one.

What can be clearly concluded is that the EU's programme of sustainable energy cooperation was highly participative, and government ownership of the programme was evident. As noted above, the strong alignment and close partnerships established were to some extent at the cost of taking a more active change agent and reform role at country level. It is interesting to note that at regional level the cooperation with the West African Power Pool led to strong regional ownership with evidence of significant influence over national positions. The African Power Pool master plan was used at country level to prioritise projects, and at policy level the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) was supporting country partner in formulating and implementing their renewable energy law. In part this might be because the EU cooperation was well aligned to the raison d'etre and the incentive environment for regional organisations.

It can also be concluded that the EU's sustainable energy cooperation was fully in line with EU and global policies although more use could have been made of SE4ALL tools. The country visits found that the EUD sought out specialist energy sector advice from a variety of sources and networks; however, generally in more use could have been made at the delegation level of knowledge products and tools from multilateral knowledge management actors in the SE4ALL architecture. For instance, the Multi-Tier Framework for defining energy access (MTF, launched in 2015) and the Global Tracking Framework for SE4ALL (GTF, launched in 2013) can be useful for defining objectives and the regulatory indicators for sustainable energy (RISE, launched in 2014) is a set of indicators to help compare national policy and regulatory frameworks for sustainable energy that can be useful for identifying priority areas for sustainable energy cooperation. . The EC's science and knowledge service – the Joint Research Centre (JRC) - has mapped the different interests in energy technology-related research across Africa in a bid to help countries and regions develop collaborations and help policy makers define action plans e.g. showing which renewable technologies are most relevant in which areas. Such information could have supported informed decision making both by the EU delegation and regional and national partners.

Conclusion (3) Niche - The EU took a lead in establishing a strong coordination and added value to member state efforts. In all countries visited, the cooperation had well-chosen and strategic interventions although a clear niche in sustainable energy cooperation was not yet achieved in all countries. Within the global arena of sustainable energy, EU has facilitated a greater joint effort of the EU and Member States around a common agenda. The European Union's sustainable energy cooperation was guided by a common political agenda embracing a large part of EU Member States (i.e. Sustainable energy for all and Climate Change). This was realized through EU commitment to continue policy dialogue and the setting-up of strategic partnerships at continental level, involving member states. The scale of allocated funds also added value to the general contribution of the Member States, and between 2010 and 2014 EU and Member States were the largest donor in energy development cooperation. At operational level EU interventions and initiatives have added value in closing financial gaps and has supported the emergence and/or scaled-up Member States programmes/projects. As

pioneer initiatives, the blending and GEEREF filled a gap in financing sustainable energy projects. The geographic spread and the number of interventions have added value in scaling-up impacts towards the realization of the sustainable energy for all agenda.

In all the countries visited the EU responded to the contextual and programming challenges noted earlier by ensuring a close coordination with other donors and especially member states. This allowed the EU to benefit from earlier cooperation and experience and provided an early overview of sector challenges. The Technical Assistance Facility was extensively used to undertake sector and other preparatory studies in order to inform programming and later identification and formulation phases. EU coordination role has relevance in a wider global context. Deeper coordination with some international development partners could have improved synergies for example on how to treat fossil fuel subsidies.

In all the eight countries visited, the EU's programme of sustainable energy cooperation had elements of well-chosen and strategic interventions e.g. the Kigali loss reduction project in Rwanda or the support to the second phase of the National Biogas Programme in Ethiopia. Whilst different components of support had a sound rationale, a cumulative and strategic approach that supported firm policy directions and reform was not strongly evident. The support packages were, in a number of countries, fragmented over a variety of areas. The scale of the EU financial resources available and their relative flexibility was not exploited to the full. The short time available for programming, the domination of other donors with long engagement in the energy sector (such as Power Africa, the World Bank and others) made it difficult for the EU to put together a coherent and strongly positioned package of cooperation. Some, but not all the EUDs were able to take advantage of the presence of financial instruments and thematic interventions that could have supported the development of a stronger niche.

Conclusion (4) End use - Where the EU sustainable energy cooperation focussed on the end use of energy there were impressive results but often the link to end-use was weak. An example of effective end use in the EU energy cooperation was the introduction of solar powered irrigation pumps in an Energy Facility financed project in Ethiopia or electrification of high potential agricultural areas Zambia where commercial cattle rearing, and irrigation was able to take place and jobs were created. An example of energy cooperation that had strong development links was the access to cleaner cooking technologies provided through a number of different EU supported projects and programmes in Ethiopia. These and other similar interventions in Liberia and elsewhere clearly had effects in reducing the burden of firewood collection and the reduction, but far from the elimination of indoor air pollution.

However, in many cases the EU cooperation was focussed on delivery of electricity and energy services without a clear enough link to a productive end use. Many countries have increased their energy generation and developed transmission lines without (affordable) connection to the population and/or support to development in other sectors that had a potential use for productive energy use i.e. a link between enterprise development and the availability of energy or introducing mechanisms to make connections and the purchase of electrical appliances affordable. While the EU recognised sustainable energy as a broad enabler of social and economic development, the cooperation often fell short of exploiting the opportunities for energy to act as an enabling factor for other sectors such as

agriculture, water, education and health – where schools and health clinics were prioritised such as in some of the energy facility projects in Zambia, the results were promising. Energy sector cooperation did not take sufficient advantage of linking energy developments to the nexus of energy use. The impact assumption that provision of improved energy would lead to improvements in welfare, growth and employment was not tested. An example is in Cote D'Ivoire and Liberia where energy projects in fragile and conflict affected situations were not sufficiently linked to governance, peace and stability interventions to achieve a potentially much wider development effect. It must be recognised here that the overall development situation is highly complex, and it would not have been possible for the EU to intervene in all sectors. The approach that the EU took in aligning with the national partners and harmonising with other development partners is the best long-term strategy in this regard but in practice it did not fully succeed and was not easy to implement in all cases.

Many of the energy programmes that reached out to the poorest and most remote areas provided access via solar home systems and in some cases as last mile connections to the grid. However, the level of the service and especially its reliability means that very little if any productive use was or could be made of the electricity. The main benefits were of a social nature and the absence of connection-fee mechanisms to ensure poor people's access was sometimes an obstacle to giving access to those most in need – even though in many cases they were spending more on batteries, candles and kerosene than the cost of the tariff and connection fee. In some cases, electricity for social purposes were provided in a context where the need for lighting might well have been less than the need for improvements in health, agriculture, water, sanitation and other areas.

An over focus on reaching energy access targets tended to lead to access to energy becoming a short-term end in itself, rather than a means to many ends.

Conclusion (5) Mainstreaming - The EU's sustainable energy cooperation integrated environment, climate change and gender issues. The EU cooperation integrated environment and climate change. Across all the interventions supported by the EU there were systems in place for ensuring that environment and climate change were integrated. Particularly for the large investment projects, high quality environmental and climate change assessments were carried out and in many cases were a major source of value added for the project developers as they ensured that the designs were robust and likely to yield sustainable results. Apart from the biogas and cooking projects there was relatively little attention given to energy efficiency, as the "first fuel", at least in Africa. There was a significant project in Rwanda that focussed on efficiency savings in the main transmission ring around Kigali. And, the support to Vietnam programmed a considerable element of energy efficiency. Only in Rwanda was a strategic environmental assessment carried out in the energy sector. For many of the cooking stove and biogas projects observed in Ethiopia and elsewhere, attention was paid to reducing but was far from successful in eliminating the level of smoke in households.

The contribution and reporting on gender was also good but mixed between the initiatives. The Energy Facility, GEEREF and RECP report systematically on gender but blending and ElectriFI projects and many of the geographic support projects were less systematic in their reporting although the design of individual interventions were often innovative in terms of gender. The EC Methodological Note on Budget Support in Sustainable Energy

and its 81 guiding questions reflected sound policy messages that pay attention to both environment/climate change as well as gender.

Conclusion (6) – The focus given to promoting private sector engagement in the sector was well conceived but was hampered by the enabling environment, capacity constraints and support that did not match with local private sector capacity. The EU cooperation on sustainable energy increasingly recognised and supported the private sector as an important agent of change. There were attempts through the Energy Facility to support the private sector e.g. through the Mobisol project in Rwanda and the PowerKiosks project in Ethiopia, however the Energy Facility modality was not found suitable. The procedures that govern the grant agreements were not agile enough to follow the rapid changes in the technology and market for solar products which caused frustration and obstacles for the EU Delegations and the private companies involved alike. The new financial instruments such as ElectriFI and GEEREF and to some extent blending were focussed on engaging the private sector but it has not proven easy to build the capacity of the small-scale national private sector. Most, if not all, of the private sector entrepreneurs supported were either foreign subsidiaries or well-connected diaspora. The capacity of the local private sector was overestimated as shown by the relatively low quality of the responses and low selection rate of the ElectriFI applications. In some countries such as Tanzania and Ethiopia the enabling environment for the private sector was found difficult if not hostile. Even in a country that is well-disposed to the private sector such as Rwanda, a weak sector oversight led to a situation where an over capacity in generation has occurred and threatens to undermine private sector confidence in the sector.

There was insufficient attention given to the capacity of the private sector and the enabling environment to realistically expect the private sector to respond to the EU's support and financial instruments, as strongly as hoped for. The minimum size of projects and the complexity of the support on offer appeared to be beyond the local private sector – implying that alternative, easier to access, support modalities and channels such as use of micro-financing options could have had a greater or at least more rapid impact. Where the cooperation has worked with private sector associations, the results have been promising. Examples include the engagement of EU Delegation in Rwanda with the Energy Private Developers, or through RECP or through the engagement between DI Frontier (a GEEREF fund) and the association of energy SMEs in East Africa, which promoted the use of standard Power Purchase Agreements.

5.1.2 Context and conclusions related to results in policy, capacity and investment

As noted earlier, prior to 2013, much of the energy cooperation was related to investment through blending operations and the energy facility – energy was not commonly a focal sector and the entry point for policy and institutional strengthening was limited. Moreover, the delegations were not equipped with the relevant energy sector experience and skills. Some countries such as Liberia and Cote D'Ivoire were under reconstruction and emergency investments were often made, for good reason, even if they were in advance of a suitable policy and institutional environment. Some policy and capacity interventions were made, such as under EUEI and other headquarters-based initiatives,

however they mostly made regional or global contributions rather than specific and sustained country level contributions.

As energy became a focal sector in many more countries in the 2014 planning period, there was an opportunity to contribute to reforms and capacity in a way that could ensure a better enabling environment for physical investment. However, the sequencing of policy, capacity and investment was also influenced by other factors. The EU was often a relatively recent partner in sustainable energy cooperation and needed to gain the credibility that comes with contributing to and aligning with the partner's targets for physical investment before advocating for unpopular reforms. There was also pressure from all sides for early disbursement. The situation was different for each country as noted in the main report.

In this context the conclusions related to the strategic relevance of the EU's cooperation in sustainable energy are:

Conclusion (7) Policy – policy dialogue was closely linked to operational interventions and was in many cases successful – but there were opportunities for stronger engagement at strategic level in some countries. In general even where policy dialogue has been successful there are still risks that implementation will be weak given weak political and institutional environments. The EU policy agenda addressed key sustainable energy issues in partner countries and took account of support by other development partners. EU promoted sound policy messages that also emphasized social, economic and environmental dimensions of sustainability and, where relevant focused on enabling private sector participation. And perhaps not surprisingly, policy dialogue was most effective and impactful when closely linked to operational interventions. Coupled with EUs often increasingly strong role in coordination of energy sector development partners, this gave EU influence but often not in par with its weight in terms of the volume of cooperation. In some countries for instance Zambia, some stakeholders interviewed saw opportunities for a stronger EU engagement in policy dialogue at strategic level. In particular the convening power of the EU although engaged through the donor cooperation mechanism could have been exploited more. A more conscious and deliberate sequencing of policy dialogue and the preparation and disbursement to major projects could have added to the policy leverage and outcomes.

The cooperation and related policy dialogue could often have benefited from deeper political economy analyses, in order to ensure that EU engaged with key drivers of transformational change in partner countries. This was particularly important considering the rapid development in sustainable energy solutions that in many cases changed the national/sector institutional framework, increasingly involved non-sector authorities such as ministries of finance and brought in private sector stakeholders and the need for structured dialogue with the private sector.

Much political capital was invested in Joint Declarations, but the policy reform potential of these declarations was not achieved. The follow-up was weak and action plans either not made or not implemented. Sector budget support indicators were relevant in monitoring progress in related policy dialogue. Neither the EU nor more generally other development partners had adequate tools for measuring the progress and success of their energy policy and reform dialogue and related interventions. The opportunity to develop

the Joint Declarations into joint tools for monitoring and measuring progress in policy and reforms was not capitalised on.

Conclusion (8) Capacity – EU capacity development technical assistance was demand-led and professionally delivered but the creation of lasting institutional results was still challenging especially in weak policy environments. Most technical assistance provided was responsive to needs and demand-led whether provided through projects, special initiatives such as the Renewable Energy Cooperation Programme or through the Technical Assistance Facility. The Technical Assistance Facility, which was one of the main means of delivery capacity, generally responded to the demands of the terms of reference of each assignment, delivered the training and products specified and where relevant monitored results against indicators. However, in some cases, the partner ownership of the technical assistance was problematic when it involved reform efforts that were not popular or fully owned by the government. A good example of ownership arising from strong institutional leadership was in Ethiopia where the technical assistance facility was sufficiently flexible to allow the Ethiopian Energy Authority to adjust the delivery of technical assistance to suit changing needs and to change consultants when needed. But in general, the most common reason for limited ownership of the capacity development efforts was the lack of capacity of partners to absorb the implemented activities (due to budget limitations, lack of staff, lack of sufficiently qualified staff, etc.).

The capacity development was not sufficiently results-orientated – inputs were provided and verified, in most cases outputs delivered and verified but the outcomes were not subject to measurement or verification. Capacity activities such as training, workshops and studying were carried out and at least on the short-term contributed to strengthen capacities in institutions in the partner countries. However, this was often done without a check that the capacity had actually been built up and that the trainees were then able to undertake new tasks themselves (also, because the TOR for activities such as studies and policy and strategy development support, mostly did not specify capacity building outputs). Nor was there sufficient attention paid to sustaining in-country and continuous delivery of on-the-job training so that external support was not constantly needed.

Although capacity development interventions were flexible and provided high quality services – an opportunity was lost to make use of a wider range of capacity development approaches (institutional twinning/peer-to-peer, embedded advisers) or engage with European research and development. On reflection, some government partners in particular called for institutional twinning/ peer-to-peer and embedded advisers who could have provided longer-term support but at the time these options were not requested or considered.

The technical assistance, even when working closely with the efforts of other donors, has not yet led to widespread strengthening of core institutional performance particularly in the public sector. For most cases, this represents a long-term ambition and in most instances the EU support has not been available long enough and some of the pre-requisites such as strong leadership and improvements in civil service conditions are not yet in place.

Capacity development of the private sector was not a high priority of the EU technical assistance. The involvement of the private sector was formerly through the energy facility

with more recent attention given by the RECP, Blending, GEEREF and ElectriFI mechanisms – but these initiatives did not have a strong focus on capacity development, rather they worked with an implicit assumption that the capacity was in place and it was mostly the risk perception that was the main barrier. A number of country visits showed that private sector groups were not involved or even adequately aware of EU's technical assistance activities (e.g. Tanzania). What was on offer to the private sector from the EU's cooperation in sustainable energy did not match the level of capacity of the private sector in the partner countries.

Technical assistance supported the integration of cross-cutting issues such as gender and the incorporation of environmental and pro-poor considerations in policy reforms and project implementation, although monitoring to get evidence of results should be strengthened.

Conclusion (9) Conventional grant funding - the physical investments and related interventions were pro-poor and successful in creating access but less successful in creating conditions for replication. Almost all projects evaluated were pro-poor by design with very few exceptions. However, given that the majority of the poor rely on biomass relatively few projects targeted improved cooking. An exception was the energy cooperation in Ethiopia where large contributions were made to biomass/biogas programmes. The grant initiatives have contributed to social development goals and were in a few cases highly innovative especially when it came to management and institutional arrangements. An example was Mwenga Hydropower project in Tanzania that has been followed by an extension of the grid to other areas (partly also with EU grant funding). However, its big achievement was the establishment of the first private electricity utility in the country, which broke the monopoly of the state-owned company. Nevertheless, there were very few cases of autonomous or non-supported replication of energy projects financed through grants. In some cases, the demonstration value was not enough to overcome other constraints such as funding, political will and the presence of an external change agent such as an EU financed NGO.

Cross-cutting issues were taken into account in most conventional grant funded projects, and they have mostly achieved and demonstrated pro-gender and pro-environment benefits. Projects mostly have taken gender into account at design stage and also at implementation. The country visits showed that gender aspects are taken into consideration at least at design stage. Reduction of greenhouse gasses is being achieved by the nature (renewable energy and energy efficiency) of the projects but is not recorded, and the projects were likely to have positive environmental impacts at the implementation stage. In those projects with a potentially large negative environmental impact, an environmental impact assessment was undertaken, prior to the approval of the proposal.

All projects examined gave attention to maintenance, operational and to sustainability issues but less so in terms of cost recovery and development of technical skills. However, the sustainability of the projects often depends on factors that the project cannot influence directly. The country visits showed that in most cases attention is given to operation and maintenance issues.

Conclusion (10) Evolution of new financial instruments - The evolution from grant financing of investment towards use of financial instruments was sound although

not without challenges. The use of blending and instruments such as GEEREF and ElectriFI have enabled for the same level of grant resources a far greater level of investment in the energy sector than could have taken place with grants alone. GEEREF and ElectriFI by engaging with private sector entities have succeeded in bringing in private sector skills in developing mini-grids and renewable energy as well as mobilising private and commercial funding. There are good prospects that these projects will be well-managed and sustained because there are private sector owners that have invested in them and need them to operate for many years to recover their costs. One of the main areas of added value for the private operators has been the experience of financial instruments in developing high quality projects, ensuring rigorous due diligence and environmental standards which has tended to enhance project sustainability and robustness e.g. in Rwanda, the ElectriFI team provided valuable technical support to the local private sector partner and ensured the adoption of an optimal technical solution.

There have been some notable contributions to the policy and enabling environment within blending and GEEREF. An example is the support provided by the GEEREF fund, DI Frontier to the development of standard power purchase agreements in East Africa, which has opened up the way for other developers. However, in the general, the use of financial instruments has tended to be project focussed and more dependent on an already conducive enabling environment than being able to take steps to create such improvements. There is not strong evidence of highly innovative or ground-breaking projects being supported by the financial instruments. By and large they are supporting the scale up of small to medium renewable energy and the use of mini-grids, usually in a context where such activity is already ongoing and tested; but not yet scaled up.

It has not proven easy to reach out to the poorer communities with the new financial instruments. It is understandable that the investors sought safe investments and tended to develop projects that were covered by a suitable power purchase agreement and not subject to the difficulties of collecting revenue from scattered and poor clients. Larger blending projects have on occasion been designed to reach out to such communities e.g. the Atlantique community group in Benin or the 105 communities reached in Cote d'Ivoire by the national utility. ElectriFI aims very explicitly at supporting mini-grids and de-risking investments that would otherwise not take place. However, it has not yet started at scale and few projects have been approved. In general, even where they do make a contribution, the projects financed through the financial instruments do not present a strong rationale at design stage or consistently report on how they reach marginalised groups or how they respond to gender and job creation challenges. As noted earlier, in part this could be explained because the projects on offer, their complexity, their size and the channels through which they could have been reached, were beyond the current capacity of most private sector actors in the partner countries.

The EU and its delegations do not have the monitoring tools and are not yet in a position to determine the value added of the projects financed through these instruments and, whether they are avoiding distortion of the local market and de-risking investment that would otherwise not occur. In particular, it is very difficult to trace evidence of rationale that demonstrates that the grant will not crowd out other players and is of a size that is needed and in proportion to the benefit. The EU's coordination role in sustainable energy was constructive but could have been stronger in establishing a common approach among

a wider range of donors and facilities on how to approach the additionality of grants and avoidance of the danger of crowding out private sector actors not supported.

Conclusion (11) Efficiency - Overall the efficiency of the EU's cooperation in sustainable energy improved over the evaluation period. EU support was geographically and operationally fragmented particularly in the early period where the cooperation extended to more than 50 countries. In the second financing period (2014-2016) the efficiency improved as the number of countries was reduced to 30 and the interventions were systematically programmed into or supportive of National indicative Programmes. An overriding factor that influenced the efficiency of the different interventions was the challenging context of the energy sector with weak institutional, policy and regulatory frameworks. Over 90% of the budget was allocated to low and low middle income countries and of the 27 countries that had energy as a focal sector, close to half were either fragile or high impact countries in terms of energy deficits. The challenges of working in a new and complex sector were not fully reflected in the staffing made available, particularly in the early period from 2011- 2013. From 2014 onwards, the situation improved as the Delegations become better staffed with energy expertise and the TAF was more actively used to support programming and operational activities. Delays in implementing projects were a major cause of low efficiency. It was found that the demanding procedures of the EU which were often not well understood by the implementing partners, despite training, were a main cause of delays and operational inefficiencies. The grant procedures were particularly cumbersome for support to private sector initiatives in fast changing markets where little could be predicted in advance.

Conclusion (12) Sustainability - EU sustainable energy cooperation has strategically addressed sustainability issues. However, some challenges persist. EU has contributed to increase country partner ownership and sustainable energy development through policy dialogue, technology transfer and technical assistance. EU policy support emphasized social, economic and environmental dimensions of sustainability and engaged in strengthening the enabling environment through supporting regulatory reforms, institutional strengthening and sound sector strategies. Projects incorporated environmental considerations by design and implementation either directly via support to renewable energy investment projects or indirectly via policy advice and support to business plan development, including guidance on environmental impact assessments. There was good evidence that technical assistance has contributed to the longer-term sustainability of institutions, projects and activities. However, the continued benefits of technical assistance were constrained by low absorption capacity, high turnover within government organisations and institutional changes. The Energy Facility contributed to the demonstration and mainstreaming of sustainable energy through technology transfer. Although replication of projects was limited, the facility was conducive to countries sustainable energy development and out of more than 10 individual projects sampled only 2 were not functioning at the time of the visit. More recently, due diligence and project appraisal mechanisms under GEREEF, ElectriFI and blending have also increased partner attention and capacities to address cost recovery issues.

Conclusion (13) Visibility - Visibility conditions were largely met but dissemination of the EU sustainable energy cooperation results was weak, especially at country level. Although project partners complied with visibility requirements, the visibility of EU support was relatively low compared to other development partners. In all the projects

assessed, project contractors were found compliant with the visibility contracts. Despite all the material available the European Union Energy Initiative and Energy Facility had a relatively low visibility and is not recognised at country level to the extent indicated by the volume of grants and results obtained. It appeared that the indirect implementation modalities, where other international organisations effectively implement, affected EU visibility negatively. At country level, the EU delegations are engaged in making the EU energy support more visible, through public events and production of communication and outreach material. The dissemination of the results of EU sustainable energy cooperation and the link between results and external support provided was weak.

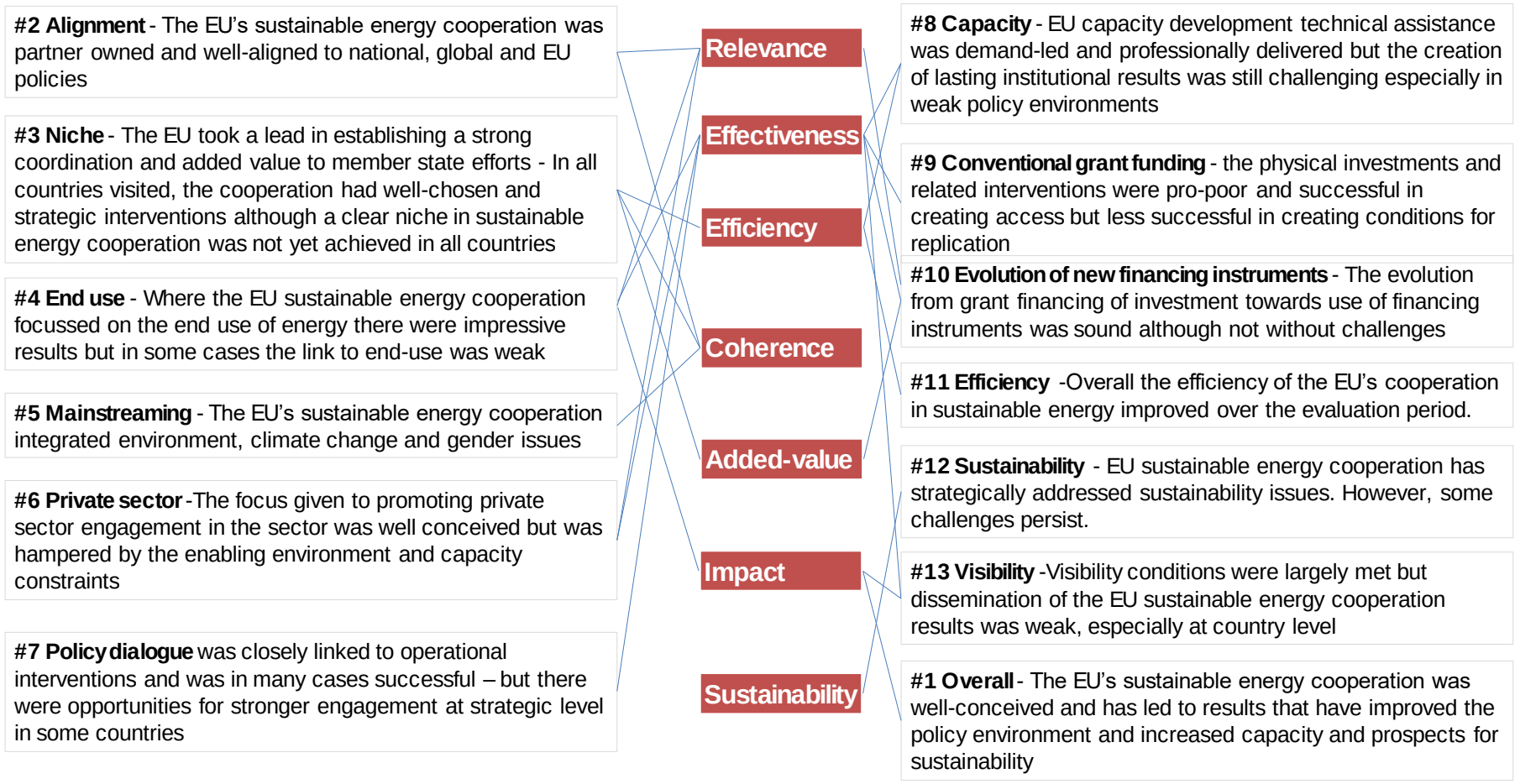
5.1.3 Conclusions across the evaluation criteria.

In this section, the evaluation's key conclusions are briefly summarised in a short narrative under each of the evaluation criteria of relevance, effectiveness, efficiency, coherence, added value, impact, and sustainability. As illustrated in Figure 5.1, for some criteria there are multiple conclusions.

Relevance - The EU's sustainable energy cooperation was partner owned and well-aligned to national, global and EU policies. EU sustainable energy cooperation was particularly relevant where it focussed on and was directed towards the end use of energy and where this succeeded the results were impressive. However, there were cases where the link to end-use was weak - in part, because support to making use of the energy in other sectors such as agriculture and private sector development was insufficient. But EU cooperation on sustainable energy increasingly recognised and supported the private sector as an important agent of change, and this thrust towards supporting the private sector was found relevant both to national policies and plans and the needs of the sector. The evolution of financial instruments and use of market mechanisms was supportive in enhancing conditions for a vibrant private sector, but the instruments and approaches used did not always meet the needs of the poorer countries as the efforts were hampered by shortcomings in the enabling framework and private sector actors were not strong enough to take advantage of the support on offer.

Effectiveness- Policy dialogue was in many cases successful – but there were opportunities for stronger engagement at strategic level in some countries. Much political capital was invested in Joint Declarations, but the policy reform potential of these declarations was not achieved. EU capacity development and technical assistance was demand-led and professionally delivered but the creation of lasting institutional results was still challenging especially in weak policy environments. Although the EU recognised sustainable energy as a broad enabler of social and economic development, the situation in practice was highly complex and the cooperation often fell short of exploiting the opportunities for energy to act as an enabling factor for other sectors. Many of the countries cooperating with the EU on sustainable energy have increased their energy generation and developed transmission lines without (affordable) connection to the population and/or support to development in other sectors that had a potential use for productive energy use, but where schools and health clinics were prioritised, results were promising.

Figure 5.1 Conclusions summarised against the evaluation criteria.



The evolution from grant financing of investment towards use of financial instruments was sound although not without challenges. The focus on promoting private sector engagement in the sector was well conceived, but insufficient attention was given to the capacity of the private sector and the enabling environment to realistically expect the private sector to respond to the EU's support and financial instruments, as strongly as hoped for. The physical investments and related interventions were pro-poor and successful in creating access, but less successful in creating conditions for replication. Visibility conditions were largely met but dissemination of the EU sustainable energy cooperation results was weak, especially at country level.

Efficiency- Overall the efficiency of the EU's cooperation in sustainable energy improved over the evaluation period. While the cooperation was geographically and operationally fragmented in the early period where the cooperation extended to more than 50 countries, the efficiency improved in the second financing period (2014-2016) as the number of partner countries for sustainable energy cooperation was reduced to 30 and the interventions were systematically programmed into or supportive of National Indicative Programmes. From 2014 onwards, the Delegations became better staffed with energy expertise and the Technical Assistance Facility was more actively used to support programming and operational activities. The increased efficiency was also facilitated by the EU taking a lead in ensuring close coordination with other donors and especially member states and due to increased coordination and synergies between initiatives. However, delays in implementing projects were a major cause of low efficiency and the demanding EU procedures, which despite training, were often not well understood by the implementing partners, were a main cause of delays and operational inefficiencies. Also, while most technical assistance provided was responsive to needs and demand-led, the capacity development was not sufficiently results-orientated – inputs were provided and verified, in most cases outputs delivered and verified, but the outcomes were not subject to measurement or verification.

Coherence - EU's sustainable energy interventions were coherent with the EU development and global development agenda. All interventions examined were strongly aligned to the EU Agenda for Change. Initiatives post-2011 were strongly aligned to SE4ALL (particularly its access and renewable energy goals) and initiatives from 2015 and later were strongly aligned to SDG7 and where relevant also linked to other SDGs (e.g. SDG13, climate action). The EU's sustainable energy cooperation integrated environment, climate change and gender issues. Although a detailed analysis of complementarity was missing in programming documents, increased coordination at policy and operational levels resulted in strong complementarity between EU and Member States. The Joint Declarations also facilitated coherence and complementarity at strategic level. EU's sustainable energy cooperation with the public sector was backed up by thorough country and regional analysis of government policies, strategies and plans, and interventions were partner-owned and well-aligned to national policies.

Added value - While the potential added-value of EU interventions at country level and through the global and regional EU initiatives were not systematically addressed in the programming documents, the EU added value to Member State efforts and facilitated a greater joint effort of the EU and Member States around a common agenda. In all the partner countries visited the cooperation had well-chosen and strategic interventions although a EU clear niche in sustainable energy cooperation was not yet achieved in all

countries. EU initiatives added value to global sustainable energy cooperation - as pioneer initiatives, the blending and the Global Energy Efficiency and Renewable Energy Fund filled a gap in sustainable energy cooperation.

Impact- The EU's sustainable energy cooperation was well-conceived and has led to results that have improved the policy environment and increased capacity and prospects for sustainability and impact. Access to clean energy has been improved and the share of renewable energy is increasing, and in some countries, improvements are also underway within energy efficiency. EU sustainable energy cooperation was closely aligned with partner country policy, but the strong alignment and close partnerships established were to some extent at the cost of taking a more active change agent and reform role at country level, and there were opportunities for stronger engagement at strategic level in some countries. In some cases the link to end-use of sustainable energy in other sectors could also have been stronger, thus increasing impact. While the formal visibility conditions in EU projects were largely met, the dissemination of results and success stories was weak.

Sustainability - EU policy support emphasized social, economic and environmental dimensions of sustainability and engaged in strengthening the enabling environment through supporting regulatory reforms, institutional strengthening and sound sector strategies. Projects incorporated environmental considerations by design and implementation, either directly via support to renewable energy investment, or indirectly via policy advice and support to business plan development. While the EU recognized sustainable energy as a broad enabler of social and economic development, the cooperation sometimes fell short of exploiting the opportunities for energy to act as an enabling factor for other sectors. Although replication of projects was limited under the Energy Facility, it contributed to the demonstration and mainstreaming of sustainable energy through technology transfer. Technical assistance contributed to the longer-term sustainability of institutions, projects and activities, but the continued benefits of technical assistance were constrained by low absorption capacity. More recently, the EU increased its technical assistance to the private sector, and this support is likely to enhance the sustainability of its initiatives.

5.2 Recommendations

The recommendations are listed below with more detail on the rationale and points for detailed implementation in the following text:

1) Focus sustainable energy cooperation on the end use and promote productive use of energy in other sectors
2) Increase the policy contribution of EU sustainable energy cooperation by taking a proactive approach
3) Adopt a stronger results-orientated approach to capacity development and enhance sustainability
4) Develop tools to determine and monitor the additionality of innovative financial mechanisms in the sustainable energy sector.
5) Strengthen the private sector through engaging with business member organisations and private sector fora.

Recommendation 1: Focus sustainable energy cooperation on the end use and promote productive use of energy in other sectors

Rationale: In general, the focus on end use in the EU's sustainable energy cooperation has been weak with the danger that energy becomes an end in itself rather than a means to many ends. Where there was a link to the end use the results have been impressive.

This recommendation can be implemented, inter alia, by the following actions:

- Promote the engagement of the nexus concept involving energy, food and water in a multi-sector support arrangement where relevant including assessment of the multi-sector readiness to make use of the energy provided.
- Support the link between delivery of more reliable energy and the productive, income generating uses of energy
- Support new technologies such as digital and peer-to-peer transactions that have taken off rapidly in development countries
- Strengthen the contribution of energy as a basic service in order to enhance governance, peace and stability in fragile and conflict affected situations.
- Increase support for modern fuels, biomass and biogas for cooking and energy efficiency in general in all sectors.

The recommendation should be implemented by:

- EU and its partners in sustainable energy cooperation.

Recommendation 2: Increase the policy contribution of EU sustainable energy cooperation by taking a proactive approach

Rationale: As the EU moves into a second period of cooperation in sustainable energy, it can capitalize on its goodwill, its central role in coordination, its development of policy research and mechanisms such as the European Fund for Sustainable Development, to make a more proactive and influential contribution at policy level.

This recommendation can be implemented, inter alia, by the following actions:

- Proactively monitor and engage early with sector reforms in the energy sector -subject partner policies, plans and practices to stronger assessment of relevance and credibility, being prepared to delay disbursement on capacity and investment until the conditions are suitable.
- Develop and adapt financial and other mechanisms so that the policy leverage is stronger in practice and creates a constructive sequence of policy, capacity and investment.
- Enhance national, regional and global policy functions by supporting joint policy research on key issues where there are prospects for change – assemble and disseminate evidence and success stories to support policy positions.

- Focus on developing actions for fewer policy related initiatives rather than launching new initiatives that fragment the efforts at policy reform and change; in general monitor and report on the outcomes of policy dialogue.
- Revive the Joint Declarations country by country and widen their scope to include member states and other development partners as relevant; clarify the institutional responsibilities for follow-up and develop agreed process action plans for follow up with clear milestones and indicators for tracking progress. Follow-up should identify opportunities for joint programming where relevant and strengthened engagement by the private sector.

The recommendation should be implemented by:
- EU at headquarters and in delegations.

Recommendation 3: Adopt a stronger results-orientated approach to capacity development and enhance sustainability

Rationale: Developing capacity, particularly where access to finance is improved through facilities such as the European Fund for Sustainable Development, is central to achieving the longer-term goals of the energy cooperation. Whilst EU support to capacity development has been demand led and partner owned it has not been sufficiently results orientated in the sense of ensuring that interventions leave capacity behind when they end. It has also not engaged to a sufficient degree a wider range of capacity development approaches or taken advantage of EU research and technology expertise.

This recommendation can be implemented, inter alia, by the following actions:
- Ensuring that all terms of reference and intervention designs explicitly identify, test and monitor what capacity in the energy sector should be developed, to what end and by whom; putting greater responsibility on the learners and making use of a wider range of capacity development approaches (e.g. embedded advisors, institutional twinning for peer-to-peer learning and exchange of good practice and tools, South-South cooperation)
- Increasing the sustainability of capacity development by training trainers and making use of and enhancing local capacity building facilities and institutions relevant for the energy sector.
- Analyse the wider institutional constraints within and outside the energy sector that affect the development and use of capacity and adopt realistic capacity development aims and strategies – using where relevant political economy insights.

The recommendation should be implemented by:
- EU and its partners in sustainable energy cooperation.

Recommendation 4: Develop tools to determine and monitor the additionality of innovative financial mechanisms in the sustainable energy sector.

Rationale: The evolution towards supporting investment through market based and innovative financial instruments is well conceived. However, tools are not available to determine if the investments are truly additional, avoid distortion in the local market, crowd-out private sector players and de-risk investments that would not otherwise occur.

This recommendation can be implemented, inter alia, by the following actions:

- Together with key development financial institutions develop guidelines based on practice and examples for how to determine additionality.
- Develop additional guidance /instructions on the type and level of grant funding that will be effective in catalysing the private sector and avoid crowding out effects.
- Develop guidance on how to enhance the pro-poor effect of market-based instruments for the energy sector.
- Develop monitoring tools for checking the achievement of additionality at all stages of implementation not only for verification but learning about when and how positive effects are achieved and can be extended and deepened.
- Monitor the additionality to allow lessons learned to be gathered to influence future decision-making.

The recommendation should be implemented by:

- EU headquarters in close cooperation with development finance institutions and delegations.

Recommendation 5: Strengthen the private sector through engaging with business member organisations and private sector fora.

Rationale: A leading engagement by the private sector is at the core of the energy sector strategies of the EU and the newly created European Fund for Sustainable Development. However, the capacity of the local private sector is too low in many cases to fully respond to the opportunities and the EU cooperation in sustainable energy has not sufficiently focused on how to increase this capacity. Where the EU cooperation on sustainable energy has engaged with energy business member organisations, such as in Tanzania, Kenya and Rwanda, the results have been promising e.g. on developing standard power purchase agreements. It is important that the overall support to energy recognizes and engages at different levels: business-to-business cooperation between EU and Africa business, public-private cooperation within partner countries and regions, and public-private cooperation between the EU and Africa.

This recommendation can be implemented, inter alia, by the following actions:

- Build on the network and contacts of EU and members state initiatives in the energy sector to develop cooperation with energy business fora; assess, on a country-by-country basis, which partners, programmes and other donors have the strongest in-country presence and are most relevant for increasing the effectiveness of EU's support to the private sector.
- Develop a strategy for longer-term engagement with energy related SME business fora in countries where energy is a focal sector.

- Actively advocate for and support through the policy and capacity arms of the energy cooperation changes in the enabling environment that promote more active private sector engagement e.g. contractual entry of the Independent Power Producers (IPP) to the power market.
- Engage proactively with the research efforts of the EU.

The recommendation should be implemented by:
- EU and its partners in sustainable energy cooperation.

Annex 1. Context

1 EU development of its energy cooperation agenda: How has the political framework evolved during the period

The overarching objective of EU support to sustainable energy is linked to the Sustainable Energy for All Initiative (SE4ALL) and the achievement of the Sustainable Development Goals (particularly SDG7 ("Ensure access to affordable, reliable, sustainable and modern energy for all") and SDG1 ("End poverty in all its forms everywhere")). The key EU policy document guiding its development cooperation, "An Agenda for Change" (COM(2011) 637 final) clearly states that under the priority area "*support for inclusive and sustainable growth" EU should "focus its support to sectors that have a strong multiplier impact on developing countries' economies and contribute to environmental protection, climate change prevention and adaptation, notably sustainable agriculture and energy".*

Box A1.1 - EU objectives and policy directions for support to energy in third countries
The European Union has identified the energy sector as a key driver for inclusive and sustainable growth. The overarching objective of EU support for sustainable energy is "Delivering Results in the Decade of Sustainable Energy for All". This means..."*reinforcing bilateral and multilateral dialogue and ensuring strong political engagement by all actors and partner countries; creating an enabling environment that allows for transparency, policy and regulatory reforms, cost-recovery and investments; supporting a technology leap; mobilising all available forces and actors and, specifically, funding from the private sector; policy coherence and the need for close cooperation with all partners towards sustainable development goals"*. (Neven Mimica, EU Commissioner for International Cooperation and Development)

"Sustainable energy is central to providing opportunities for inclusive, equitable and environmentally friendly economic growth and poverty eradication. It will create new job opportunities across the board, and more specifically for women and young people. The move towards low-carbon and resource-efficient energy models will build on global climate mitigation actions." (Fernando Frutuoso de Melo, Director General for International Cooperation and Development)

Sources: Empowering Development, Delivering results in the Decade of Sustainable Energy for All, 2015 and DG DEVCO website on energy.

It is significant that in the current programming period as many as thirty partner countries have included energy as one of the main focuses of their bilateral cooperation with the European Union from less than 10 in the earlier period (2007-2013). Energy cooperation also forms an integral part of regional and thematic cooperation efforts. The present evaluation is the first[18] thematic evaluation of EU's sustainable energy cooperation.

Situation in 2011

The time-period covered by this Evaluation begins in 2011, which was a momentous year for the international community's focus on sustainable energy. At end of the previous year, on 20 December 2010, UN General Assembly resolution 65/151 had designated 2012 the "International Year of Sustainable Energy for All" and called on the UN Secretary-General to organize and coordinate activities during the Year to increase awareness of the importance of addressing energy issues.

18 An evaluation undertaken in 2008 highlighted a number of issues in EU's energy cooperation (briefly summarized in Section 2.4, see also the annotated bibliography in Annex 4 (volume 2).

This milestone development clearly recognized the growing importance of energy for economic development and climate change mitigation. It also attempted to address the issue that energy was not a priority in the Millennium Development Goals (which did not include energy as a separate goal). In response to the growing recognition of the importance of energy for sustainable development, the UN Secretary-General in September 2011 launched the Sustainable Energy for All Initiative, bringing together stakeholders in government, private sector and civil society to mobilize action towards its three interlinked objectives to be achieved by 2030: i) to provide universal energy access; ii) to double the rate of global energy efficiency improvement; and iii) to double the share of renewable energy in the global energy mix. In launching the SE4ALL initiative, the UN Secretary General stated that "energy is the golden thread that connects economic growth, increased social equity, and an environment that allows the world to thrive".

The EU's above-cited "An Agenda for Change" was launched in October 2011, setting the stage for a new era of EU sustainable energy cooperation – also making reference to the UN High Level Group on Sustainable Energy for All. The EU has played a key role in developing the SE4ALL Initiative, including though Commissioner Piebalgs' membership of the Advisory Board.

It is also worth mentioning the EU Communication from September 2011 "The EU Energy Policy: Engaging with Partners beyond Our Borders" (COM(2011) 539 final), that proposed to further develop an external energy policy with the following priorities: building up the external dimension of the EU's internal energy market; strengthening partnerships for secure, safe, sustainable and competitive energy; improving access to sustainable energy for developing countries; and better promoting EU policies beyond its borders.

Progress since 2011

In April 2012, European Commission President Barroso committed to contributing to providing access to sustainable energy services for 500 million people by 2030 in developing countries. As a reflection of action toward this objective, the EU committed around Euro 3.3 billion to bilateral and regional energy cooperation for the period 2014-2020.

The United Nations General Assembly on 21 December 2012 (GA/11333-EN/274) unanimously declared the decade 2014-2024 as the Decade of Sustainable Energy for All, giving further impetus to the new directions in energy cooperation and stressing the need to improve access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services and resources for sustainable development. To that end, it also highlighted the importance of improving energy efficiency, increasing the share of renewable energy and cleaner and energy-efficient technologies. Very significantly, the resolution also recognized the importance of energy issues in elaborating the post-2015 development agenda.

Also, with the increasing focus on climate action, energy has been highlighted as a key priority for the EU. The EU demonstrated its commitment to global climate objectives by dedicating at least 20% of its entire budget from 2014-2020 to climate-related actions.

The 20% climate-spending objective also applies to spending outside the EU through the development and external action instruments. Already in 2014-2015, the EU planned to commit about Euro 1.7 billion of public grant funding from the EU budget and the European Development Fund to support climate-relevant activities in developing countries.

The work on the post 2015-agenda further shaped international policy focus on sustainable energy, and 2015 was another momentous year for SE cooperation. In May 2015, the EC published "Empowering Development - Delivering Results in the Decade of Sustainable Energy for All", a publication dedicated to explaining EU action in the field of sustainable energy. Particular emphasis was placed on energy in the framework of the new sustainable development goals (at that point not yet adopted); reinforcing bilateral and multilateral dialogue; creating an enabling environment for investments; and policy coherence. The publication also gave examples of EU supported country and regional level activities.

The United Nations Sustainable Development Summit in September 2015 adopted the 17 Sustainable Development Goals of which SDG7 reflects the SE4ALL goals. It is however important to note that – in line with the UN Secretary General's above-cited view that energy is a "golden thread" connecting different dimensions of sustainability – energy is seen not only as a "sector" but a crucially important enabler also for the achievement of several other SDGs. It is worth noting that the Global Tracking Framework (GTF), an initiative of the World Bank and the International Energy Agency (IEA) with many other development partners, tracks progress toward the achievement of the SE4ALL 2030 goals. The latest GTF reports were issued in May 2015 and in April 2017, respectively.

At the Paris climate conference (UNFCCC COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal, the Paris Agreement on Climate Change. After the lack of agreement at COP15 in Copenhagen in 2009, the EU had been building a broad coalition of developed and developing countries in favour of high ambitions that helped shape the results of this Paris conference. Also it is worth noting that the EU was the first major economy to submit its intended contribution to the new agreement in March 2015, taking steps to implement its target to reduce emissions by at least 40% by 2030. The Paris Agreement is of crucial importance for the development of sustainable energy solutions, and partner country Intended Nationally Determined Contributions (INDCs) and Nationally Determined Contributions (NDCs) have set targets for climate change mitigation that directly address and greatly facilitate sustainable energy development.

There were also major developments on the international arena in 2016, the last year of the time-period covered by this evaluation. On 5 October 2016, the EU formally ratified the Paris Agreement, thus enabling its entry into force on 4 November 2016. With this milestone development, the climate agenda is shifting focus toward implementation of the Paris Agreement and the INDCs/NDCs, which has a strong positive influence on the policy environment for sustainable energy in a climate change mitigation perspective, and which also brings a much stronger emphasis on the roles of the private sector.

The EU in November 2016 issued a "Proposal for a new European Consensus on Development Our World, our Dignity, our Future (COM(2016) 740 final)" which among

other things addresses the EU's responses to the 2030 Agenda and the 17 SDGs. It states that energy is a critically important development enabler and central to solutions for a sustainable planet and sets out policy actions summarized in the box below:

Box A1.2 - Key points in the EU strategy for supporting sustainable energy

- Access to sustainable and affordable energy and tackling climate change are two challenges to be addressed in close coordination to achieve sustainable development in its three dimensions.
- Developing countries need energy to promote inclusive growth and further improve standards of living in an environmentally friendly manner. Investment in energy can ensure access to clean water, clean cooking, education and healthcare and also create jobs and support local businesses.
- The EU and its Member States will address energy poverty by contributing towards universal access to energy services that are affordable, modern, reliable and sustainable, with a strong focus on renewable energy.
- Supporting Africa and our neighbourhood in this energy transition will be a part of the enabling framework for the EU's Energy Union. It will go hand in hand with continued EU action consistent with its global leadership in tackling climate change and supporting third countries to tackle climate change and transition into a low-emission climate-resilient economy.
- Taking into account diverse conditions in partner countries, the EU and its Member States will address these issues through strategic dialogue, best practice and knowledge sharing and development cooperation.
- Strategic investment in sustainable energy will be used to support the improvement of regulatory frameworks enabling the development of a healthy energy sector and to leverage private finance.
- EU action needs to be supported by key drivers including: political ownership and partnerships; an adequate regulatory framework for the energy sector; and boosting investment.
- This enhanced strategy will ensure constructive and consistent EU engagement with partners on energy and climate.

Source: COM (2016) 740 final

Lastly it is noted that a joint Communication from the European Parliament and the Council (JOIN(2016) 52 final) in November 2016 summarized lessons learned from ACP cooperation and set new directions for renewed partnership with the countries of Africa, the Caribbean and the Pacific. The Communication reiterates the EU's position that the partnerships should work towards providing universal access to clean, modern, affordable, secure and reliable energy services. Energy conservation, efficiency and renewable energy solutions should be promoted, also in view of the impact on climate related global challenges.

On 12 December 2016, EU Member States Foreign Affairs ministers met in Brussels to discuss priorities in the EU's relations with Africa and their evolution in light of emerging challenges. They emphasized that engagement in and with Africa and in particular within sustainable energy remains an important element in preventing conflict, promoting human security, addressing the root causes of instability, and managing migration flows. These discussions were guiding the joint communication (JOIN(2017) 17 final dated 4 may 2017) on a renewed impetus for the Africa-EU partnership, which was presented in April 2017 by the High Representative and the European Commission.

The global political commitment since the 2010-years created a momentum to accelerate and increase support to sustainable energy. The following sections present the global challenges faced to meet partner country's needs, the setting of EU sustainable energy cooperation initiatives and the key issues covered by the evaluation.

2 Global context and key opportunities and challenges to sustainable energy cooperation

This section examines the changing global environment in which EU has been and is operating. It reviews the main global challenges and opportunities for increased energy access, RE deployment and EE improvements to better understand EU sustainable energy cooperation intervention logic and positioning.

General context

ODA flows and more generally investments in energy have generally increased over the last decade. (IEA and OECD data) Overall the largest commitments of energy related development assistance to developing countries between 2011 and 2015 was directed to renewable energy generation. In Africa the focus was on electric power transmission and distribution up to 2014. Although this reflects an implementation orientation, support to energy policies has remained important representing between 20% and 30% of all energy related financial commitments to developing countries. In 2015 EU largest energy related commitment was on energy policies and programming. (OECD data).

As well as an increase in ODA in the sector, sustainable energy has also increasingly attracted new actors, as mirrored in the multiplication of investments funds[19] and the diversity of stakeholders engaged in new energy projects the last decade. Sustainable energy has become a "crowded field 20" and in this context strategic alliances, partnerships and synergy are becoming essential to avoid fragmentation and overlap in support and investments.

Shortly after it was launched, the SE4ALL initiative led to a surge in commitments21. It also provided an opportunity to harmonize support efforts and mainstream sustainable energy as an enabler of sustainable development, important steps to increase the effectiveness and efficiency of ODA delivery to the sector. Previous support to the sector was fragmented both in terms of isolated initiatives and in terms of lack of policy coherence with donors often driven by their own political agendas.

Past and new political commitments (i.e. energy trade and security, energy for economic growth, Paris agreement on climate changes) have progressively broadened the role of sustainable energy in development cooperation. While these political orientations are increasing the attention and commitment to sustainable energy, they may also compromise the continuity of interventions and delay changes. For example, resource allocations may be redirected from one objective to another more preeminent in the international political agenda. While EU's seven years programming modalities may ensure some continuity, the influence of the political agenda in partner countries need to be assessed. The pace and nature of reforms for sustainable energy is influenced by

[19] The RECP and PowerAfrica initiatives lists more than 30 investments facilities supporting access, RE and EE; regrouping bilateral and multilateral aid as well as public and private companies (some of them specialized in energy business, while other are new market entrants).

20 See for example major multi-donor supported initiatives such as the World Bank Energy Sector Management Assistance Program (ESMAP), the AEEP/SE4ALL May2016 Report Mapping of Energy Initiatives and Programs in Africa", the 2016 ODI Report (unpublished) "The Future of the Energy and Climate Architecture", the USAID/AfDB Power Africa program, etc.

21 See for example the SE4ALL 2014 Annual Report that identifies many new initiatives.

drivers of reform but it must also be recognized that there are more reluctant forces and vested interests in the political economy.

The three SE4ALL goals of energy access for all, RE and EE initiatives deployment are often seen as separate and their mutual interdependence and links to other reform22 agendas for development may not be sufficiently clear to decision makers. In a context of fragile regulatory bodies and institutional framework as well as political interference, this may result in the diversion or inefficient uses of sparse resources. (ODI, 2013)

Progress in achieving the SE4ALL objectives have been uneven. Renewable energy deployment is on track, driven by the investment rush in solar and wind, as well as the resurgence of large hydropower projects. (IEA 2016 and AEEP, 2016) According to the IEA (IEA, 2016), the decreasing cost of RE technology creates a favourable momentum for renewable energy deployment in developing and emerging countries. However, realising faster deployment of renewable energy technologies does still require addressing persistent policy and market barriers (e.g. the disproportionate subsidies of fossil fuel23s compared to RE subsidies), as well as securing financing modalities.

Despite progress in energy access[24], 1.1 billion people are still lacking access to electricity and 2.9 billion people lack access to clean cooking. (SE4ALL, 2016) There are strong concern that SE4ALL objectives will not be achieved by 2030. The demographic growth is hampering progress in access both in rural and increasingly in urban areas. (GTF 2017, AEEP 2016) Persistent policy and market barriers are also constraining the distribution of technologies and access to modern energy services. The Global Tracking Framework initiative (GTF) points out that large investments would be needed especially for access to clean energy for cooking. Most of the investments so far have been directed to electricity supply (REN21, 2014 and GTF, 2015), even though donors' attention has recently been increasingly on cooking energy issues. Progress is also not steady across developing and emerging countries.

Energy efficiency gains in low income countries have been limited in comparison with other initiatives and the power sector still faces significant transmission and distribution losses (GTF, 2017). Some donors and multilateral agencies have engaged in energy efficiency measures in building and the transport sectors (e.g. the Copenhagen Centre for Energy Efficiency that is also the EE hub for SE4ALL).

Institutional, regulatory and policy barriers

According to the latest report on Regulatory Indicators for Sustainable Energy (RISE, World Bank, 2016), a large number of countries worldwide have "begun to implement

22 There is increasing focus on the interdependence and mutual synergy of the three SDG 7 goals, the interlinkages that exist between SDG 7 and other SDGs, and the importance of a sector-wide approach that also recognizes the importance of a nexus approach between sustainable energy and other development priorities as well as the multiple benefits of sustainable energy, se for instance the report of the UN/SE4ALL seminar in Bangkok in 2016.

23 See for example the IEA's World Energy Outlook and IEA's statistics on energy subsidies.

24 Energy access within the SE4ALL initiative is defined by affordable and reliable access to modern energy services for lighting, cooking, powering appliances and productive uses. The evaluation will be informed by recent developments on defining access such as the ESMAP Multi-Tier Framework for Measuring Energy Access (access to-, reliability, quality, duration of- service delivery)

element of supportive policy frameworks", however low-income countries still score low in terms of supportive frameworks. The main obstacles for energy access, RE deployment and EE improvements as presented in the report are:

- Weak policy framework for grid electrification, decentralised and standalone systems.
- Still many cases of uncoordinated and underperforming planning
- Weak technology standards
- Unsustainable pricing policies. Most of power utilities in low income countries are not collecting enough revenue in order to expand the grid and connect new customers. Low tariff in most cases doesn't not allow for full cost-recovery. But this more generally affects RE deployment and EE measures too.
- Energy efficiency overlooked in the policy reform agenda.

Financing and market barriers for sustainable energy

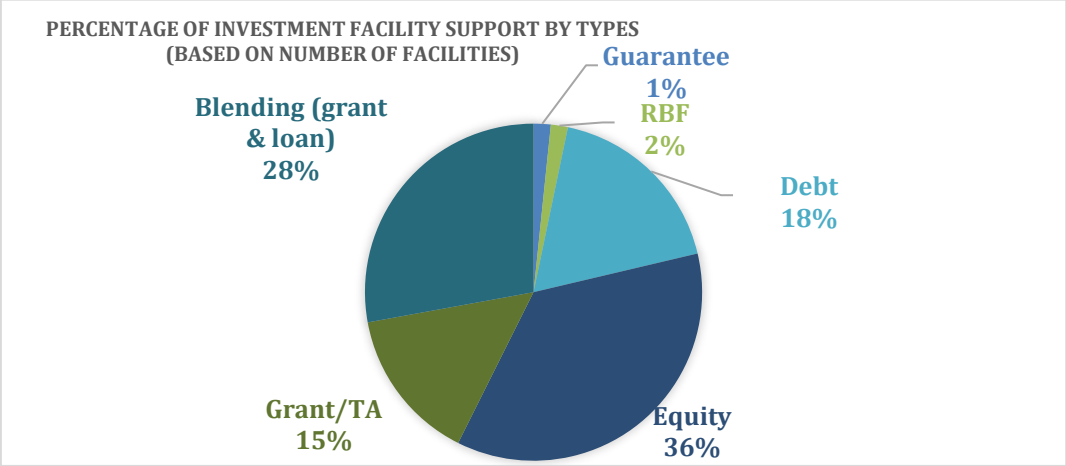
According to the Global Tracking Framework, achieving the SE4ALL goals may require more than a trillion dollars of investment per year.[25] (GTF, 2015) Facilitating both public and private finance is then critical for the success of the SE4ALL agenda. Financing and market barriers have long been analysed by donors, and the deployment of investments facilities has sped-up over the last decade. The evolving consensus in the international arena is that the deployment of renewable energy and energy efficiency measures requires reducing the investment risk and support to finance high up-front costs.

Figure A.1 below presents an overview of investment facilities and their financial support.[26] It shows that the main support targets primarily the reduction of the project cost and increases project competitiveness through grant or equity. While reducing the project risks, some donors point out that while this type of support is relatively easy to manage it does not necessarily contribute to reducing financial barriers nor does it necessarily increase the project performance. (WB, 2013 and EU, 2016) New financial initiatives are targeting incentivising private sector investments through a market–based approach and support to energy pricing that encourages RE and EE, including phasing out fossil fuel subsidies.

25 Global investment in areas covered by the three objectives was estimated at around USD 400 billion in 2010, while requirements are in the range of USD1.0–1.2 trillion annually, requiring a tripling of current flows; The bulk of these resources were found to be needed for EE and RE - about USD500 billion per year for each — although the shortfall in EE investment was found to be substantially larger than the shortfall of investment in RE.

26 Source RECP website: https://www.africa-eu-renewables.org/funding-database/

Figure A.1 Overview of type of support offered by existing investment facilities



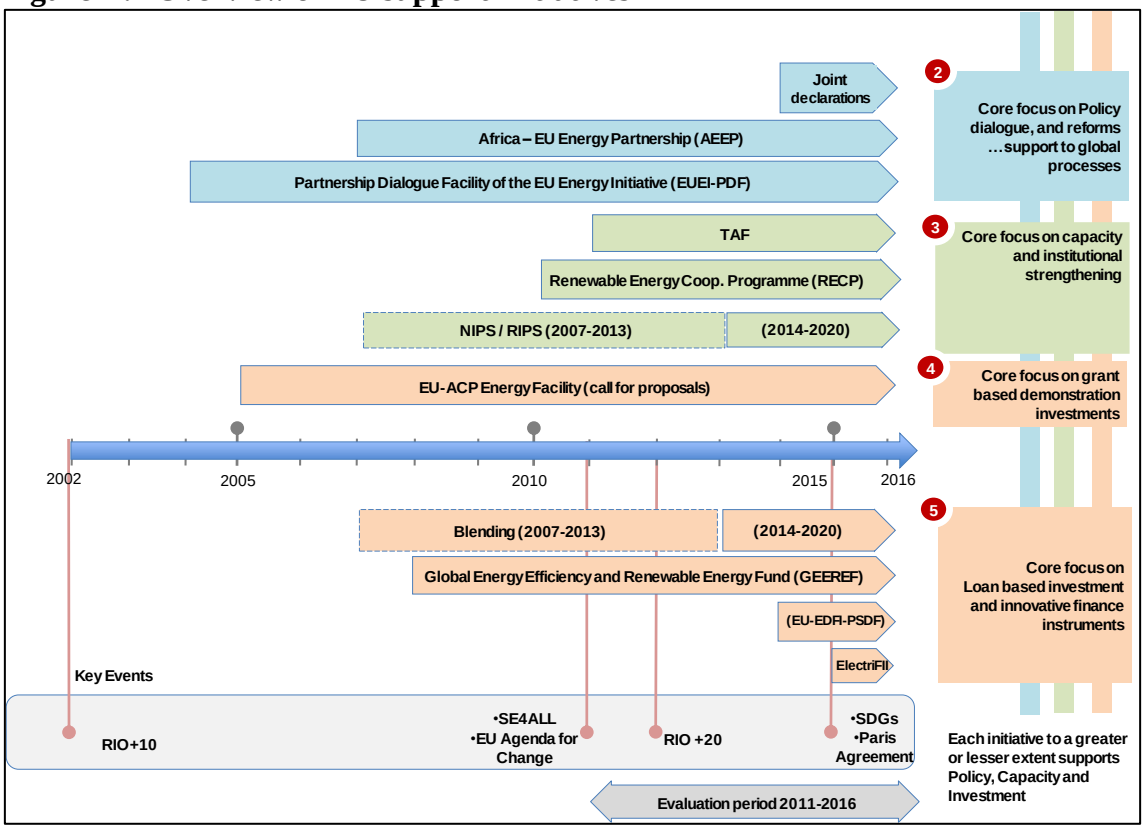
EU intervention logic for SE is embedded in these global challenges, with the aim to strengthening an enabling environment for energy access, RE deployment and EE improvements and to ensure the sustainability of its interventions**.** The following section presents the 11 EU initiatives that will be at the core of the evaluation.

3 EU energy initiatives for poverty reduction and sustainable development[27]

As of 2016, eleven initiatives or instruments are operational to deliver EU support to SE in partner countries, with a focus on three main intervention areas: i) policy dialogue, ii) capacity development, iii) investments.

[27] This section builds upon the chronology of EU initiatives and their objectives. A brief description of each initiative is provided in annex.

Figure A.2 Overview of EU support initiatives



The review of early EU interventions in the energy sector[28] shows that EU has relatively early set-up policy dialogue platforms and networks to mainstream renewable energy for poverty reduction and sustainable development.

Evolution in EU support to mainstreaming energy in the poverty reduction agenda and advocating for greater political commitment to the sector

In the early 2000's, energy-related initiatives were only formulated in the development strategies of a few countries and often scattered across different sectors. Priorities for the energy sector were often directed to infrastructure development (i.e. power transmission and distribution), while sustainable energy initiatives were often limited to a few initiatives from donors and Civil Society Organizations (CSOs). Following discussions on the role of energy in development to achieve the MDGs, the EU with its development partners established the EU Energy Initiative (EUEI) in 2004. The initiative originated from EU dialogue with member states on the role and place of energy in development policies and strategies. As a result, the initiative was set-up to support partner countries in integrating energy issues into sectoral strategies and programs for poverty reduction, stressing the role of energy as an enabler of development (EU, 2002).

The platform is today organized around providing advisory services and acting as coordinator with MS, strengthening policy dialogue and stakeholder engagement, supporting policy, strategy and regulation formulation as well as facilitating partnerships with and between government stakeholders and private sector.

[28] A brief description of EU eleven initiatives is provided in Annex.

The early EU support to policy dialogue extended to build partnerships, with the objective to stimulate political commitment and define a common strategy for action. This resulted in the establishment of the Africa-EU Energy Partnership (AEEP, 2007). The AEEP was introduced as a long-term framework for political dialogue and cooperation between Africa and the European Union (EU), with the aim to increase effectiveness of African and European efforts to secure reliable and sustainable energy services (EUEI, 2016). Under the AEEP, political targets were defined up to 2020 in terms of energy access, energy security, as well as renewable energy and energy efficiency. The AEEP built-upon the EUEI and addressed energy access for poverty reduction and development. However, it also introduced another policy dimension from the EU external energy agenda namely energy security[29] and to some extent RE and EE. More recently, the AEEP has integrated dialogue with the private sector, leading forums and matchmaking platforms[30] in African partner countries.

In 2016 EU engaged in the signing of Joint Declarations (JD) with the aim to strengthen dialogue and formalize cooperation in the areas of sustainable energy with seven countries. The JDs serve as an additional policy dialogue and partnership instrument as well as a coordination mechanism to increase political commitment to sustainable energy cooperation.

Mainstreaming energy in development interventions, is not only an external agenda. The EU also pursues the internal objective of "Mainstreaming energy in all EU development policy instruments." (EU, 2011) As a result, the role of sustainable energy cooperation and its expected impacts have been extended to encompass:

- Poverty reduction (Energy cooperation with the developing countries, 2002 and across all EU policies and strategies)
- Enabling sustainable and inclusive growth (An Agenda for Change, 2011)
- Trade and security of supply (EU Energy Policy, 2011)
- Environmental protection and climate change mitigation (Energy cooperation with the developing countries, 2002 and across all EU policies and strategies)

Implications for the evaluation: The evaluation scope is limited to sustainable energy as defined by the SE4ALL initiative, and only initiatives that target energy access, RE deployment and EE improvements are considered. Issues related to energy security are not examined. Considering the maturity of the EUEI and AEEP initiatives, evaluation considers how this EU-led policy dialogue has positioned the institution in the sustainable energy cooperation arena.

An early focus on energy project implementation

Figure A1 shows that two main operational instruments were used for implementation: the Energy Facility (EF, 2005) and the blending facilities (AITF[31], 2007)

[29] Specific targets are: Doubling the capacity of cross-border interconnections, and doubling African gas exports to Europe (AEEP, 2016) This area will not be assessed. The evaluation only considers aspects of EU sustainable energy cooperation agenda related to its supports to the SE4ALL objectives of access, RE deployment and EE improvements.

[30] See more on this topic in section 2.4.3 on the RECP.

[31] The evaluation will focus primarily on the Africa Infrastructure Trust Fund.

The Energy Facility was set up as a flexible initiative managing call for proposals, with the objective to: "To sharpen the focus and visibility of the energy and poverty agenda". Between 2008 and 2016, 179 projects for a total EU financing of 443 million Euros were launched under four call sfor proposals. (EF website) The EF called for projects proposing solutions for access, support to energy sector governance, and preparatory work for and investment plans for cross-border interconnections, grid extensions and rural distribution projects. The main dimension of the EF, besides supporting pilot projects through grants, was technology transfer. The call for proposals required the establishment of North-South, or public-private partnerships. The large majority of projects financed under the EF addressed off-grid and small-scale electricity production. Energy for cooking, EE, and large generation capacity did not receive much attention.

Financing larger projects for energy security and regional cooperation agenda fell under the blending facilities, and within the scope of this evaluation more specifically under the African Infrastructure Trust Fund (AITF - earlier the Infrastructure Trust Fund). The AITF is a pooling mechanism where EU grants can be used to subsidies loan, for technical assistance, as an additionality tool for investment and to cover risk capital and other risk sharing costs. Early projects (2007-2011) have mainly focused on hydropower development and regional power grids interconnection in West and East Africa. Technical assistance to regional governance was also provided. In 2012 the AITF was restructured to better deliver upon new EU objectives and was allocated an additional envelope of 329 Million Euros dedicated to SE4ALL objectives (EIB, 2012). Over the period 2007-2016 more than 80 energy projects have been financed for a total EU grant contribution of EUR 542 Million (EIB, webpage).

Implications for the evaluation: The two initiatives are quite different in their modalities of interventions (call for proposals versus blending mechanism). Considering the scale and the maturity of the two initiatives, the evaluation, making use, as much as possible, of earlier work, investigates if they have delivered upon the expected objectives.

Mobilizing financial resources and technological know-how

Considering the scale of investments required to achieve the SE4ALL and SDG7 objectives, there is a recognition of the strong need for mobilising market mechanisms and ensuring an enhanced role of the private sector in sustainable energy. The private sector contribution to RE deployment, increased energy access and EE improvements is however not limited to financial investments. The size and areas of intervention vary greatly (e.g. major hydropower development, micro-hydro generation, grid expansion and decentralized mini-grid systems).

Over the years, the EU has developed a set of instruments to mobilize the private sector at different scale of interventions:

- Leveraging funds through de-risking instruments
- Mobilizing technical know-how to prepare and support innovative projects

GEEREF (2008): The EU with Norway and Germany set up the Global Energy Efficiency and Renewable Energy Facility (GEEREF) as a fund of funds. The aim was to catalyse private sector investment in small and medium scale energy projects in emerging markets. By demonstrating that good returns could be made, the idea was that private sector finance would be attracted in the future.

RECP 2010: Reacting to the increased focus on the role of the private sector, the AEEP added an operational instrument in 2010: the Africa-EU Renewable Energy Cooperation Partnership (RECP) The initiative supports the development of markets for RE in Africa, and provides assistance through knowledge sharing and matchmaking platforms, as well as advisory services (policy and access to finance) to attract private investment in RE and EE.

EDFI PSDF (2014): The EU set up the European Development Finance Institutions Private Sector Development Facility (EDFI-PSDF) to provide partial guarantees for early stage private sector investment projects in sub-Saharan Africa that would otherwise be too risky to acceptable for the EDFIs.

ElectriFI (2015): The EU set up ElectriFI to boost investments in energy and bridge the financial gap by making available early stage development risk capital which would be paid back when investments succeed. As well as early stage development capital, technical support to project preparation is also provided.

Implications for the evaluation: Considering that support to energy investment is increasingly being channelled in the form of innovative and risk sharing interventions it the evaluation examines if based on experience so far this strategy looks like it is likely to succeed and how it compares with earlier grant-based investment through modalities such as the call for proposals. As many of the financial initiatives in EU support to sustainable energy are relatively new the evaluation has attempted to balance between looking backwards and looking forwards.

Catalysing reforms and strengthening sector performance

The screening of EU capacity development and technical assistance interventions across the different initiatives for the all period reflect four main orientations:

- Strengthening the energy sector governance (including institutional, policy and regulatory framework)
- Strengthening the performance of energy utilities
- Supporting and facilitating project financing (advisory services on feasibility study and matchmaking)
- Developing technical skills among local communities and the emerging private sector

Capacity development during the first evaluation programming period (2011-2013) was mainly done through technical assistance under project implementation. The Energy Facility and the blending facilities have both capacity development elements. While the EF was more focused on strengthening the energy sector governance, the ITF provided a large set of TA within the four main orientations and on a project needs basis.

In 2013 the EU set the Technical Assistance Facility for Sustainable Energy for All (TAF). With an allocated envelope of around EUR 40 Million, the facility has delivered around 90 projects up to 2016. The TAF purpose is to "deliver high level technical assistance at country (and regional level) through expert missions and to support committed countries to reach the SE4ALL objectives".

Capacity and institutional strengthening is also addressed in EU bilateral assistance through the Nationally Indicative Programs (NIPS). The new programming period has seen an increase in EU support country coverage, rising from 3 to 21 countries with sustainable energy as a core sector for development cooperation. A large part of the NIPS addresses energy sector governance and performance. EU is increasingly using budget support as a modality of intervention and has signed four Energy Sector Reform Contracts (ESRCs32). EU is also undertaking eligibility assessment in a number of additional countries. Budget support to the energy sector is used "to address sector reforms and improve service delivery. Commitment to democratic practices is taken into account, but carefully balanced against the need for continued provision of vital basic services". (https://ec.europa.eu/europeaid/node/13967)

Implications for the evaluation: Considering the number of initiatives devoted to TA and reforms, the evaluation examines the factors leading to policy adoption and implementation. At the macro level there are impressive policies but sometimes they are not implemented in practice even where there is a willingness. As budget support to sustainable energy is relatively new, the focus was more on the design than implementation.

Overall between 2011 and 2016, EU has committed more than 2 billion Euros, positioning itself has one of the main donors in the sustainable energy cooperation arena (OECD data). In the earlier period EU use grants and co-financed grants as its main modality of intervention. However, the various instruments developed over the years show that implementation modalities have expanded from calls for proposals and project support approaches, to subsidising and guaranteeing loans as well as budget support.

Given its role as one of the largest donors and a very significant contributor to the sustainable energy agenda**,** it is relevant for the evaluation to consider the extent of EU influence in the sustainable energy arena and examine whether it is commensurate with its development cooperation resources and outreach.

Apart from the initiatives formally evaluated, the evaluation also orientated their forward-looking consideration to take account two more recent initiatives that fell out of the evaluation period.

- AREI which was launched at COP 21 in Paris. AREI has its Independent Delivery Unit (IDU) at the African Development Bank and the AREI Trust Fund was set up to be managed by the Bank as the Trustee. At COP21 EU and G7 countries announced that a cumulative US$10 billion would be pledged to AREI. While AREI was not part of the initiatives covered by the scope of the present evaluation, it is worth noting that this could be an impactful vehicle for mobilising very significant financial contributions to RE initiatives. EU has a leading role in this initiative, and during the AREI second Board of Directors meeting in Conakry, Guinea, the EU Commissioner for International Cooperation and Development on 4 March 2017 announced the preparation of 19 new renewable energy projects. These sustainable energy projects had an indicative EU contribution of EUR 300 million, which was expected to

32 ESRCs are in Rwanda (Decision 38107), Tanzania (Decision 37432), Fiji (Decision 38504) and Vietnam (Decision 37972).

leverage total investments amounting to EUR 4.8 billion, adding 1.8 Gigawatts of new renewable energy generation in Africa. It was further stated that The European Commission, the EU Member States and the EU Financial Institutions had committed to support AREI through existing financial instruments and mechanisms, including the Africa Investment Facility (AfIF), ElectriFI, and the new opportunities under the future External Investment Plan, to leverage the sustainable energy investments that would "unlock Africa's potential and improve the lives of millions". The Fifth African Union - EU Summit held in Abidjan during 29-30 November 2017 in its Declaration para 1333 committed to support AREI and deepen the strategic alliance through AEEP.

- The EU External Investment Plan (EIP). The European Commission proposed on 14 September 2016 an ambitious External Investment Plan (EIP) to encourage investment in our partner countries in Africa and the EU Neighbourhood region, to strengthen our partnerships and contribute to achieve the Sustainable Development Goals, helping to address some root causes of migration. Part of the EIP is the new European Fund for Sustainable Development (EFSD) as an integral financial mechanism to support investments by public financial institutions and the private sector. More info on: https://ec.europa.eu/europeaid/eu-external-investment-plan-factsheet_en

33 We are committed to the full implementation of the Paris Agreement and Marrakech Action Plan adopted in COP22, taking into account the commitments on climate finance made in Copenhagen (2009) with a target of reaching USD 100 billion per year by 2020, to support developing countries in responding to climate change. We also commit to invest in climate change mitigation and adaptation, disaster risk management and reduction, as well as in the sustainable management of natural resources and ecosystems. To this end, we commit to undertaking joint efforts, also at the global level. We note the importance of energy efficiency and the development of renewable energy, and we will support the African Initiative on Renewable Energy (AREI) and deepen our strategic alliance through the AU-EU Energy Partnership (AEEP).

Annex 2. Summary Evaluation Matrix

This annex presents the main evaluation findings at the level of judgement criteria as they emerged from the seven evaluation questions. The tables provide the source of information as well as a reflection on the quality of evidence according to the following scale

Strong	The finding is consistently supported by a range of evidence sources, including documentary sources, quantitative analysis and qualitative evidence (i.e. there is very good triangulation); or the evidence sources, while not comprehensive, are of high quality and reliable to draw a conclusion (e.g. strong quantitative evidence with adequate sample sizes and no major data quality or reliability issues; or a wide range of reliable qualitative sources, across which there is good triangulation).
More than satisfactory	There are at least two different sources of evidence with good triangulation, but the coverage of the evidence is not complete.
Indicative but not conclusive	There is only one evidence source of good quality, and no triangulation with their sources of evidence.
Weak	There is no triangulation and / or evidence is limited to a single source.

EQ 1	**To what extent has the EU sustainable energy cooperation responded the evolving energy needs of partners in developing countries and is aligned to the wider EU and global development agenda?**		
Judgement Criteria	**Summary response (indicator)**	**Main source of information** (noting that findings have multiple sources as documented in Volume II, Annex 6)	**Quality of evidence**
JC 1.1 Degree of alignment to national and regional objectives, strategies, plans, and programmes.	1. Most EU cooperation with the public sector was backed by analysis of government policies, plans and programmes - however, SE4ALL analytical tools were often not sufficiently used. (I-1.1.1)	• NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • Interviews with stakeholders during country visits, particularly in Ethiopia, Nigeria, Zambia, Rwanda. • European Parliament Committee on Budgetary Control. ECA Special Report on "EU Energy	Strong

EQ 1	To what extent has the EU sustainable energy cooperation responded the evolving energy needs of partners in developing countries and is aligned to the wider EU and global development agenda?		
		Facility support for renewable energy in East Africa". • SE4ALL/World Bank Regulatory Indicators for Sustainable Energy (RISE) and Global Tracking Framework (GTF)	
	2. For private sector-oriented cooperation, the initiative to undertake the relevant analysis of the national sector frameworks rested more with each project applicant and the evidence is weak on how effectively this was done – also because of the recent history of some initiatives. (I-1.1.1)	• GEEREF Impact Methodology May 2015 • GEEREF investment strategy • Electrifi fact sheet • Evaluation of blending 2016 • Interviews with stakeholders during country visits	More than satisfactory
	3. The analyses provided through Joint Declarations and the EU's support to networking platforms were not systematically used for programming and implementation., although there are some examples. (I-1.1.1)	• JDs in the sample (Rwanda, Uganda, Liberia, Nigeria, Benin, Zambia, and Caribbean/CARIFORUM), JD for Vietnam and Declaration of Intent for Zambia • Interviews with stakeholders during country visits	Strong
	4. Defining the "SE sector" was to some extent an issue in early interventions, and although the EU cooperation increasingly recognised energy as a broad enabler of economic and social development, opportunities to mainstream energy in other sectors were missed. (I-1.1.1)	• European Commission Methodological Note on budget support and sustainable energy, 29.06.2016. • Interviews with stakeholders during country visits, particularly in Zambia and Ethiopia	More than satisfactory
	5. For most public-sector interventions, there is evidence that interventions were aligned where the national/regional sector framework was sound; for private sector interventions, this evidence is weaker. (I-1.1.2)	• European Commission Methodological Note on budget support and sustainable energy, 2016. • ROM Monitoring report MR-144913.01 30/07/2012 • EUEI PDF Mid-term Review Phase 3 Report, June 2017 • EUEI PDF Results Report 2004-2015 energypedia consult GmbH • Evaluation of TAF, Part 1, Cambridge Economic Policy Associates, 2016	More than satisfactory

EQ 1	To what extent has the EU sustainable energy cooperation responded the evolving energy needs of partners in developing countries and is aligned to the wider EU and global development agenda?		
	6. For most of the initiatives there is evidence of an appropriate intervention strategy when the sector framework was inadequate. (I-1.1.3)	• NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • Annual Report on EU Budget Support – 2016 • EUEI PDF Mid-term Review • Interviews with stakeholders during country visits	More than satisfactory
JC 1.2 Degree of partner/beneficiary involvement in and ownership of design and implementation.	1. The process of programming EU cooperation was constructive but did not sufficiently benefit from deeper political economy analysis. (I-1.2.1)	• European Commission Methodological Note on budget support and sustainable energy, • NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • AEEP Mapping of Energy Initiatives and Programs in Africa, May 2016 • Interviews with stakeholders during country visits	More than satisfactory
	2. For most initiatives, there is evidence of consultative processes for effective beneficiary involvement but the "beneficiaries" were not always well enough defined. (I-1.2.2)	• European Commission Methodological Note on budget support and sustainable energy, • NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • AEEP Mapping of Energy Initiatives and Programs in Africa, 2016 • TAF Eastern and Southern Africa ROM evaluation December 2016 • TAF WCA ROM Report November 2016 • Interviews with stakeholders during country visits	More than satisfactory
	3. The EU SE cooperation systematically ensured financial contributions by beneficiary institutions indicating a degree of ownership - although the level varied between initiatives. (I-1.2.3)	• EUEI PDF Mid-term Review Phase 3 • Evaluation of Blending • GEEREF Investment Strategy • GEEREF 2015 Impact Report • Catalysing private engagement and resources for development - the EU's role	More than satisfactory

EQ 1	**To what extent has the EU sustainable energy cooperation responded the evolving energy needs of partners in developing countries and is aligned to the wider EU and global development agenda?**		
		• Thematic evaluation of the EU support to environment and climate change in third countries (2007-2013) • Interviews with stakeholders during country visits	
JC 1.3 Degree to which SE support aligned to the wider global development agenda and was EU policy coherent	1. There is strong evidence that SE interventions were coherent with relevant EU development policies although the support to energy efficiency was limited in early interventions. (I-1.3.1)	• NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • EU Agenda for Change (2011) • Interviews with stakeholders during country visits	Strong
	2. There is evidence that most initiatives post 2011 were strongly aligned to SE4ALL and that initiatives from 2015 and later were strongly aligned to SDG7. (I-1.3.2)	• Interviews with stakeholders during country visits • Global Tracking Framework (GTF)	Strong
	3. There is evidence that interventions from 2015 and later were aligned to the implementation of the Paris Agreement on Climate Change. (I-1.3.3)	• NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • European Commission Methodological Note on budget support and sustainable energy • Paris Agreement on Climate Change and the nationally determined contributions for the countries visited	More than satisfactory

EQ 2	**To what extent have the policy dialogue and networks established led to partners adopting and implementing policy and sector reforms that create an enabling environment?**		
Judgement Criteria	**Summary response (indicator)**	**Source of information**	**Quality of evidence**
JC 2.1 Degree to which the EU promoted an appropriate and viable policy agenda and sound policy messages	1. The EU policy agenda addressed key SE issues in partner countries and took account of support by other development partners; this was most evident in public sector interventions. (I-2.1.1)	• NIPs RIPs, action fiches. • Sector Reform Contracts (SRCs). • Budget support guidelines, September 2009 • European Commission Methodological Note on budget support and sustainable energy, 2016	Strong

EQ 2	To what extent have the policy dialogue and networks established led to partners adopting and implementing policy and sector reforms that create an enabling environment?		
		• Capacity4Dev Sustainable Energy Handbook • SWOT Analysis September 2015 • Vietnam SWOT Analysis September 2015 • TAF report issued in October 2015 Assessing Energy Policies in Vietnam • Annual Report on EU Budget Support – 2016 • JDs in the sample • The Fourth EU-Africa Summit • EUEI PDF Mid-Term Review Report, 2017 • EUEI PDF Results Report 2004-2015 • EUEI PDF progress report 2014/2014 • Rwanda EAMR 2013 and other EAMRs • TAF WCA ROM Report 2016 • TAF-ESA C-336063_ROM • Evaluation of Blending, 2016 • GEEREF investment strategy and impact methodology • TAF Sixth Progress Report, 2016 • Interviews with stakeholders during country visits	
	2. EU SE initiatives developed and communicated policy messages aimed at enabling improved access to modern affordable and clean energy, improved energy efficiency, and increase in renewable energy. (I-2.1.2)	• EU's Agenda for Change, 2011 • Empowering Development, EU SE4ALL booklet-energy, 2015 • Plus above-cited sources	Strong
	3. EU promoted sound and viable policy messages that also emphasized social, economic and environmental dimensions of sustainability and where relevant focused on enabling private sector participation. (I-2.1.3)	• EU's Agenda for Change, 2011 • Empowering Development, EU SE4ALL booklet-energy, 2015 • Plus above-cited sources	Strong
JC 2.2 Degree to which there has been SE enabling policy change	1. For most but not all initiatives, key issues raised in EU policy dialogue and reform studies were addressed in national and regional enabling policy frameworks. (I-2.2.1)	• Sources mentioned above under I-2.1.1	More than satisfactory

EQ 2	To what extent have the policy dialogue and networks established led to partners adopting and implementing policy and sector reforms that create an enabling environment?		
and reforms in EU partner countries	2. Apart from budget support operations at country level and to some extent, the EUEI initiatives, the EU did not closely monitor whether national policy frameworks were adjusted to address the key issues raised by EU policy dialogue and reform studies. (I-2.2.2)	• ROM and EAMR reports • EUEI PDF Mid-Term Review Report, 2017 • EUEI PDF Results Report 2004-2015 • EUEI PDF progress report 2014/2014 • Interviews during country visits	
	3. The EU and its development partners did not closely monitor the degree to which partners committed actions to identify, address and remove SE policy barriers identified in EU SE cooperation. There is so far weak evidence that policies and reforms supported by the EU and then adopted and implemented have brought about the intended results in practice. (I-2.2.3)	• Sources under I-2.2.2 above	Indicative but not conclusive
	4. While budget support indicators have been useful in monitoring results of related policy dialogue, the EU could have benefited from more adequate tools for measuring the progress and success of their energy policy and reform dialogue and interventions. (I-2.2.4)	• European Commission Methodological Note on budget support and sustainable energy, 2016 • SRCs • Annual Report on EU Budget Support – 2016 • Interviews during country visits	Indicative but not conclusive
JC 2.3 Degree to which network platforms, budget support dialogue, and joint declarations have contributed to enabling policy and reform	1. Although the monitoring was weak, each of the main initiatives have shown at a smaller scale that they had the potential to influence. (I-2.3.1)	• Sources under I-2.2.1 above	More than satisfactory
	2. Network platforms supported by the EU contributed to the policy environment at the partner country, regional and global levels, but the evidence is mixed. (I-2.3.1)	• AEEP Mapping of Energy Initiatives and Programs in Africa, May 2016 • EUEI PDF Mid-Term Review Report, 2017 • EUEI PDF Results Report 2004-2015 • EUEI PDF progress report 2014/2014 • Interviews during country visits	More than satisfactory
	3. EU SE budget support policy dialogue contributed to the policy environment in partner countries. (I-2.3.2)	• European Commission Methodological Note on budget support and sustainable energy, 2016 • SRCs • Annual Report on EU Budget Support – 2016 • Interviews during country visits	More than satisfactory

EQ 2	**To what extent have the policy dialogue and networks established led to partners adopting and implementing policy and sector reforms that create an enabling environment?**		
	4. Joint Declarations contributed to strategic commitment to improving the SE policy environment and brought in other donors (but there is little evidence of effective follow-up to JDs.) (I-2.3.3)	• JDs in the sample (Rwanda, Uganda, Liberia, Nigeria, Benin, Zambia, and Caribbean/CARIFORUM) • JD for Vietnam and Declaration of Intent for Zambia • Interviews with stakeholders during country visits	Weak

EQ3	**To what extent have the various forms of TA interventions strengthened capacities in institutions in partner countries?**		
Judgement Criteria	**Summary response (indicator)**	**Main source of information** (noting that findings have multiple sources as documented in Volume II, Annex 6)	**Quality of evidence**
JC 3.1 - Degree to which TA has followed EU strategy for capacity development	Most projects analysed responded to the needs either by design and/or during implementation.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, and external evaluations of 16 projects of the EUEI PDF during 4 consecutive years.	More than satisfactory
	It was clear that most projects and activities were demand led, but ownership of the projects was in a few cases problematic.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, external evaluations of 16 projects of the EUEI PDF during 4 consecutive years, and a EUEI PDF Mid-term Review Report.	Strong
	The analysis shows that projects were results oriented by design and most of them achieved the expected results, although the design and implementation of capacity development was not sufficiently results oriented.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, a EUEI PDF Mid-term Review Report, and an external evaluation of EUEI PDF results.	Strong
JC 3.2 - Degree to which the different EU	TA projects responded to the demands with an adequate mix and type of TA. TFA-WCA and TAF-ESA responded in a	Interviews with national partners and EUDs, backed up with the review of project fiches/	More than satisfactory (strong otherwise, but

EQ3	To what extent have the various forms of TA interventions strengthened capacities in institutions in partner countries?		
technical cooperation approaches have been well selected and managed	flexible way to needs which were clearly defined in their ToR.	application forms; ROMs reports of projects, and external evaluations of 16 projects of the EUEI PDF during 4 consecutive years.	based on a small number of sources)
	The TFA-WCA and TAF-ESA responded in a flexible way to needs which were clearly defined in their ToRs.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, and a Progress Report of the TAF – WCA.	Strong
	EUDs were not but are now sufficiently involved with monitoring energy projects implementation and currently have the resources in terms of staff and adequate technical knowledge to do that.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, the Mid-Term Evaluation of the 1st Call for Proposal of the Energy Facility under the 9th EDF, the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors	Strong
JC 3.3 - Degree to which EU technical assistance has led to an increased capacity in key selected partner institutions	The EU technical assistance has strengthened the enabling environment at sector level for key partner institutions, however for the geographic support projects there was still not enough evidence to support this finding.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, and external evaluations of 16 projects of the EUEI PDF during 4 consecutive years.	More than satisfactory
	Projects have strengthened the skills of core personnel and where relevant the structure and functional organisation of the key partner institutions. Private sector participation was not yet high on the agenda of most EU TA. The mobilisation by the RECP of private sector partners was highly appreciated and there was ownership of the interventions.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, external evaluations of 16 projects of the EUEI PDF during 4 consecutive years, and External Assistance Management Reports.	Strong
	In spite the short-term technical assistance, TAF-WCA and ESA benefits -in many cases- were expected to be sustainable, however there were some sustainability problems. Sustainability in terms of capacity building has not been assured in a significant number of other projects.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, and the external evaluations of 16 projects of the EUEI PDF during 4 consecutive years.	Strong
JC 3.4 - Degree to which TA has supported the	TA has been active in supporting incorporation of gender issues by design, however there was still little evidence of results.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, the EUEI PDF - Phase II bis	More than satisfactory

EQ3	To what extent have the various forms of TA interventions strengthened capacities in institutions in partner countries?		
mainstreaming of cross-cutting concerns		report, and the EUEI PDF Phase 3 Mid-term Review Report.	
	TA has contributed to incorporation of environmental considerations in policy reforms and project implementation.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms; ROMs reports of projects, the EUEI PDF Phase 3Mid-term Review Report, and the EUEI PDF Results Report from Energypedia consult GmbH.	More than satisfactory
	TA has contributed to steering policy reforms / project implementation towards a pro-poor objective.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms.	More than satisfactory

EQ4	To what extent has the conventional EU funding for physical investments and related interventions contributed to achieve the sustainable energy goals		
Judgement Criteria	**Summary response (indicator)**	**Main source of information** (noting that findings have multiple sources as documented in Volume II, Annex 6)	**Quality of evidence**
JC 4.1 - Degree to which the funding using conventional grant-based approaches had an innovative effect and contributed to sustainable development.	The formulation, design and implementation of most projects clearly indicated their pro-poor nature. However for some projects it was too early and yet not clear (for example in NIPs/RIPs projects) to conclude that the projects were pro-poor oriented.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, ROM reports of projects, the Mid-Term Evaluation of the 1st Call for Proposal of the Energy Facility under the 9th EDF, and the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors.	Strong
	The use of the grant was justified and projects removed barriers (or were by design intended to) and have demonstrated innovative technical, institutional, and/or managerial alternatives.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, ROM reports of projects, and the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors.	More than satisfactory

EQ4	To what extent has the conventional EU funding for physical investments and related interventions contributed to achieve the sustainable energy goals		
	By design replicability was taken into account, but there were very few projects that provided information on the factual replicability. Tentatively one can say that limited replicability was achieved.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, ROM reports of projects, and the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors.	More than satisfactory
JC 4.2 - Degree to which the projects supported through conventional grant funding have achieved, demonstrated and lead to pro-poor, pro-environment, pro-growth and pro-gender benefits.	The overwhelming majority of the Energy Facility projects targeted poor households by design and implementation.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, ROM reports of projects, the Mid-Term Evaluation of the 1st Call for Proposal of the Energy Facility under the 9th EDF, and the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors.	Strong
	There were very few projects that targeted improved cooking.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms.	More than satisfactory
	A small amount of sampled projects with relevant information have taken gender into account at design stage and also at implementation.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms.	More than satisfactory
	Projects in the sample that aimed at providing schools, health centres and public institutions with electricity have achieved that.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, and project ROM and evaluation reports.	More than satisfactory
	A small number of projects targeted productive uses of energy.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, project ROM reports and the EU Energy Facility Monitoring / Key Indicators (spreadsheet)	Strong
	Reduction of greenhouse gasses (GHG) was being achieved by the nature of the projects but was not recorded.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, the EUEI PDF Mid-term Review Report Phase 3, and the RECP results sheet, February 2017.	More than satisfactory

EQ4	**To what extent has the conventional EU funding for physical investments and related interventions contributed to achieve the sustainable energy goals**		
	The projects took into account environmental impacts, and mitigation measures to deal with possible negative impacts.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms.	More than satisfactory
JC 4.3 - Degree to which projects supported through conventional grant funding were sustainable.	Most projects seemed by design to give attention to maintenance and operational issues and to sustainability.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, ROM reports and evaluations of projects, and the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors.	Strong
	The projects provided effective skills transfer, but skills should be adapted regularly and go beyond the project lifetime.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, ROM reports and evaluations of projects, and the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors.	Strong
	For the projects for which evidence was found about the benefits of the project being delivered after completion a mixed answer was formed.	Interviews with national partners and EUDs, backed up with the review of project fiches/ application forms, evaluations of projects, the evaluation audit the ACP–EU Energy Facility support for renewable energy in East Africa by the European Court of Auditors, and the External Assistance Management Report 2014-Liberia.	Strong

EQ 5	**To what extent EU support using innovative financial instruments contributed to sustainable energy goals?**		
Judgement Criteria	**Summary response (indicator)**	**Source of information** (noting that findings have multiple sources as documented in Volume II, Annex 6)	**Quality of evidence**
JC 5.1 Degree to which the innovative financial instruments contributed to social development goals shared by EU and its partner countries	The innovative financial initiatives contribute to social development by targeting access to modern energy (I5.1.1)	• GEEREF impact report (2014-15) • Blending EU-AITF monitoring/annual reports (2016/7) • Blending evaluation (2016) • ElectriFI Investment criteria (2017) • Interviews especially in Benin, Tanzania, Zambia	Strong
	Considerable access has been achieved or likely to be achieved across the EU's innovative financial initiatives (I5.1.1)		
	GEEREF and ElectriFI tended to focus on generation whereas blending also had a strong component of, transmission and connection – in part because of the scale of finance available through blending (I5.1.1)		
	In specific cases, the innovative financial initiatives have reached poor people. (I5.1.2)	• EU Evaluation: Environment&climate change, 2015 • Evolution One, Annual Report September 2013 • GEEREF impact report (2014-15) • Blending evaluation (2016) • Interviews especially in Cote D'Ivoire, Benin, Tanzania, Zambia	More than satisfactory
	The potential poverty reducing effect of major energy infrastructure projects is not documented or referred to (I5.1.2)	• Blending evaluation (2016) • Blending EU-AITF monitoring/annual reports (2016/7)	Strong
	Measurement of access and in particular access by poor/marginalised population groups is inconsistent and weak across all the three innovative financial initiatives. (I5.1.2)		
	Targeting and reporting on job creation is not systematic (I5.1.3)	• GEEREF impact report (2014-15) • Blending EU-AITF monitoring/annual reports (2016/7) • Blending evaluation (2016) • Get Fit Annual report 2016 p13	More than satisfactory

EQ 5	To what extent EU support using innovative financial instruments contributed to sustainable energy goals?		
	Gender is targeted by the initiatives and systematically reported on in GEEREF but not as clearly reported on by Blending or ElectrFI. (I5.1.4)	• GEEREF impact reporting 2105, p27 • DI Frontier ESG report 2015, June 2016, p12 • ElectriFI guidelines for call for proposals, 2017 • Interviews with GEERF/ElectriFI/ EUDs	More than satisfactory
JC 5.2 Degree to which the innovative financial instruments contributed to environmental and climate goals shared by EU and its partner countries	Across all the 3 initiatives there were systems in place for ensuring that environment and climate change assessment and reporting were undertaken (I 5.2.1/2)	• EIB environmental and social handbook • Interviews with DI frontier & ElectriFI (July 2017) • Interviews with EUDs in Rwanda, Tanzania, Zambia	Strong
	All the projects supported by the innovative financial initiatives have or are likely to lead to environmental and climate change improvements. (I 5.2.3.4)	• GEEREF impact report 2016 • 16th Semi Annual progress repot on RFSF 31 December 2016 • ElectriFI Guidelines for call for proposals, 2017 • Blending evaluation (2016)	More than satisfactory
	There are only a few projects within energy efficiency (I 5.2.3/4)	• Examination of portfolio and in-depth examination of desk and field sample	Strong
JC 5.3 Degree to which the innovative financial instruments contributed to addressing market weaknesses and stimulating private sector involvement	In many countries, the rapid mobilisation and benefits from the use of innovative financial instruments was hampered by a weak enabling environment (I5.3.1)	• Interview with DI frontier management; DRC hydropower; ElectriFI management; EUDs • Blending evaluation (2016) • Interviews with EUDs (Ethiopia/ Zambia elsewhere)	Strong
	The projects have contributed more to implementation of policy reforms than to policy itself. (I5.3.1)	• EAMRs and Interviews with EUDs in Rwanda, Tanzania, Zambia, Cote D'Ivoire	More than satisfactory
	GEEREF, Blending, ElectriFI and RECP combined resources to have a greater policy and reform impact. (I5.3.1)		

EQ 5	**To what extent EU support using innovative financial instruments contributed to sustainable energy goals?**		
	SMEs and SME associations are involved but there was potential for greater participation. (I5.3.2)	• Interview with DI frontier management; • GEEREF impact report 2014-15 • EU Evaluation: Environment & climate change, 2015 • Interviews with EUD (Rwanda) and association of energy producers	More than satisfactory
	There is insufficient oversight given the numerous facilities providing finance for energy in Africa – especially problematic when the initiative does not have a country base. (I5.3.2)	• Power Africa tool box • EUD interviews (Benin, Ethiopia, Nigeria, Liberia, Cote D'Ivoire, Rwanda, Tanzania, Zambia)	More than satisfactory
	The support was not found to be distortive although a more detailed analysis case by case was missing. (I5.3.3)	• Review of GEEREF, ElectriFI and Blending projects • EU Evaluation: Environment & climate change, 2015 • Blending evaluation (2016) • EUD interviews (Benin, Ethiopia, Nigeria, Liberia, Cote D'Ivoire, Rwanda, Tanzania, Zambia)	More than satisfactory
	The main additional benefit of the initiatives appeared to be in the quality of project preparation and development rather than access to finance or subsidy. (I5.3.3)		
	Although the EU's initiatives addressed special challenges they did not introduce significant technical or financial innovations. (I5.3.1-3)		
JC 5.4 Degree to which the management of the innovative financial instruments was streamlined and supported achievement of the goals	Pipeline development, demand and awareness raising benefitted from long -term engagement and in-country presence for blending and GEEREF (I5.4.1)	• EU Evaluation: Environment & climate change, 2015 • Blending evaluation (2016) • EUD interviews (Benin, Nigeria, Liberia, Cote D'Ivoire, Rwanda, Tanzania, Zambia)	Strong
	The initiatives of GEEREF/ ElectriFI and the blending facilities are characterised by high quality project management which although costly, saved money and was efficient in the long run (I5.4.2)	• EU Evaluation: Environment & climate change, 2015 • Blending evaluation (2016) • Interviews with GEEREF, ElectriFI, DI Frontier, DRC hydropower	Strong
	It is not easy to obtain an overview of the transaction and fund manager fee levels (I5.4.2)	• Interviews with GEEREF, ElectriFI • Blending evaluation (2016)	More than satisfactory

EQ 6	**To what extent were the EU resources (human and financial) allocated and used efficiently**		
Judgement Criteria	**Summary response (indicator)**	**Source of information**	**Quality of evidence**
JC 6.1 Degree to which EU efficiently mobilised its capacity (i.e. financial resources) to strengthen an enabling environment for access, RE and EE (Financial resources/physical verifiable outputs)	EU support to sustainable energy targeted a large number of countries with different context challenges. (I6.1.1)	• CRIS and DEVCO data • Rise Reports	strong
	The strategic allocation of EU funds was well balanced and contributed to strengthening the enabling environment for RE, access and EE. (I 6.1.1)	• CRIS and DEVCO data • OECD data • Country Interviews • EAMR Reports	strong
	Even though the proportion allocated to supporting policy and technical cooperation seems high, it was not disproportionate to the sector needs. (I 6.1.1)	• Rise Reports • CRIS and DEVCO data • OECD data	More than satisfactory
	From 2014, EU increased its support to policy and technical cooperation in response to lessons learnt. (I 6.1.1)	• CRIS and DEVCO data • Country Interviews • EAMR Reports	strong
	The scale of resources allocated to policy dialogue was small compared to the outputs delivered. (I 6.1.2)	• EUEI PDF Mid-term Review, 2017 • AEEP status report, 2016 • Country interviews	more than satisfactory
	The Energy Facility made good use of available resources to raise awareness on sustainable energy and to deliver projects, but it was less successful in creating an enabling environment. (I6.1.3)	• EF website • Court of Auditors report,2015 • Country interviews	more than satisfactory
JC 6.2 Degree to which EU initiatives and implementation modalities were	The cost-efficiency of implementation modalities varied. (I 6.2.1)	• Blending evaluation report, 2016 • Country interviews • Sampled projects ROM reports	strong

EQ 6	To what extent were the EU resources (human and financial) allocated and used efficiently		
cost-efficient - Operational efficiency (cost optimisation/outputs optimization)	There were indications of potentially high administrative costs in managing partnerships. (I 6.2.1)	• EUEI PDF Mid-term Review, 2017 • EUEI Annual Reports 2012-2016	more than satisfactory
	The blending mechanism was considered as a cost-efficient implementation modality, but there was evidence that it did not reduce direct transactions costs for large infrastructure projects. (I6.2.1)	• Blending evaluation report, 2016 • Country interviews • Sampled projects ROM reports	strong
	There were indications that the call for proposal under the energy facility was not managed optimally during the first financing period (2011-2013). (I6.2.1)	• Sampled projects ROM reports • Court of Auditor Report, 2015 • Energy Facility website	more than satisfactory
	Across visited countries, EU procedures were highlighted as a main source of delays and more generally inefficiencies. (I 6.2.1)	• Country interviews • EAMR Reports	more than satisfactory
	Delegated cooperation improved the cost-efficiency of EU support, because it clarified and simplified procedures. (I6.2.1)	• Delegated Cooperation Evaluation Report, 2016 • Sampled projects ROM reports • Country interviews	strong
	There were indications that the cost-efficiency of the aid mix improved overtime with an increase in the synergies between EU instruments. (I6.2.2)	• NIPS 2014 - 2020 • Country interviews • EAMR Reports	more than satisfactory
JC 6.3 Degree of EU organisational efficiency	EU response to the challenge of increased support to the energy sector was primarily financial. (I 6.3.1)	• CRIS decisions and allocated funds • EAMR Reports	more than satisfactory
	Human resources arrangements were not planned, and as a result EUDs encountered challenges in managing the increased number of projects. (I 6.3.1)	• EAMR Reports • Country interviews • EU interviews	more than satisfactory

EQ 6	To what extent were the EU resources (human and financial) allocated and used efficiently		
	There were indications that EU also faced coordination issues due to lack of clarity on division of work between EUDs and HQ. (I 6.3.2)	• EAMR Reports • Country interviews •	more than satisfactory
	Measurement of policy dialogue outputs in terms of coordination and reforms has not been given enough attention. (I 6.3.4)	• EUEI PDF Mid-term Review, 2017	more than satisfactory
	EU initiatives and their respective interventions were not systematically monitored and evaluated. (I 6.3.4)	• EUEI PDF Mid-term Review, 2017 • Court of Auditors report, 2015 • TAF-ESA/WCA ROM Report	strong
JC 6.4 Degree to which EU initiatives and interventions were visible	In most cases, project partners did comply with visibility contracts. However, projects indirectly implemented were less visible. (I 6.4.1)	• EAMR Reports • Sampled projects ROM reports • Country visit observations	strong
	There was generally a good visibility of EU initiatives. (I 6.4.2)	• Initiatives website (EF, EUEI, GEREEF, RECP) • EUEI PDF and RECP communication and visibility monitoring tools • Blending evaluation report, 2016	More than satisfactory
	EUDs were engaged in making EU visible at country level, through public events and production of communication and outreach material. (I6.4.2)	• EAMR Reports • Sampled projects ROM reports • Country visit observations	strong

EQ 7	To what extent were EU interventions in sustainable energy cooperation coordinated, complementary and of added value		
Judgement Criteria	**Summary response (indicator)**	**Source of information**	**Quality of evidence**
JC 7.1 Degree to which EU support to sustainable energy was well coordinated	EU initiated and was involved in a number of global mechanisms to coordinate sustainable energy cooperation at policy level. (I 7.1.1)	• EUEI Annual Reports 2012-2016 • AEEP Status Report (2016) • EUEI website	strong

EQ 7	**To what extent were EU interventions in sustainable energy cooperation coordinated, complementary and of added value**		
at policy and operational level	These coordination mechanisms and platforms contributed to an increased coordination at policy level, measured by trust, political and financial commitments as well as harmonisation between EU and Member States. (I 7.1.1)	• EUEI Annual Reports 2012-2016 • AEEP Status Report (2016) • EUEI website	more than satisfactory
	Policy coordination platforms and mechanisms at international level were complementary to EU initiatives in policy coordination at national level. (I 7.1.1)	• EUEI Annual Reports 2012-2016 • AEEP Status Report (2016) • EUEI website • Country interviews	more than satisfactory
	EU was proactive and initiated Development Partner coordination groups and took the lead for half of the countries reviewed. (I 7.1.2)	• Country EAMR Reports 2011-2016 • Country Interviews	strong
	The EUEI platform assisted with coordination at country level, through strategic studies, such as energy plans and strategies, which provided a framework for donor coordination. (I 7.1.2)	• EUEI, Annual Report 2012-2013 • AEEP report, 2016 • Country Interviews	more than satisfactory
	EU involvement and contribution to operational coordination (i.e. Development Partner groups at country level) strengthened cooperation in the sector. (I 7.1.3)	• Action Fiche sampled projects • Country Interviews	strong
JC 7.2 Degree to which EU interventions within sustainable energy were complementary with Member State actions	The complementarity between EU and Member States was not sufficiently well analysed at programming stage. (I 7.2.1)	• NIPs 2014-2020 for sampled countries	more than satisfactory
	No duplication in EU and MS projects was identified and the evidence showed a good division of labour between EU and MS in all countries sampled. (I 7.2.1 and I 7.2.2)	• OECD data • MS websites • Country interviews	strong
JC 7.3 Degree to which EU support to sustainable energy added valued compared to MS interventions	The added-value of EU interventions at country level was not systematically addressed in the programming documents. (I 7.3.1)	• NIP 2014-2020 • Action Fiche sampled projects	more than satisfactory
	There is some evidence that the scale of the EU support, and its combination of global, regional and country support has added value. (I 7.3.1)	• NIP 2014-2020 • Development Partner website • Sampled Country energy sector plans • Country interviews	more than satisfactory

EQ 7	**To what extent were EU interventions in sustainable energy cooperation coordinated, complementary and of added value**		
	The added-value of EU initiatives was not systematically addressed. (I 7.3.2)	• Blending evaluation Report, 2016 • EU initiatives website • EU decisions for sampled initiatives	strong
	There is some evidence that EU initiatives added value to global sustainable energy cooperation. (I 7.3.2)	• Blending evaluation Report, 2016 • EUEI Mid=term review, 2015 • AEEP Status Report (2016)	
	The EU initiatives added value can be translated as leveraging political commitment, strengthening policy dialogue, leveraging financial commitments, leveraging skills as well as increasing results and impacts. (I 7.3.2)	• EUEI Annual Reports 2012-2016 • AEEP Status Report (2016)	