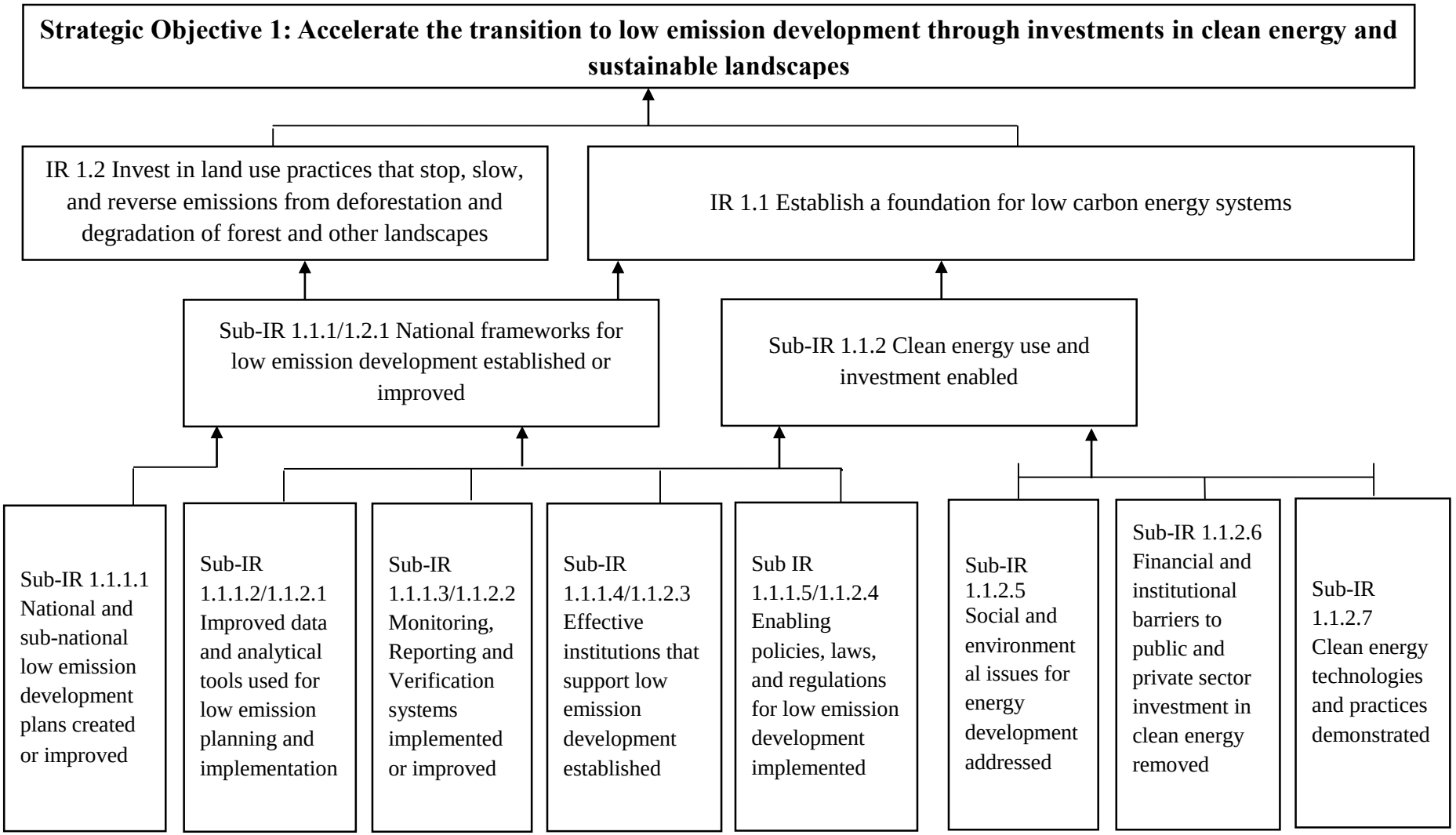
USAID CLIMATE CHANGE AND DEVELOPMENT STRATEGY: CLEAN ENERGY RESULTS FRAMEWORK



CLEAN ENERGY PILLAR RESULTS FRAMEWORK NARRATIVE

STRATEGIC OBJECTIVE 1: ACCELERATE THE TRANSITION TO LOW EMISSION DEVELOPMENT THROUGH INVESTMENTS IN CLEAN ENERGY AND SUSTAINABLE LANDSCAPES

Strategic Objective 1 (SO1) of USAID's Climate Change and Development Strategy encompasses USAID's two mitigation pillars: Clean Energy (CE) and Sustainable Landscapes (SL). SO1 seeks to enable partner countries, through investments in clean energy and sustainable landscapes, to advance economic growth and improve the lives of their people in such a way that achieves a long-term economy-wide reduction in net greenhouse gas (GHG) emissions compared to a business-as-usual trajectory. The phrase "accelerate the transition" in SO1 means that USAID seeks to facilitate the transition of partner countries to low emission, sustainable economic development in a faster time frame than would otherwise be achieved without USAID intervention. USAID's support will generally be part of an aggregate effort by a number of donors, NGOs, and partner country leaders. The word "emission" refers to net greenhouse gas emissions, i.e., the objective is to reduce emissions of GHGs to the atmosphere and enhance removal of carbon from the atmosphere through sequestration in biomass and soil. The word "low" is defined relative to each partner country's business-as-usual GHG trajectory since what is low for any particular country depends upon that country's current development pathway, natural resource base, and GHG mitigation goals.

USAID investments in clean energy and sustainable landscapes are focused largely on helping to create opportunities for less GHG intensive economic growth, and paving the way for non-USAID investments in clean energy and sustainable landscapes technologies and practices. Examples of USAID's mitigation investments include addressing market barriers and creating enabling environments conducive to private and other public investment, building knowledge and enhancing access to information, demonstrating new technologies and practices, and promoting sound strategic planning. An important component of this assistance is USAID's support for Low Emission Development Strategies (LEDS), through which USAID provides technical and analytic support to partner countries and regions for the development and implementation of ambitious and analytically rigorous LEDS. LEDS development, planning, and implementation activities are reflected in the RFs for both the Clean Energy pillar and the Sustainable Landscapes pillar.

Below SO1 are two intermediate results (IRs): IR 1.1 for Clean Energy, and IR 1.2 for Sustainable Landscapes. This narrative explains the Clean Energy Pillar Results Framework under IR 1.1, including its sub-IRs. One sub-IR, relating to the development and implementation of low emission development strategies, underlies both the Clean Energy and Sustainable Landscapes IRs. This sub-IR is listed with two different numbers; the first number, 1.1.1, aligns with the Clean Energy IR, and the second number, 1.2.1, aligns with the Sustainable Landscapes IR. Of the eight lowest-level (4-digit) sub-IRs in the Clean Energy Pillar Results Framework, four are shared by the two 3-digit sub-IRs. These four 4-digit sub-IRs are also listed with two different numbers corresponding with the Sustainable Landscapes and Clean Energy frameworks.

IR 1.1 ESTABLISH A FOUNDATION FOR LOW CARBON ENERGY SYSTEMS

At the level of IR 1.1, a foundation for low carbon energy systems has been established in partner countries. This foundation fosters the development and expansion of low carbon energy systems through enabling and attracting an increased level of investment by private and other public entities. In other words, it is at the IR 1.1 level that national foundations have been established such that significant non-USAID investments in low carbon energy systems flow.

The term "energy systems" in IR 1.1 encompasses both energy supply and energy end-use systems, at all spatial scales, including for example, utility scale electricity generation and grids, household cookstoves in rural communities, micro-hydroelectric and off-grid solar PV systems, urban buildings, and public transit systems. However, the focus of this result is at the national scale, within USAID partner countries receiving GCC mitigation support. In other words, the determination of whether this result has been achieved would be based on assessment at the national level in each USAID partner country.

Low carbon energy systems are those that reduce GHG emissions pathways over the long-term or are low GHG emitting from the outset; these systems include both "clean energy" sources, as defined in the USAID Climate Change and Development Strategy, as well as modifications to other energy systems that result in lower CO_2 (or other GHG) emissions. Such measures include, for example: 1) increased incorporation of renewable energy and lower-carbon fuels in the energy supply mix; 2) increased efficiency in the supply or end-use of energy; and 3) widespread adoption of proven and new clean, and low carbon, energy technologies and practices. Although USAID's GCC investments support clean energy, rather than all components of low carbon energy development,[1] USAID's support for LEDS can indirectly facilitate mitigation investments that reduce carbon emissions from fossil energy use, so "low carbon energy" rather than "clean energy" is used in this result.[2] Whichever carbon mitigation approach, or mix of approaches, is relevant in any particular country or region, depends on the development objectives of that partner country or region. The word "carbon," rather than GHG, is used because the primary focus of energy sector mitigation is carbon dioxide emission reductions. However, energy sector mitigation can also result in reduced emissions of other GHGs (e.g., reduction of methane leakage from biodigesters or landfills), so the word "carbon" should be interpreted broadly to encompass other GHGs as is relevant to the particular context.

An adequate "foundation" for investments in low carbon energy systems includes comprehensive national low emission strategies that have been officially adopted by national governments, enabling legal and policy architecture, effective governance systems, efficient and stable markets that support low carbon systems, and access to data, analytical tools, and new, clean energy (and other low carbon)[3] technologies and practices. USAID works with both public and private sector entities,

[1] With very limited exceptions, USAID direct GCC funding does not support activities that enable nuclear power, natural gas, coal, and oil production, transmission, distribution, or direct use, or the generation of electricity from fossil fuels, nor supply-side energy efficiency.
[2] For example, USAID LEDS assistance might include analytical support for improved national GHG inventory assessment and energy-economic modeling to develop robust national marginal abatement cost curves for GHG mitigation which would include both non-fossil fuel and fossil fuel-based mitigation measures.
[3] Because USAID direct GCC Clean Energy funds do not support activities that support development of fossil fuel-based or nuclear energy, "other low carbon" measures mentioned here reflect the broader context of a national framework for low emission development.

including governments at all levels, citizens, civil society, and private markets, to help build such foundations in partner countries.

The overall causal logic of the Clean Energy Pillar Results Framework is that,
IF:

1. national and, in some instances, sub-national, low emission development plans are created or improved; and
2. improved data and analytical tools for low emission planning and implementation are in use; and
3. monitoring, reporting, and verification (MRV) systems are implemented or improved; and
4. effective institutions that support low emission development are established; and
5. enabling policies, laws, and regulations for low emission development are implemented;

THEN:

National frameworks for low emission development can be established or improved;
AND IF:

1. improved data and analytical tools for low emission planning and implementation are in use; and
2. MRV systems are implemented or improved; and
3. effective institutions that support low emission development are established; and
4. enabling policies, laws, and regulations for low emission development are implemented; and
5. social and environmental issues for clean energy development are addressed; and
6. financial and institutional barriers to clean energy investment are removed; and
7. clean energy technologies and practices are demonstrated and made accessible;

THEN:

Clean energy use and investment in partner countries will be enabled;
AND THEN:

A foundation for low carbon energy systems in partner countries will be established and significant non-USAID investments in low carbon energy will flow.

SUB-IR 1.1.1/1.2.1 NATIONAL FRAMEWORKS FOR LOW EMISSION DEVELOPMENT ESTABLISHED OR IMPROVED

Having an economy-wide national low emission development (LED) strategic framework in place sets the stage for widespread and scaled up implementation of clean energy technologies and practices, and helps ensure that these technologies and practices contribute to achieving development priorities and achieving long-term GHG reductions. A strategic national framework can be established once: 1) an economy-wide national LED plan or plans have been created or improved and formally adopted by a national government; 2) data and analytical tools needed for national LED planning are in use; 3) systems to monitor, report, and verify the GHG emissions and related mitigation funding streams are fully operational; 4) the national and sub-national institutions needed to implement and fully support national LED are in place; and 5) the national and sub-national policies, laws, and regulations needed for implementation of the national LED plan(s) have been adopted. This sub-IR is greater than the sum of the five sub-results below it because at this level, a variety of relevant national and sub-national LED plans combine to form a cohesive national framework supported by the national government, and systems needed to support continued improvement and implementation of these plans (data and analytical tools, monitoring, reporting, and verification systems, effective institutions, and enabling policies, laws, and regulations) are in

place. The Clean Energy and Sustainable Landscapes Pillar RFs share this sub-IR because the five results that are necessary to achieve Sub-IR 1.1.1/1.2.1 are the same for both pillars.

Note that Sub-IR 1.1.1/1.2.1 encompasses two levels of achievement ("established or improved"). These words should be interpreted as a national framework is established, or an already established framework is improved, because establishment of such a framework is a necessary condition for achievement of the next higher result. This also reflects the various stages of LED framework development in USAID partner countries; some partners have already approved national climate change or low emission policies or strategies that USAID is helping to improve, others have not yet begun developing such policies, while still others are at some stage between initiation and establishment.

SUB-IR 1.1.1.1 NATIONAL AND SUB-NATIONAL LOW EMISSION DEVELOPMENT PLANS CREATED OR IMPROVED

As part of the LEDS process, USAID provides partner countries with support to create low emission development plans. This process should be national but may also include sub-national elements, and can encompass one or more economic sector or subsector, such as a national level renewable energy plan or a provincial level economy-wide low emission development plan. As with sub-IR 1.1.1/1.2.1 above, this process can also be iterative, in that once a plan has been created, it can subsequently be improved.

Sub-IR 1.1.1.1 encompasses both national and sub-national clean energy development plans, for the entire energy sector or part of the energy sector, and should be interpreted as being achieved once a sub-national or national plan has been created, or an already created plan is improved in a meaningful and substantive way. Analysis and public discussion of a draft plan inform choices among competing priorities and add value to a LEDS. Such plans, when at sub-national levels, should also have clear links to the national LED framework.

SUB-IR 1.1.1.2/1.1.2.1 IMPROVED DATA AND ANALYTICAL TOOLS USED FOR LOW EMISSION PLANNING AND IMPLEMENTATION

Assessment of GHG mitigation options, analysis of economic trends, development of mitigation plans, and monitoring of mitigation results, at all spatial scales must all be done in tandem with accurate, complete, and up-to-date data and analytical tools. Sub-IR 1.1.1.2/1.1.2.1 activities support accurate and robust data collection, for example economic data; effective and transparent collection and archiving protocols and processes; and development of robust baselines and alternative scenarios of socioeconomic development, energy use, and GHG emissions. This will enable countries to model future economic growth and emissions scenarios, make informed and analytically rigorous decisions about possible LED interventions, and monitor results of LED interventions. Examples of Sub-IR 1.1.1.2/1.1.2.1 activities include application of improved methodologies and tools for modeling long-term economic and emissions scenarios, modeling the costs of climate change mitigation interventions in a country-specific, marginal abatement cost curves, the collection and use of financial and engineering data on potential renewable energy resources, and dissemination of GHG reduction potential data and tools for specific energy technologies and practices.

SUB-IR 1.1.1.3/1.1.2.2 MONITORING, REPORTING AND VERIFICATION SYSTEMS IMPLEMENTED OR IMPROVED

Sub-IR 1.1.1.3/1.1.2.2 monitoring, reporting, and verification (MRV) systems encompass not only systems for compiling, reporting, documenting, and archiving national GHG inventories economy-wide, but also systems for monitoring, reporting, and verifying the GHG emission impacts of mitigation actions at scales ranging from individual technologies and practices to national policies and regulations. A sustained inventory and MRV system is essential to confidence and transparency among countries. In addition the underlying data is important to designing good, low emissions policies. MRV systems could also include financial information, such as levels of investment in energy mitigation measures or in energy sub-sectors. Unlike sub-IR 1.1.1.2/1.1.2.1, this sub-IR includes data and analytical tools related to improved GHG accounting and inventory methodologies. Analytical tools developed or disseminated for other purposes, including economic and GHG scenario modeling, should be counted under Sub-IR 1.1.1.2/1.1.2.1 (see additional examples in Sub-IR 1.1.1.2/1.1.2.1 above)

Implementation of MRV systems generally requires an interconnected series of tasks, including collecting emission factors and activity data, selecting or developing appropriate emission estimation methods, estimating GHG emissions, evaluating uncertainties, implementing quality control procedures, reporting results, and documenting and archiving all relevant data and procedures thoroughly and transparently. These tasks require well-coordinated and trained teams of individuals, networks of contacts for accessing data and reviewing results, and effective management systems. An effective MRV system also requires a process for independent and internationally accepted verification.

As with Sub-IR 1.1.1/1.2.1 and Sub-IR 1.1.1.1, this sub-IR can be iterative, in that an already implemented MRV system can be subsequently improved. "Implemented" should be interpreted as meaning not only that an MRV system is operational, but that it is institutionalized so that each new round of MRV improvements builds on the existing system rather than recreating procedures. The words "implemented or improved" should be interpreted as meaning an MRV system has been implemented, or an already implemented MRV system has been improved in a significant way. To count as "improved" a project can be supporting improvements related to M, R, or V.

SUB-IR 1.1.1.4/1.1.2.3 EFFECTIVE INSTITUTIONS THAT SUPPORT LOW EMISSION DEVELOPMENT ESTABLISHED

Competent public and private institutions are essential to establish and sustain strategic frameworks for national and sub-national LED in the energy sector, and for supporting strategic investment in and adoption of clean energy technologies and practices. Sub-IR 1.1.1.4/1.1.2.3 activities focus on developing effective LED capacity in appropriate local, national, and multi-national institutions and professions, including governmental, academic, civic, and private institutions. "Effective institutions" include those that, for example, take ownership of their role in the process; successfully develop and implement energy and economic policies, laws, and regulations; plan and develop energy supply over the long term; conduct robust national GHG inventories; accurately and transparently monitor, verify and report on mitigation-related finance flows and GHG emissions; coordinate inter-ministerial

collaboration on land use or energy policy and GHG mitigation; conduct energy-economic modeling and analysis; and raise awareness and increase understanding in citizen groups.

Examples of such institution building that contribute to national LEDS frameworks include improving the ability of leading ministries or agencies to coordinate among LEDS-relevant ministries; support to government agencies for the establishment of an enabling environment to attract private sector investments in clean energy technologies.

"Effective institutions" include effective human as well as institutional capacity, including professions, such as energy regulators, transportation planners, and GHG certifiers.

Institutions are considered "established" when their capacity has been raised from a determined baseline, such that they can successfully accomplish their relevant role in supporting LED.

SUB-IR 1.1.1.5/1.1.2.4 ENABLING POLICIES, LAWS, AND REGULATIONS FOR LOW EMISSION DEVELOPMENT IMPLEMENTED

Government, at all levels, can fundamentally influence the enabling environment for clean energy development. Sub-IR 1.1.1.5/1.1.1.4 activities support developing, establishing, and implementing laws, policies and regulations that create an environment that encourages LED in the energy sector. Enabling policies, laws, and regulations for developing and maintaining a national LEDS framework in the energy sector, and for encouraging investment in clean energy, include, for example: appliance and vehicle efficiency standards, energy efficient building codes, economic subsidies, corporate tax code changes, energy tariffs, carbon taxes, and emission trading systems such as cap-and-trade and emission offset programs. These measures set the stage for higher level LED outcomes; for example, laws or policies that give tax preference to high efficiency or low emission power producers could favor clean energy adoption; policies and laws establishing national standards for MRV could enable carbon markets; and promulgation of certification standards could encourage a shift in demand towards cleaner technologies. Activities that inform and motivate legal and policy reforms might include policy analysis, testimony or site visits to demonstration sites, awareness campaigns, and stakeholder involvement in legislative and policy processes that can culminate in the adoption of LED-enabling laws and policies.

SUB-IR 1.1.2 CLEAN ENERGY USE AND INVESTMENT ENABLED

Enabling clean energy use and investment, when coupled with sound strategic planning through a national LED framework, sets the stage for fully functional national low carbon energy systems. Investment in clean energy and greater use of clean energy can be enabled once: 1) data and analytical tools needed for national LED implementation are in use; 2) systems to monitor, report, and verify the GHG emissions and related mitigation funding streams are fully operational; 3) the national and sub-national institutions needed to implement and fully support national LED are in place; 4) the national and sub-national policies, laws, and regulations needed for implementation of the national LED plan(s) have been enacted; 5) social and environment issues for clean energy have been addressed; 6) financial barriers to public and private sector investment in clean energy have been removed; and 7) clean energy technologies and practices have been demonstrated as a successful and feasible mitigation option at a national level.

This sub-IR encompasses both the use of and investment in clean energy to signify that for national low emission development, clean energy must not only be generated, but meet the energy demands of a country and attract broad public and private investment to be sustained as a source in the long-term.

Inherent in this sub IR is the accessibility of clean energy options. Accessibility to clean energy technologies and practices means that they are not only physically available, but also affordable, reliable, and culturally acceptable. Examples of activities to increase accessibility include support to power producers and government agencies for regional power pool development to enable renewable electricity generation to be sold to markets without renewable electricity capacity; expansions of grids or creation of micro-grids in areas without access, and design and implementation of smart grid systems to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity.

SUB-IR 1.1.1.2/1.1.2.1 IMPROVED DATA AND ANALYTICAL TOOLS USED FOR LOW EMISSION PLANNING AND IMPLEMENTATION

See above. Data and analytical tools relevant to establishing LEDS frameworks also inform implementation of clean energy activities under LEDS.

SUB-IR 1.1.1.3/1.1.2.2 MONITORING, REPORTING AND VERIFICATION SYSTEMS IMPLEMENTED OR IMPROVED

See above. MRV systems are important throughout implementation of mitigation activities under LEDS to continue to measure the emissions impacts of activities and feed back into future decision making.

SUB-IR 1.1.1.4/1.1.2.3 EFFECTIVE INSTITUTIONS THAT SUPPORT LOW EMISSION DEVELOPMENT ESTABLISHED

See above. Examples of institution-building that supports investment in and use of clean energy related mitigation actions include, for example, support to improve the abilities of power companies, utilities, and government regulators to evaluate, negotiate, and integrate renewable energy projects into a power grid; support to legal and economic scholars for research on improvements in energy and environmental laws or energy regulatory measures; and support to non-governmental entities for implementation of energy efficiency training and information dissemination. Examples of professions that may require establishing or updated credentials include building energy managers and loan officers reviewing renewable energy projects.

SUB-IR 1.1.1.5/1.1.2.4 ENABLING POLICIES, LAWS, AND REGULATIONS FOR LOW EMISSION STRATEGIES IMPLEMENTED

See above. Sub-IR 1.1.1.5/1.1.2.4 activities should support developing laws and policies that create an environment in which LED interventions can be effectively implemented. These activities should focus on reducing barriers to widespread adoption of LED practices. As examples, laws or policies that give tax preference to low or no GHG emitting companies could favor LED adoption; policies and laws establishing national standards for MRV could enable local or regional carbon markets; and laws or governmental action might be needed to create key regulatory institutions or promulgate certification standards.

SUB-IR 1.1.2.5 SOCIAL AND ENVIRONMENTAL ISSUES FOR ENERGY DEVELOPMENT ADDRESSED

Sub-IR 1.1.2.5 encompasses considerations of social and environmental issues that can both stand in the way of energy system development or be negatively impacted by energy system development. Also included in this sub-IR is consideration of current and future climate risks and climate change impacts. All energy projects should consider current and future climate risks to ensure long-term sustainability of energy outputs. Examples of social and environmental issues related to energy systems include: the siting of certain clean energy sources should be done in a way that is sensitive to the needs and rights of local communities; certain (including clean) energy technologies can have impacts on ecosystem services, such as fresh water, as well as local wildlife, such as fish or bird populations; and climate risks could include the future availability of water for hydro projects. While it is expected that an environmental assessment will be conducted as required for relevant energy activities supported by USAID, additional activities may be undertaken to address these types of issues, including developing and implementing practices and policies that give local or traditional communities a voice in LED decisions.

SUB-IR 1.1.2.6 FINANCIAL AND INSTITUTIONAL BARRIERS TO PUBLIC AND PRIVATE SECTOR INVESTMENT IN CLEAN ENERGY REMOVED

Sub-IR 1.2.2.6 encompasses financial and political reforms that reduce barriers to adoption of and investment in clean energy, including tax, tariff and subsidy reforms to remove measures that encourage fossil energy use; remove regulatory and institutional barriers for clean energy production; improve public discourse on clean energy to dispel misinformation or find solutions to concerns on job loss, fuel prices, etc. Other barriers to investment include capacity gaps among clean energy developers that are trying to secure finance for their projects. Activities might help project developers to develop bankable projects, connect with investors, and bring their projects to financial closure.

SUB-IR 1.1.2.6 CLEAN ENERGY TECHNOLOGIES AND PRACTICES DEMONSTRATED

Sub-IR 1.1.2.6 encompasses demonstrations of technologies and practices (i.e., exhibiting the operation or use of a technology and explaining its benefits, disseminating information about practice and its benefits), as well as direct support to the deployment of clean energy technologies and practices (e.g., investments in off-grid rural solar systems or grid-connected RE). Such demonstrations of clean energy technologies and practices test theories of optimal clean energy development strategies under different conditions, build knowledge of and familiarity with technologies and practices among policymakers, energy producers, and energy users; and can promote their wider-scale adoption by energy producers or users. Also, demonstration activities can test theories about whether specific technologies and practices are affordable, reliable, and culturally acceptable, and increase accessibility by building knowledge and familiarity. Activities under this sub-IR could also include studying and adapting traditional technologies that have been, over time, replaced by GHG intensive practices. Matching the right technologies and practices with the right audiences and users will facilitate their acceptance and catalyze broader adoption.