

**FY2014-16**

**BUSINESS PLAN**



### **ESMAP Mission**

The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by the World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Australia, Austria, Denmark, Finland, France, Germany, Iceland, Lithuania, the Netherlands, Norway, Sweden, and the United Kingdom, as well as the World Bank.

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# ACRONYMS AND ABBREVIATIONS

AAA	analytical and advisory activities	IRENA	International Renewable Energy Agency
ACCES	Africa Clean Cooking Energy Solutions Initiative	LAC	Latin America and Caribbean (World Bank region)
ADB	Asian Development Bank	LCOE	levelized cost of energy
AEI	Africa Electrification Initiative	LPG	liquefied petroleum gas
AfDB	African Development Bank	M&E	monitoring and evaluation
AFREA	Africa Renewable Energy Access Program	MACTool	Marginal Abatement Cost Tool
C40	40 Cities Climate Leadership Group	META	Model for Electricity Technology Assessment
CG	Consultative Group	MNA	Middle East and North Africa (World Bank region)
CSP	concentrated solar power	MWh	megawatt hour
EAP	East Asia and Pacific (World Bank region)	NAMA	nationally appropriate mitigation actions
EASP	Energy Assessments and Strategies Program	NGO	non-governmental organization
EC	electric cooperative	OECD	Organisation for Economic Cooperation and Development
ECA	Europe and Central Asia (World Bank region)	PPF	project preparation facility
ECOWAS	Economic Community of West African States	PV	photovoltaic
ECREEE	Regional Centre for Renewable Energy and Energy Efficiency	SE4ALL	Sustainable Energy for All
EECI	Energy Efficient Cities Initiative	SIDS	Small Island Developing States
EFFECT	Energy Forecasting Framework and Emissions Consensus Tool	SIDS DOCK	Small Island Developing States Support Program
ESW	economic and sector work	SREP	Scaling-up Renewable Energy Program
EUEI-PDF	European Union Energy Initiative-Partnership Dialogue Facility	SSA	Sub-Sahara Africa (World Bank region)
GDP	gross domestic product	SWAp	sector-wide approach
GGDP	Global Geothermal Development Plan	TA	technical assistance
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Society for International Cooperation)	TAF	Technical Assistance Facility
GREIN	Global Renewable Energy Islands Network	TRACE	Tool for Rapid Assessment of City Energy
IADB	Inter-American Development Bank	UNDP	United Nations Development Programme
IBRD	International Bank for Reconstruction and Development	US\$	United States dollar (currency)
ICLEI	Local Governments for Sustainability	WBG	World Bank Group (International Bank for Reconstruction and Development (IBRD), International Finance Corporation (IFC), International Development Association (IDA), International Centre for Settlement of Investment Disputes (ICSID), Multilateral Investment Guarantee Agency (MIGA))
IDA	International Development Association		
IDA	International Development Association		
IEA	International Energy Agency		

# INTRODUCTION

1. This Business Plan sets out ESMAP's objectives, priorities, strategies, and resource requirements for FY2014-16 (i.e., July 2013 to June 2016). It draws on experience gained in implementing the previous Business Plan (ESMAP Strategic Business Plan 2008-2013), consultations with the Consultative Group of donors, advice from the Technical Advisory Group, conclusions and recommendations of the External Evaluation of ESMAP conducted in 2011-2012, and lessons learned from the annual ESMAP Portfolio Review. Business Plan

## Overview of the Global Energy Sector

2. During ESMAP's previous Strategic Business Plan period, a number of significant world events have impacted the global energy sector, including the continuing world economic and financial crisis, the debt crisis in Europe, and far-reaching political change in the Middle East. Yet the world's need for primary energy has remained high due to a major shift in demand toward rapidly growing developing countries. The International Energy Agency (IEA) projects that global energy demand will continue to grow by one-third from 2010 to 2035.
3. Technological progress in the energy sector has continued apace. Shale gas, the biggest energy innovation in decades, is dramatically changing the competitive positions for everything from renewable energy to nuclear power. The past decade has seen an innovation-driven rebirth of renewable energy sources, which now account for about 17% of global energy consumption. Meanwhile, renewable energy sources have become large global industries in themselves. Prices of the leading renewable energy technologies are falling currently, bringing renewable energy technologies closer to parity with fossil fuels (LCOE in large interconnected networks is currently within a US\$ 50-110 per MWh band). Levelized cost of onshore wind electricity is falling thanks to competition in manufacturing and hub height increase to bring efficiency in power production, reaching US\$ 60-150 per MWh. Grid connected photovoltaic (PV) LCOE is also dropping (US\$ 160-350 per MWh), thanks to manufacturing competition leading to PV crystalline-silicone modules selling at US\$ 0.75 per W in Sept 2012, a 60% decrease compared to 24 months back. Although the value remains high compared to alternatives, concentrated solar thermal LCOE is also reducing (US\$ 180-270 per MWh), thanks to new plants using tower technology and thermal storage systems.
4. Yet, after years of staggering growth, the renewable energy industry has entered a period of uncertainty lately. Much of the clean energy sector is still unable to scale up sufficiently to compete with conventional energy sources without the help of government subsidies. The renewable energy sector has been vulnerable to substantial subsidy cutbacks in these times of fiscal restraint. In 2010, global subsidies for renewable energy totaled US\$ 66 billion, compared to US\$ 409 billion in subsidies for fossil fuels (IEA, BNEF). This has created a new challenge of putting the renewable energy industry on firmer footing by progressively delinking it from government subsidies that are prone to weaken or disappear.
5. Events of the past five years have demonstrated that non-OECD countries will play an increasing role in shaping the energy market dynamics, as these countries are projected to account for 70% of the increase in economic output and 90% of energy demand growth from 2010 and 2035. China is already the world's largest energy consumer. A number of developing countries are following in China's footsteps, with the pace of energy demand outpacing China in India, Indonesia, Brazil, and the Middle East.

6. Nonetheless, significant disparities persist among developing countries and regions, and between urban and rural areas. Despite progress achieved in many countries to improve access to electricity and reduce the number of people relying on the traditional use of biomass for cooking, there are still an estimated 1.15 billion people, or around 15% of the world's population, who still lack access to electricity, and 2.8 billion, or 40% of the world's population, who are dependent on traditional use of biomass for cooking and heating. In Sub-Saharan Africa (SSA), the situation is even more somber: only 24% of the region's population has access to electricity, compared to 40% in other low-income countries. The cost of electricity shortages in SSA is estimated at more than 2% of GDP. Over 80% of households rely on wood-based biomass fuel for cooking. Furthermore, based on the IEA's forecasts<sup>1</sup>, even as electrification rates are expected to grow (from 31% to 51%), the number of people without electricity in SSA is likely to increase from 585 million in 2009 to 645 million by 2030, as population growth in many countries outpaces electrification efforts. Rural areas will be hit hardest by this trend, though rapid urbanization would present a considerable challenge in cities and towns as well.<sup>2</sup> Very low energy access in rural areas combined with insufficient progress in extending utility grids pose a formidable challenge to rural development—thereby undermining progress towards a number of major Millennium Development Goals. And the financing challenge is daunting: IEA estimates that the annual investment in the rural energy sector alone needs to increase more than five-fold to provide universal access to modern energy by 2030.
7. Currently, cities account for half the world's population and about two-thirds of global energy demand. Projections indicate that approximately 70% of the world's population will live in cities by 2050, producing some 80% of the world's greenhouse gas emissions. Further compounding the challenge, most of this urban growth will take place in developing countries, where the vast majority of people remain underserved by basic infrastructure services. Moreover, the developing regions of Africa and Asia, where the most rapid urbanization and industrial growth is taking place, are least able to cope with the uncertainties and extremities of climate impacts. Recent assessments of climate change mitigation efforts suggest that it is increasingly unlikely that the goal of limiting average global temperature rise to no more than 2°C will be met. And yet, according to a recent World Bank report<sup>3</sup>, much more aggressive curbing of carbon emissions beyond the current commitments and pledges will be needed not only to meet the 2 degrees target, but also to avoid a substantially higher increase within this century.
8. In this context, increasing energy efficiency is a critical element of energy sector development, both for the climate change mitigation benefits and to offset some of the increased cost in the shift to more renewable energy. Growing concerns about energy security oil price vulnerability, and domestic environmental and resource constraints are providing drivers for development of domestic renewable energy, independent of climate change considerations. Finding and implementing low carbon pathways, particularly in the energy sector and especially in countries where demand for energy is projected to see large increases, is critical if catastrophic climate outcomes are to be avoided. Recognizing that some level of warming is inevitable, a better understanding of climate change impacts on the energy sector and the indirect impacts through the energy-water-food nexus is needed to inform planning.
9. There is a new and welcomed global call to action on providing universal energy access in a sustainable manner: the UN Secretary-General's initiative on Sustainable Energy for All (SE4ALL) was launched in November 2011. This initiative calls on governments, private sector, civil societies, international financial institutions, and bilateral donor agencies to make a concerted effort to achieve three specific

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<sup>1</sup> International Energy Agency: World Energy Outlook 2012.

<sup>2</sup> The scenario assumes a 56% increase in investments.

<sup>3</sup> "Turn Down the Heat: Why a 4° C Warmer World Must be Avoided", The World Bank, November 2012.

goals by 2030: universal access to modern energy services; doubling the global rate of improvement in energy efficiency; and doubling the share of renewable energy in the global energy mix. The SE4ALL provides a clear framework for governments to develop country-specific roadmaps for achieving the goals, as well as country-specific tracking of progress. However, without the required investment of around US\$ 48 billion per year to meet these three goals, IEA projects that the global access picture in 2030 will change very little from that of today, and for SSA the situation will become worse. At the same time, it is clear that in order for these goals to be achieved, enhanced efforts are required to build an energy sector that is viable and sustainable with strong institutions and economically and environmentally sound regulatory policies.

10. Looking ahead, in the context of a rapidly changing global energy landscape, the primary objective for the international community is to achieve progress on the triple challenge of providing increased energy supply and security, eliminating energy poverty, and mitigating and adapting to climate change. Clearly, this can only be achieved with transformative changes in the design and management of national and regional energy systems and global efforts.
11. As part of the international effort to achieve SE4ALL targets, ESMAP's objectives for the FY2014-16 Business Plan will be:
  - A | **Enhance Development Financing.** ESMAP will provide client countries with technical assistance for pre-investment activities necessary to resolve program design issues and offer additional options.
  - B | **Influence Policy and Strategy and Increase Client Capacity.** ESMAP will seek to increase institutional capacity of client countries to plan, manage, and regulate the implementation of policies, strategies, and programs that deliver reliable and affordable energy services required by their citizens for poverty reduction and environmentally sustainable economic growth.
  - C | **Deepen Knowledge and Generate Innovative Solutions.** ESMAP-supported research and analyses will aim to strengthen the sector's knowledge and evidence base to deliver increased energy access, energy efficiency, and sustainable energy services in developing countries.
12. It is worth noting that the payoffs for analytical work can be enormous. In view of ESMAP's central role in supporting energy sector analytical work in the World Bank, a strong resource base for ESMAP is an investment that helps ensure that the Bank's energy sector projects are well designed and achieve development impacts. The Bank's policy research report "Assessing Aid: What Works, What Doesn't, and Why" cites a study (by Deininger, Squire, and Basu 1998) which concluded that (even after controlling for country, sector, and economic conditions, and staff preparation and supervision for a particular project) prior analytical work improves projects. On average, these analytical activities "have a high payoff, as the benefit of one additional week of analytical work by the World Bank is nine times the cost." Moreover, since analytical work often supports many projects, the overall benefit is even larger. The study concludes: "And these are just the payoffs to projects financed by the Bank. If the changes made from policy analysis affect other donor-financed projects, or perhaps even all government projects, the returns to involvement in non-lending activities would be enormous."

#### Box 1 | External Evaluation of ESMAP 2007-11

In FY2012, an external evaluation of ESMAP was carried out for the period 2007-2011. The primary objectives of the independent review were to: (i) assess the effectiveness of ESMAP as a global technical assistance program; (ii) assess the major factors that have influenced the results either positively or negatively; (iii) draw key lessons learned; and iv) recommend how to better meet the objectives of the program going forward. In addressing these

objectives, the evaluation assessed what impact ESMAP has had in helping to achieve poverty reduction in client countries. Overall findings confirmed that ESMAP's objectives and program designs are consistent with current global and regional challenges in the energy sector. Moreover, the review noted that ESMAP's objectives and program are consistent with the needs and priorities of its client countries.

The report also provided specific recommendations to strengthen the program's strategic focus with an emphasis on gender and other social inclusion, as well as the program's knowledge sharing and dissemination efforts, and monitoring and evaluation (M&E).

Following discussions with the Consultative Group of Donors (CG) regarding the overall findings of the report and recommendations at the 2012 CG Meeting, ESMAP management prepared an Action Plan for each of the recommendations, with detailed action areas, specific activities and outputs, and related timelines. ESMAP shared the Action Plan with the CG in the first Quarter of FY2013. ESMAP management has been tracking progress on these commitments, and recently updated the Action Plan to report on the status of the ESMAP commitments at the end of second Quarter of FY2013.

The external evaluation report and the formal ESMAP Management Response to the report can be downloaded at: [http://www.esmap.org/sites/esmap.org/files/Baastel ESMAP Final Report %2019 June 2012 FINAL optimized.pdf](http://www.esmap.org/sites/esmap.org/files/Baastel%20ESMAP%20Final%20Report%20%202019%20June%202012%20FINAL%20optimized.pdf)

### Key Principles for ESMAP's Business Plan

13. ESMAP's Business Plan builds on its strong track record as a global program for analytical and advisory (AAA) activities in the energy sector. Since its establishment in 1983, ESMAP has become a globally recognized "brand," with a strong business model. Practically every World Bank client country has benefited from ESMAP's support for improving energy sector performance and governance, enhancing access to modern energy services, increasing the efficiency of energy use, and/or promoting renewable energy. The program has now become fully integrated with the Bank's country dialogue and lending programs, while maintaining a strong identity.

#### Box 2 | ESMAP Organizational Structure

ESMAP is funded by multi-donor trust funds administered by the World Bank. The Consultative Group of donors oversees the program. Currently, there are 13 donor countries: Australia, Austria, Denmark, Finland, France, Germany, Iceland, Japan, Lithuania, Netherlands, Norway, Sweden, and UK. The program is housed in the Sustainable Energy Department of the Bank. A central unit, consisting of about 25 staff in Washington DC, is responsible for administering the program, monitoring and evaluation, corporate communications, and implementing global and cross-regional activities in collaboration with other Bank units and partner organizations. ESMAP also provides technical and financial support to country and regional-level activities that are implemented by the Bank's regional operations units in Washington and country offices.

14. The proposed Business Plan will be based on the following principles:

A | **Help shape the future.** ESMAP's focus will continue to be on research and analysis that influences the strategic directions of the energy sector. In effect, ESMAP's current portfolio should be a leading indicator of the World Bank's future energy portfolio. The program should generate new knowledge; draw on lessons learned across regions and sectors; help apply these lessons in the design of new energy policies, institutions, and programs; anticipate opportunities



and challenges; and, promote innovation. A strong communication and dissemination program is a prerequisite to be effective in this role.

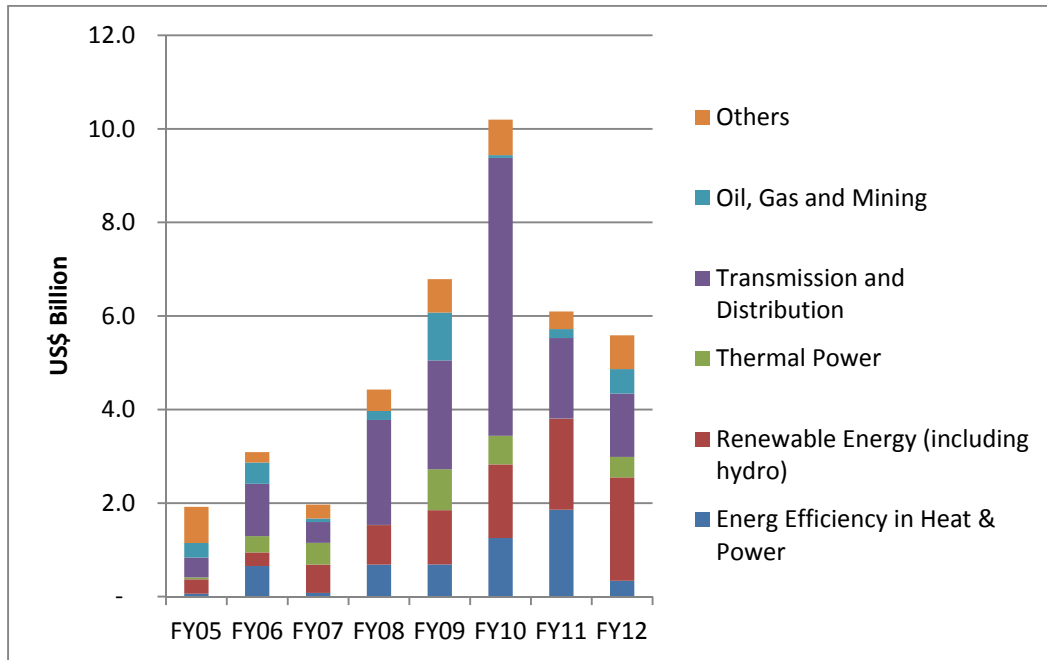
- B | Measure results and demonstrate impacts.** ESMAP will invest resources and management attention to measuring the performance of its programs. Accountability for outputs and outcomes will be critical elements of ESMAP’s monitoring and evaluation (M&E) processes, while recognizing that some of ESMAP’s activities will be inherently innovative, high-risk, high-reward, and with longer term impacts beyond the time-frame of a three-year Business Plan. A focus on results will mean more consistent reporting on the baseline and target values, more robust indicators, and more results-oriented reporting. A start has already been made by conducting an annual portfolio review, which assesses outcomes of ESMAP activities and identifies key lessons from implementation strengths and weaknesses; establishment of an M&E Portal, which will provide real-time data on portfolio status and key performance indicators; and launch of a series of Impact Stories that will link ESMAP’s upstream activities in support of the enabling environment or project preparation, with the actual impacts produced on the ground several years after the completion of the technical assistance.
- C | Provide value for money.** This Business Plan proposes a significant program expansion, while staffing at ESMAP will remain broadly stable. Program management and administrative costs are practically flat in an overall proposed budget envelop that would be nearly double the level of disbursements in the previous Business Plan period. ESMAP will also act on the external evaluation’s conclusion that it is important to focus on a few well-defined programs, with critical mass of funding and human resources. Efficiency gains should arise from a portfolio consisting of fewer activities relative to the resource base, but with larger and more targeted activities. About two-thirds of the proposed budget for the FY2014-16 Business Plan would be allocated to six multi-year, targeted programs (out of about 20 programs). A particular focus will be to leverage more resources from other Bank units and development partners in achieving the Business Plan’s targets. Furthermore, ESMAP is subject to standard Bank monitoring on efficiency indicators, with emphasis on achieving cost savings in travel and consultants’ fees. The ESMAP team will continue to work closely across the Bank’s regional operational units and networks to share best practices on quality enhancement and transaction cost reductions, and identify areas where to best improve cost efficiency.
- D | Ensure relevance to the Bank’s country sector dialogue and lending operations.** The strength of ESMAP as a global program has been its strong links to country clients through the World Bank’s regional operations units. Operational leveraging has been accomplished primarily through a system of annual block grants (ABGs) to the regions, which has been effective due to its responsiveness to demand, flexibility, and streamlined decision-making. Similarly, the annual portfolio review has documented that ESMAP-managed global analytical and knowledge activities are more likely to result in “on-the-ground” action when they are targeted to and aligned with country-level needs. Therefore, ESMAP will increasingly anchor its global activities in clearly defined client demand, and country level activities within such global programs will be initiated and implemented by the Bank’s regional operations units and/or other development partners.
- E | Working across sectors.** SE4ALL has three interlinked thematic priorities—energy access, energy efficiency, and renewable energy. In many instances, national policies and institutions do not treat these as separate issues, but rather seek to achieve multiple policy goals. For example, there are potential synergies between interventions to promote energy efficient cities and to

increase access for the urban poor. ESMAP will also address the global energy challenge holistically by targeting energy efficiency opportunities in transport, urban, water, and sanitation sectors. Furthermore, cross-sectoral institutions and policy-making are necessary to effectively manage energy resources, for example, in natural resource management and hydropower development. For this reason, ESMAP's teams will be more cross-cutting, drawing on the expertise of staff working across different programs and initiatives.

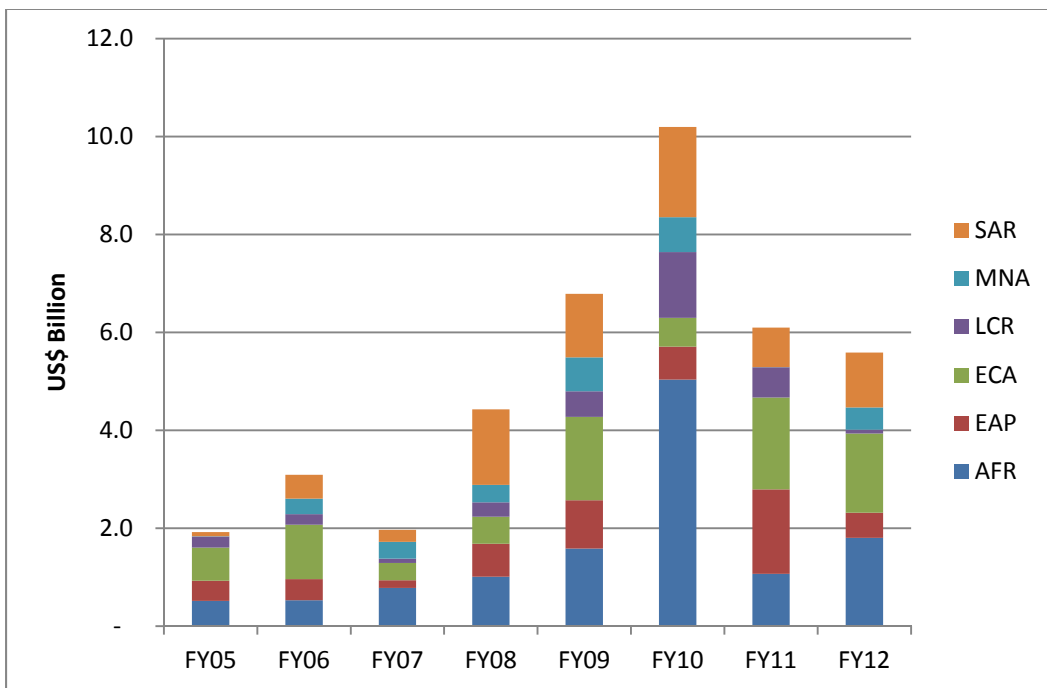
- F | Scaling-up to respond to increased client demand.** World Bank Group energy lending has increased from about US\$ 2 billion in FY2005 to almost US\$ 6 billion in FY2012. At the same time, the portfolio is diversifying into low carbon investments and is likely to see an increase in household energy interventions. This substantial growth in the size and complexity of the energy portfolio has been accompanied by increasing demand from clients for more analytical work and technical assistance to help define policy options and program priorities, as well as to identify and adapt good practice. ESMAP will maintain recent allocation levels for regional Annual Block Grants, which constitute the core of ESMAP's response to client demand, and supplement them with sizable targeted technical assistance programs for clients, such as the Global Geothermal Development Program, SE4ALL Technical Assistance Facility (TAF) for universal access, Renewable Energy Resource Mapping, and the Africa Renewable Energy and Access Program.
- G | Increase support to low-income countries, while maintaining engagement with middle-income countries.** ESMAP will continue its global mandate to support all World Bank client countries. However, recognizing that the needs for financial and technical assistance—and the institutional capacity gaps—in the energy sector are greatest in low-income (IDA) countries, the new targeted programs mentioned above (representing a substantial majority of funding of ESMAP country-level support) will give priority to IDA countries. At the same time, about 75% of the world's extreme poor currently live in middle-income countries and even with continued economic growth, about 50% of world's poor will live in lower middle-income countries. The poor in middle-income countries often suffer disproportionately from unreliable energy supply. Further, efforts at phasing out regressive fossil fuel and electricity subsidies in middle-income countries, an essential factor in promoting low carbon development and viable energy sectors, can adversely impact the poor in these countries. Given that these impacts arise from direct energy sector interventions, some of the mitigation measures will also have to necessarily reside in the energy sector. Therefore, ESMAP will continue to provide assistance to middle-income countries, within the framework of ensuring reliable access to energy for economic growth that lifts the extremely poor out of poverty and boosts shared prosperity. The experiences of middle-income countries also provide important lessons to share with low-income countries. For upper middle-income countries, the emphasis of ESMAP's program will be on the adoption of innovations, South-South exchange, and climate change mitigation.
- H | Strengthen cooperation with other multilateral and bilateral development agencies.** ESMAP will enhance its leverage and influence of development programs by seeking opportunities for stronger collaboration with bilateral development agencies and banks, regional development banks, and other international organizations. ESMAP currently has a broad range of cooperative activities with development partners: for example, with United Nations Development Programme (UNDP) on the SIDS DOCK Support Program, with International Renewable Energy Agency (IRENA) on renewable energy resource mapping, with the Asian Development Bank on low carbon development, with the IEA on the SE4ALL Global Tracking Framework, and with regional organizations, such as the Economic Community of West African States (ECOWAS) Regional Center for Renewable Energy and Energy Efficiency. In addition to dissemination of

results and consultation with other actors during the development and implementation of ESMAP activities, ESMAP will also provide technical support in its areas of comparative advantage to other development partners, particularly bilateral development agencies and banks. ESMAP’s support to Norway’s Energy+ initiative is an example that could be replicated.

**Figure 1 | World Bank Energy Lending by Thematic Area (US\$ billion)**



**Figure 2 | World Bank Energy Lending by Region (US\$ billion)**



## ESMAP ANNUAL BLOCK GRANTS

15. The core of ESMAP's work program will continue to be the allocation of US\$ 6 million annually to the World Bank's regional energy units for analytical and advisory activities linked to the Bank's country policy dialogue and investment lending programs. The annual block grants (ABGs) will be supplemented by targeted global and regional programs (such as AFREA II, renewable resource mapping, geothermal, SE4ALL Technical Assistance program) with planned allocations to regional units of about US\$ 95 million over three years. The total allocations to regions for ABGs and targeted programs would represent over 80% of the proposed ESMAP budget for FY2014-16.
16. As in the past two years, allocations to the regions for ABGs will be based on a performance-based formula, which will consist of a flat allocation of US\$ 500,000 for each region, plus a variable allocation that will be determined on the basis of the following factors weighted equally:
  - A | **Region's energy lending volume.** The allocation system takes into account total approved energy lending for the two prior fiscal years—in dollar amounts and number of projects—to ensure that ESMAP's support to the regions is broadly proportionate to the volume of business in each region's energy units.
  - B | **Total disbursement of regions' ESMAP funds** measured by the disbursement ratio of ESMAP allocations to the regions during the two prior fiscal years, as an indicator of absorptive capacity.
  - C | **Total contribution of World Bank budget to ESMAP activities** using the total disbursement of Bank Budget (BB) for ESMAP activities approved during the two prior fiscal years, as an indicator of regional ownership.
  - D | **World Bank lending informed by region's ESMAP activities** measured as proportion of a region's lending (number of projects, not financing amounts) that had related ESMAP activities, as a measure of the operational leveraging effect of the region's ESMAP portfolio.
  - E | **Results** measured as the proportion of a region's activities with at least one observed outcome.
17. Starting with this Business Plan period, ESMAP will also introduce a call for proposals through the World Bank's Transport Sector Board to regional transport units for activities related to energy efficient transport. Transportation produces roughly 23% of the global CO<sub>2</sub> emissions from fuel combustion. More alarmingly, transportation is the fastest growing consumer of fossil fuels and the fastest growing source of CO<sub>2</sub> emissions. With rapid urbanization in developing countries, energy consumption and CO<sub>2</sub> emissions by urban transport (currently 32% of transport-related emissions) are increasing rapidly, at about 3-5% annually. As a result, developing countries will account for nearly half of transport emissions by 2020. Interventions related to promoting public transport, "green" freight, demand management, urban planning, and vehicle efficiency could reduce fossil fuel use in the transport sector, and would therefore be targeted for ESMAP support.
18. ESMAP will also introduce an annual call for proposals through the World Bank's Water Sector Board to regional water and sanitation units for activities related to improving energy efficiency in water and wastewater utilities. In many Bank client countries, electricity costs account for 20-30% of the operation cost of water and wastewater utilities. Improving energy efficiency and energy management is an important strategy to control cost and enhance financial sustainability of these utilities, a key development objective of the Bank's assistance. Between 2000 and 2010, the Bank lent US\$ 16.1 billion

in urban water and sanitation, indicating a significant opportunity for leveraging energy efficiency financing. Interventions related to improving utility-level energy management, specific and system-wide design optimization, water loss reduction, and water conservation could reduce energy use in the water and sanitation sector, and would therefore be targeted for ESMAP support.

19. The total proposed budget for these cross-sectoral block grants is US\$ 1 million per year for FY2014-16. ESMAP will also continue to seek co-funding for regional ABG activities through partnerships with the Global Partnership for Output-Based Aid (GPOBA), Public-Private Infrastructure Advisory Facility (PPIAF), and Climate and Development Knowledge Network (CDKN).
20. The total funding budgeted for ABGs is US\$ 21 million for FY2014-16.

## **Regional Perspectives | Client Demand**

### **Africa**

21. For most Sub-Sahara Africa (SSA) governments, the development of the energy sector is one of the key development priorities in order to support economic growth and poverty reduction. The challenges that need to be overcome include inadequate generation capacity, low access rates, and unreliable energy supply. The investment needs are enormous. Currently, about 1-2 GW of new installed capacity have been deployed annually, while Africa needs 6-7 GW of new capacity every year. Electricity access has grown merely 1% per year, and nearly 80% of households still rely on solid biomass for cooking. It is estimated that Africa needs up to US\$ 40-50 billion yearly to reach universal access by 2030—while current annual investments are only US\$ 9-10 billion.
22. The World Bank on its own will not be able to provide all necessary financing to meet this challenge, but it will actively cooperate with its partners under the SE4ALL initiative to reach the universal access targets. In particular, the Bank will aim to serve as a catalyst for additional investments from both public and private sources. The SSA region's objective is to respond to these challenges by leveraging IDA/IBRD investments, knowledge, and technical assistance. During ESMAP's new Business Plan period of FY2014-16, a particular focus will be on developing transformative approaches to scale-up energy supply and reduce the costs of generation, support power pools and regional energy trade, scale-up energy access, and promote policy and utility reform. The aim is to apply a tailored approach that combines knowledge and finance into integrated solutions.
23. Examples of subjects likely to be covered include support to power sector planning; development of transformational generation projects; leveraging private sector investments; energy security; support for integration of low carbon generation options and diversification of supply; technical assistance to regional power pools; linkages between energy and mining sectors; power sector reform; gas to power issues; tariff and subsidy designs; and improving efficiency of utilities.
24. SSA Region consists of a large number of countries with diverse needs. ESMAP support, therefore, will need to be targeted to particular country conditions and priorities. Geographically, countries can be grouped into four power pools (East, West, South, and Central). The West Africa Power Pool is the most advanced and the focus would be on strengthening WAPP operations and integrating new countries (e.g., Liberia, Sierra Leone, Guinea, Guinea Bissau). The focus of the interventions in the East Africa Power Pool would be to initiate interconnections across countries, driven primarily by the development of the hydro-electric projects in Ethiopia, geothermal power in Kenya, and gas potential in Tanzania. The Central Africa Power Pool interventions will be linked to the development of the hydropower resources

in Democratic Republic of Congo. Southern Africa Power Pool will also be strengthened, with increasing exchanges across countries, and leveraging more renewable energy projects.

25. In all power pools, ESMAP funds will be used in particular to support transformational projects that will benefit not only the individual countries, but the whole region. This may include, for example, development of larger hydroelectricity projects, geothermal and wind development in East Africa, wind and solar development in Southern Africa, and assisting countries with newly discovered fossil fuel reserves (e.g., gas discoveries in Tanzania and Mozambique) on managing these resources.
26. Expanding energy access will continue being a priority for practically all SSA countries, but the focus of ESMAP intervention will differ depending on the country's conditions. In the middle-income countries with the higher electrification rates, the focus will be on developing strategies for reaching universal access, with a particular focus on how to reach the poorer and more remote households (last mile). For lower income countries with low electrification rates, the focus will be on a rapid scale up of both grid and off-grid electrification options. For fragile and post-conflict states, the focus will be on the stabilization of the provision of electricity in urban areas and the development of policy and regulatory frameworks that will promote accelerated electrification efforts. Household energy, in particular development of cleaner cooking solutions, will remain a priority in the majority of SSA countries.

### **East Asia and Pacific**

27. During the next three fiscal years, key themes for the World Bank's policy dialogue, interventions, and analytical studies in the energy sector in East Asia and Pacific (EAP) region will be enhancing energy security, scaling up energy efficiency and renewable energy, expanding access to modern energy, and advancing sustainable urban energy. Reflecting the diversity of the countries in the region, ranging from low-income IDA countries with limited access to modern energy services to upper middle-income countries in advanced stages of power sector reform and sophisticated competitive markets, the areas of focus and Bank strategic priorities vary reflecting challenges faced in each country. ESMAP technical and financial support will be sought to leverage ongoing engagements with client countries, and enhance select analytical and advisory activities (AAA) /technical assistance (TA) activities, policy dialogue, and to address clients' requests in priority areas of engagement in each country.
28. In Myanmar, Lao PDR, and Cambodia, the focus will be on expanding generation capacity, increasing access to electricity and clean household energy, enhancing system-planning capabilities, developing renewable energy, and advancing the regional power market development in the Greater Mekong Sub-region.
29. In the Pacific Islands, key areas of Bank engagement where ESMAP support may be required include strengthening energy planning under a sector-wide approach (SWAp); enhancing policy and regulatory frameworks and capacity to ensure supply security; expanding access to affordable, reliable, and sustainable electricity services; improving financial performance of power utilities and tariff frameworks; and integrating natural disasters and climate change in energy sector management and planning.
30. In middle-income EAP countries, it is anticipated that ESMAP support would be needed to enhance analytical work and policy dialogue on select priority areas of sector engagement. In Indonesia, these priority areas are enhancing supply security, expanding access to modern energy, supporting renewable energy scale-up, advancing improvements in electricity pricing and phase out of subsidies, and utility governance.

31. In Vietnam, priorities envisaged for the next few years are strengthening energy security, scaling up renewable energy, enhancing energy efficiency, and advancing the power sector reform agenda. In this context, policy dialogue and AAA/TA work will focus on enhancing efficiency of power transmission and energy use in the industrial sector to introduce innovative programs for demand response, enabling and promoting the use of natural gas as an alternative to new coal fired generation, supporting continued sector reform, and identifying solutions for financial challenges in the power sector.
32. In the Philippines, where highly sophisticated markets are in place, in the recent years, with support from ESMAP and other donors, the Bank was able to provide technical assistance on cutting edge subjects, such as the revision of the Grid Code for integration of variable renewable energy, and reform and restructuring options for rural Electric Cooperatives (ECs). In the coming years, continued ESMAP support would be sought to respond to client requests and provide AAA on priority topics, such as distribution code revisions to accommodate scale up of small embedded renewable energy; support to ECs on issues such as bulk power supply aggregation, financial strengthening, tariff regulation, and governance to help them become credible buyers for new renewables; and introduce liquefied natural gas (LNG) to contribute to energy security and avoid coal generation dependency.
33. In China, ESMAP funding would be sought to support strategic activities focusing on developing policies and innovative mechanisms for climate change mitigation; deriving lessons that can benefit other countries in EAP (and beyond) on how to tackle globally relevant challenges, including scaling up and integration of renewable energy, energy conservation, and efficiency; and developing novel policies and approaches for sustainable urban development.

## Europe and Central Asia

34. The World Bank's business strategy in Europe and Central Asia (ECA) Region for the FY2014-16 would be targeted at addressing the principle challenges of the energy sector, including: (i) low energy efficiency (the region accounts for 5% of the world's GDP and 10% of energy consumption); (ii) looming energy crunch due the emerging shortage in primary energy supplies; (iii) old and severely undermaintained energy infrastructure, especially for power generation and district heating; (iv) lack of energy sector financial viability coupled with lack of supply affordability; (v) decline in private capital flows and commercial financing; and (vi) high climate vulnerability of energy production, especially for hydropower dependent countries due to changes in rainfall and glacier melt.
35. The focus of ESMAP support for ECA region would be on the following:
  - A | **Energy Assessments**, including energy sector policy notes, energy supply options studies, tariff studies, energy affordability assessments, and analysis of energy subsidies. These assessments would be needed for Armenia, Georgia, Moldova, and countries of Central Asia. The energy assessments would underpin Bank's engagement in the energy sector of the client countries, and would inform the strategic planning (including investment prioritization) and policy making of the client countries.
  - B | **Regional studies**, including energy trade assessments—studies of regional energy markets and related market rules and institutional arrangements. Regional studies would be necessary for Central Asia and the Balkans where larger regional cooperation could help the countries address energy supply security and cut costs. The studies would identify the economic benefits of fostering energy trade and propose rules and institutional arrangements for managing risks.

- C | **Energy efficiency and heating studies**, including assessments of economically and financially viable energy efficiency potential for different sectors of economy, analyzing market barriers to realization of energy efficiency potential, identifying viable financing, institutional and delivery options for heating and energy efficiency. These studies guide the Bank’s policy dialogue, as well as inform its investment operations. The likely target countries would include Armenia, Belarus, Kyrgyz Republic, Macedonia, Tajikistan, and Ukraine. These studies would inform the client countries about viable energy efficiency and heating options and underpin the design of Bank operations in the energy efficiency and heating sectors.
  
- D | **Renewable energy studies**, including resource mapping, identification of market barriers, and assessment of grid connection issues, smart grid solutions, and regulations. Target countries would include Georgia, Belarus, Turkey, and Eastern European countries. These studies would underpin the design of Bank operations.

### Latin America and the Caribbean

36. The key development challenges on which the World Bank will be supporting client countries in the Latin America and Caribbean (LAC) region over the next three years are:
- Scale-up capacity and improve generation mix, regional integration, and energy trade
  - Enhance energy resiliency to deal with impacts of high and volatile oil prices, as well as climate change
  - Improve energy efficiency
  - Strengthen capacity for service delivery
  - The drive towards universal access to energy in the region
37. The Bank’s engagements will vary reflecting the diversity within the region and development priorities; and will require a range of instruments, such as technical assistance, analytical support, and investment financing. ESMAP technical and financial support will be sought to leverage ongoing priority activities to enhance their impacts, and carry out advanced work in anticipation of future challenges and needs in the region.
38. The energy sector is a critical driver of economic growth and development in the LAC region. In recent years, the sector has faced challenges to scale-up investments in power generation capacity and to reduce its dependence on costly fuel oils for producing electricity. The situation is exacerbated by a slowdown in private investments due to the global recession. Therefore, efforts to improve the energy mix that will enhance the region’s competitiveness and improve its resiliency will be a priority.
39. ESMAP support will be sought to assist client countries with developing their indigenous renewable energy resources, such as hydropower (including Brazil), wind (including Mexico), geothermal (Caribbean and Central America sub-regions), and solar (Honduras); exploring options for the utilization of transitional fuels, such as natural gas (Central America sub-region), and the further integration of energy markets to promote trade (Caribbean and Central America sub-regions). An important complement to this effort would be for the World Bank together with ESMAP support to promote energy efficiency, particularly in cities, to better manage demand and supply.



40. With a more manageable cost of energy supply, the Bank can assist countries to seize opportunities for increasing access to electricity and clean cooking solutions (Peru, Argentina, Honduras, Haiti) that have a significant rural dimension and are an imperative for inclusive growth. Ultimately, reliable service delivery will be an essential requirement to residential consumers and business industries alike, which will continue to create demand for the World Bank's and ESMAP's global experience in reforming and improving energy utilities, to assist regional clients. Taken as a whole, these engagements will have a strong low carbon dimension that is actively being pursued by most regional countries.

### **Middle East and North Africa**

41. The Middle East and North Africa (MNA) region's Energy and Transport unit have developed sector strategies, aligning them with the MNA Strategic Framework as well as MNA's vision of focusing on capacity and institution building and infrastructure functioning and expansion to meet growing demand with a greater emphasis on decentralization and service delivery. In the next three years the focus will be on:

- A | **Energy.** Fuel subsidies, Clean and Modern Technologies, Electricity and Gas Markets Reform, Regional Integration, Renewable Energy, Energy Efficiency, Utility Management and Commercialization
- B | **Transport.** Urban Transport, Rural Access, trade and logistics, Transport safety and other social externalities, Better Asset Management and Clean Transportation
- C | **Gender.** The MNA region and specifically the Energy and Transport unit will also support on identifying gender-responsive development actions that are strategic from the government's point of view. The World Bank's gender policy is to support governments in identifying key gender issues for poverty reduction in their countries and assisting them in taking actions on these issues from the sectoral perspective. Also, it would be important for the region to propose periodic assessments of gender issues as a key strategy for each country to identify gender policy and program interventions in the sectors. The region will partner with external entities (think tanks, the private sector, universities/NGOs), which are now a key element of our development work, especially on gender, Bank wide.
- D | **Poverty Reduction.** The unit will also take into account the Bank's vision of elimination of poverty and increased shared wealth when prioritizing all our AAA work.

42. ESMAP support going forward in the region will be vital especially since the region is going through this turmoil and the priorities on intervention and policy dialogue are also aligned with ESMAPs initial strategy.

### **South Asia**

43. The South Asia (SAR) region is home to 1.5 billion people, 95% of which live in its three largest countries, namely India (1.1 billion), Pakistan (166 million), and Bangladesh (160 million). The region has enjoyed robust economic growth, but poverty remains high with two-thirds of its population living on less than US\$ 2 per day. The region is particularly vulnerable to the impacts of climate change due to its geography and high population density.
44. The power sector remains a weak and unstable sector that weights rather than enhances development in the region. Power generation shortages plague most countries as supply has not kept pace with demand. Load shedding is a common occurrence that can stretch 5-16 hours a day, depending on the country and season. This extorts a very high cost in terms of reduced economic development, jobs losses, and disincentives to broaden access to electricity to those not yet connected. At the same time,

financial losses in the power sector are mounting due to misalignment of tariffs with cost of supply; high cost of power procurement; and high transmission and distribution losses. All South Asian countries share a high dependence on fossil fuels, a large part of which is imported. The underdeveloped intra-regional power trade—limited to small cross-border exchanges—prevents optimizing the fuel mix at the regional level and developing the largely untapped hydropower potential by linking high resources with high demand areas.

45. With these challenges in mind, three pillars for operational and analytic engagement are put forth in by the World Bank's South Asia Sustainable Development Energy unit (SASDE) in its eight countries:

A | **Pillar 1: Promoting access to and reliability of energy services**, both grid and off-grid, and through new access projects, distribution efficiency improvements, and sector reforms. Household energy intervention will also be considered, particularly in light of findings of the Global Burden of Disease Study that show indoor air pollution is the biggest health risk in South Asia.

B | **Pillar 2: Facilitating the implementation of clean energy investments for low carbon growth**, supporting the emergence of environmentally and socially sustainable hydropower projects, the distribution of renewable power generation for rural access, and the generation through new renewable with emphasis on solar power (PV and thermal). The energy efficiency agenda is also important, which includes enhancing efficiency of power plants, and transmission and distribution systems, and generalizing demand side measures.

C | **Pillar 3: Improving regional and domestic electricity markets** by supporting efficiency of inter- and intraregional trade and transfers of energy and enhancing sector governance through support of sector reforms and assistance to regulatory agencies.

46. ESMAP support has played a key role and remains an integral part of the SAR's engagement with these priority areas; whether it provides technical assistance to help unleash the potential of Concentrated Solar Power (CSP) in India, funds and staff support to the definition and implementation of a renewable energy framework in Maldives, or means to develop a strategy to reduce non-technical losses in its utilities in Pakistan. Once the region's 2013 election cycle is over, opportunities will arise to start dealing with the ongoing energy crisis at the strategic level and it is expected that ESMAP funds will be key to engaging countries on this topic. Future ESMAP support will be used to enhance analytical work and to engage with governments and stakeholders on topics either too complex or relatively new to them that require upstream work before being mainstreamed into country strategies and operations.

## SIDS DOCK SUPPORT PROGRAM

47. Small Island Developing States (SIDS) are often highly dependent on imported fossil fuels to meet their energy needs. As a result, many SIDS experience high costs for electricity, supply interruptions, and serious fiscal impacts as oil prices rise. Despite significant renewable energy resource potential and good opportunities for increasing energy efficiency, in many SIDS, the existing structure of their energy sectors and inadequate institutional and private sector capacity limits the development of such opportunities. Frequently, small transaction size also acts to limit the interest of international developers and commercial financiers, calling for the design of regional approaches to implement support, where feasible.

48. To help meet this challenge, ESMAP joined with the UNDP, the Alliance of Small Island States (AOSIS), and the Government of Denmark to establish the SIDS DOCK Support Program. The Government of Japan has also pledged funding.
49. SIDS DOCK is designed to help achieve the transformation of the energy sectors in member countries by:
- Creating an enabling regulatory and institutional environment to remove barriers on the implementation of renewable energy and energy efficiency policy reforms based on international best practices
  - Implementing renewable and energy efficiency projects that demonstrate the potential for scale-up through climate finance and other sources of funding
50. Since the launch of SIDS DOCK in September 2011, ESMAP has allocated funding for a number of initiatives, including a study of the feasibility of interconnecting electricity grids in the Caribbean, preparation of grid codes for Mauritius and the Seychelles, assessing energy efficiency options in Sao Tome and Principe, and supporting the early stages of geothermal power development in Vanuatu and Dominica.
51. In addition, a package of technical assistance requested by SIDS DOCK member countries is being developed, including analytical work to explore options for financing mechanisms and the establishment of a virtual knowledge exchange network. ESMAP has also partnered with the Ashden Awards to organize an innovation competition for renewable and efficiency projects in SIDS that may be replicated or expanded.
52. The ESMAP FY2014-16 SIDS DOCK program is predicated on a contribution of US\$ 15 million funding from the Government of Japan to the SIDS DOCK Multi-Donor Trust Fund managed by ESMAP, expected to be available starting in early CY2013.

Several key principles will guide the programming of the new funding:

- A | The program will involve a smaller number of larger recipient-executed grants (US\$1 million+), rather than a large number of very small packets of support. High transaction costs are associated with preparing and implementing recipient-executed micro grants, so efficiency considerations mean that larger activities will be given preference.
- B | Activities will be closely aligned with World Bank energy sector programs in the regions. Experience has shown that due to competing demands, activities undertaken outside the context of an active World Bank energy sector engagement frequently receive inadequate attention from recipient governments or World Bank regional energy management and staff. Successful outcomes are much more likely when ESMAP support is an integral part of a broader Bank engagement in the country energy sector policy dialogue. This is especially important given the SIDS DOCK objective of transforming the energy sectors of member countries. Stand-alone, *ad hoc* activities have little chance of stimulating real transformation.
- C | Regional equity (i.e., resources allocated among the Caribbean, Pacific, and AIMS regions based on the number of countries in each region) will be given a high priority, but flexibility would be retained to reprogram resources as necessary.
- D | Preference will be given to IDA countries over IBRD countries.

- E | Input from SIDS DOCK national coordinators and agreement from the SIDS DOCK Program Coordination Group will be sought in developing the project pipeline, though approval rests with the World Bank/ESMAP following normal procedures.
- F | The program will actively coordinate with other entities engaged in the area of energy in SIDS. In particular, ESMAP will collaborate with IRENA’s Global Renewable Energy Islands Network (GREIN), with a focus on how the virtual knowledge network developed through the SIDS DOCK program could support GREIN.

53. Two other considerations will influence the allocation of the next tranche of SIDS DOCK funding, both related to the future of the SIDS DOCK program: (i) The SIDS DOCK institution should be in a position to take on an appropriate role as the program matures; and (ii) future support for investments under the SIDS DOCK Support Program should be passed to a vehicle suited to supporting investment projects. ESMAP’s capacity in this regard is limited to pilot projects.

54. Taking into account the above principles and considerations, the program for the Business Plan period will be organized under two focus areas:

**A | SIDS DOCK Institutional Building** | The objective of this focus area is to strengthen the capacity of the SIDS DOCK institution so that the SIDS DOCK Institution is able to attract funding directly, resulting in a significantly reduced role in SIDS DOCK support for the World Bank and ESMAP in the subsequent Business Plan period. The SIDS DOCK Institution should also be a credible counterpart in partnering with a Program(s) or Fund(s) to expand investment support.

**B | Country-Level Support to Promote Renewable Energy and Energy Efficiency** | The objective of activities under this focal area is to improve the environment for investment in renewable energy and energy efficiency in SIDS DOCK countries in the Caribbean, Pacific, Indian Ocean, and Africa regions through better policy and strategy and through pilot investments.

**Table 1 | SIDS DOCK Support Program**

Key Performance Indicators	FY2014-16 Budget
<ul style="list-style-type: none"> <li>• SIDS DOCK support will lead to either increased renewable energy generation (MW) or increased efficiency (kWh/year) or increased number of people with access</li> <li>• SIDS DOCK country policy reform measures, strategies, and programs initiated have been influenced by ESMAP</li> <li>• SIDS DOCK institution has been strengthened through ESMAP interventions</li> </ul>	US\$ 15 million <sup>4</sup>

## ENERGY ACCESS PROGRAM

55. During ESMAP’s current Business Plan period, initiatives, such as the Africa Renewable Energy Access Program (AFREA), have made important contributions towards the goal of reducing energy poverty, for instance, through the expansion of Lighting Africa program. ESMAP has also delivered knowledge and analytical products that introduced innovations in electrification programs around the developing world, such as the sector-wide approach (SWAp) in Rwanda. Over the last couple of years, ESMAP has helped

<sup>4</sup> Subject to signed contribution agreement with Government of Japan.

revive interest within the World Bank on household energy and assisted regional energy teams in Africa, South and East Asia, and Central America initiate programs to promote clean cooking solutions.

56. During FY2012-13, ESMAP also commissioned a resource paper for operational staff on household energy project development; an analytical study on economics of household energy; and, a study to strengthen the definition and measurement of energy access indicators, including analytical work to further develop the Multidimensional Energy Poverty Index (MEPI). It has partnered with the Global Alliance for Clean Cookstoves on a global mapping study of the cookstoves sector. Further, ESMAP has initiated work on increasing energy access to the poor in rapidly urbanizing populations. ESMAP has also played a crucial role in the SE4ALL global initiative since its launch in 2011, contributing to its conceptualization, as well as operationalization. Thus, over the period of the business cycle, ESMAP has established itself as one of the most prominent players in the world in advancing the agenda of enhancing energy access.

57. The principal goal for ESMAP in the new Business Plan is to continue and deepen its engagement in five focus areas:

- 1 | Supporting the global SE4ALL initiative, particularly with respect to the target of achieving universal energy access by 2030
- 2 | Energy access for the urban and peri-urban poor
- 3 | Scaling-up household and off-grid energy interventions
- 4 | Enhancing support to Africa through AFREA
- 5 | Building on ESMAP’s analytical and knowledge base to prepare a “State of Energy Access” Report

58. The specific programs are summarized below.

### **SE4ALL Technical Assistance Facility**

59. ESMAP is establishing a Technical Assistance Facility (TAF) to support a targeted group of countries achieve the SE4ALL initiative’s goal of universal energy access by 2030. The TAF will contribute to this objective by assisting countries to establish planning, institutional and policy frameworks, and prepare an investment prospectus that could mobilize investments for scaling up and accelerating energy access programs.

60. Key features envisaged of TAF are as follows:

- A | TAF would provide a **comprehensive technical assistance package** necessary for the development of a complete—and customized to the country needs—package of investment proposals and projects, which in aggregation, would lead to fulfillment of the universal energy access goal by 2030.
- B | TAF would use tools such as SWAp, which would have the **active involvement of all relevant stakeholders**—government officials, private sector, development partners, nongovernmental organizations (NGOs), and civil society—in developing investment proposals, so that the overall country strategy and program would have a broad buy-in.
- C | TAF would provide a **multi-year, medium-term engagement** with the country in order to leverage and build on various existing programs and plans, and identify the gaps needed to be filled in order to prepare a comprehensive action plan to achieve the 2030 goal.
- D | TAF would be **targeted at a specific subset of countries**, which have potential for large-scale

expansion of energy access. These will be countries that have large numbers of people currently without access and strong commitment and willingness for global partnership to achieve their access goals.

E | While the **primary focus of TAF would be on the goal of universal energy access**, the activities at country level will also include the other two goals of renewable energy and energy efficiency, to the extent that those options could contribute to the primary goal of expansion of energy access.

61. TAF will initially target up to seven countries from those which ‘opted in’ to achieve SE4ALL goals. Subsequently, the program may be expanded to other countries, subject to availability of additional resources. In implementing the technical assistance program, ESMAP will liaise with the Global Facilitation Team (GFT) of SE4ALL at various stages to ensure consistency with the initiative’s goals, processes, and other programs. This would include consultations on country selection, facilitating the Bank’s participation in SE4ALL country actions at the request of other lead agencies, and sharing information about planned and ongoing activities with other organizations.

62. **Country selection.** Selectivity in countries to be supported will help deliver the maximum impact with relatively limited resources given the large energy access gaps and the differences in country’s energy access situations. The first phase’s recipient countries will, therefore, be selected based on the following broad criteria:

A | Focus on IDA countries (low- and lower middle-income), with priority to Africa and representation of countries with different access requirements (e.g., countries with high impact, high barriers, and high performance).<sup>5</sup>

B | Firm government commitment to SE4ALL goals—namely, those countries that make access to modern energy services a national priority and are prepared to drive it as a campaign. This criterion can be translated into indicators, such as the existence of energy access targets in the government’s current policies/strategies, high level commitment to policy and institutional reforms, and an undertaking to establish a dedicated institutional structure (e.g., interministerial group, unit in Ministry of Energy, etc.) to implement national programs.

C | Strong World Bank sector policy dialogue with the country, to leverage the Bank’s technical and operational expertise, client relationships, and potential investments.

D | Potential for ESMAP support to be a “game-changer” in the country. This would include the presence of other development partners who could be part of a significant resource mobilization effort, as well as an existing funding gap for energy access-related technical assistance.

63. Under SE4ALL, it is expected that several other international agencies (e.g., UNDP, IADB, ADB, AfDB, and the European Commission) would initiate similar TA programs in the ‘opt-in’ countries. ESMAP will coordinate with these organizations to ensure complementarity and non-duplication (e.g., focusing on different sectors and countries). This coordination will be conducted both at the country level (e.g., the EC and the World Bank’s Africa Energy Unit are already sharing information on potential projects) and through the emerging institutional arrangements for Sustainable Energy for All (i.e., Global Facilitation

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<sup>5</sup> High impact: countries where interventions are likely to create access to large numbers of populations; High barrier: countries with very low access, which need extensive assistance on various fronts to be able to design and implement interventions; High performance: countries which are already on way to substantial access and will be able to achieve universal access with marginal support (Source: SEFA Task Force Report on Access).

Team). Consultations are also underway with ESMAP’s CG members to identify areas of collaboration with their bilateral developments agencies and banks.

64. Table 2 lists the initial candidate countries for the TAF, based on preliminary consultations with regional energy units and other development partners (subject to their opting into SE4ALL and further assessment of government commitment).

**Table 2 | Initial Candidate Countries for SE4ALL Technical Assistance Facility**

AFRICA	EAST ASIA	SOUTH ASIA
Burundi	Myanmar	Regional (India, Bangladesh, Nepal)
Guinea		
Liberia		
Mozambique		
Senegal		

65. **Detailed Stocktaking.** The technical assistance program would undertake a stocktaking exercise to determine the country’s current status of access programs, prospects, and gaps in achieving universal access to electricity and cleaner cooking/lighting, as well as a detailed mapping of energy demand.
66. Such a stocktaking exercise would help identify the policy and institutional gaps to be filled in order to develop investment programs targeted at universal access and would form the basis for developing or strengthening national energy action plans and strategies. TAF would support integrated resource planning, where appropriate.
67. **Capacity Building and Knowledge Sharing.** Based on the identified capacity requirements and knowledge gaps, TAF will initiate a number of capacity-building activities, including training on technical, institutional, and implementation aspects that focus on electrification, as well as clean cooking. Establishing/strengthening data gathering and management information systems will be an important component of capacity building.<sup>6</sup> In particular, the technical assistance package could support the introduction of dedicated surveys to measure energy access and monitor energy poverty.<sup>7</sup>
68. Further, TAF would facilitate South-South exchanges and training events to disseminate and share experiences in overcoming similar challenges in other countries—such as rural electrification programs in Vietnam and Tunisia or large-scale liquefied petroleum gas (LPG) adoption experience in Indonesia.
69. **Policy and Regulatory Advice.** The program would make available experts to advise on policy and regulatory requirements and reforms in order to foster a conducive environment for private sector involvement in energy infrastructure investments and energy services delivery. In particular, TAF will focus on two areas. First, improving the power sector investment climate, with a view to building credible regulations that are transparent and predictable for investors and helping countries adopt global standards for procurement of goods and services and for contracting private sector partners. Second, improving the governance and financial balance of power companies; this would mean strengthening their accountability, autonomy, subsidy-targeting, and cost-recovery capabilities.

<sup>6</sup> Implemented through national statistical systems and integrated with global UN-lead work for improvement of energy statistics.

<sup>7</sup>ESMAP is currently implementing an activity to develop a multidimensional and multitier approach for defining and measuring access to energy. This would include both improved usability and use of energy sources.

70. **Investment Prospectus.** The technical assistance package would result in action/implementation and financing plans, in the form of an investment prospectus. It is possible some of the countries may already have action plans or specific program targets, and the investment prospectus would build on such plans/programs. The investment prospectus would determine the medium-term policy and financing support required to meet the set goals and targets. This task could include pre-feasibility studies for investment programs and projects, to help prepare a robust pipeline of bankable projects. Developing innovative proposals that involve the private sector (e.g., using off-grid renewable energy supply systems for cell phone towers in rural areas to expand access to other businesses and local communities) will be an important aspect of the investment prospectus.

71. The investment prospectus would have the following key characteristics:

- A | Adopt a two-track approach with differentiated planning and implementation strategies for electricity access, as well as energy and appliances for more efficient and cleaner cooking and heating.
- B | Emphasis on promoting energy services for productive uses across different sectors of the economy (agriculture, industry, health, education, small businesses, community needs, etc.).
- C | Adopt customized but flexible strategies that allow multiple institutional / business models and diverse players to take on complementary roles in a coordinated scale-up program. This would mean using a consortium approach with different development partners, but with a clearly defined leadership.
- D | Undertake segmentation of markets/areas and adopt appropriate technology/program interventions so as to reach the energy services to all sections of the population—for instance, urban, peri-urban, and dense rural areas could be covered by network-based solutions and existing utilities/service providers, whereas off-grid, decentralized solutions could be used to reach people in remote and low-density areas.
- E | Technology-neutral approach with options to be chosen based on their appropriateness to the specific situations. Nonetheless, with sustainability as a core objective, the technical assistance program would place specific emphasis on promoting clean and renewable forms of energy where feasible and applicable (e.g., renewable energy technologies would be the primary source for off-grid applications in most remote rural situations in developing countries). This would mean a menu of options to suit different segments, situations, and target groups. For instance:
  - o For Electricity | grid extension; centralized generation and transmission, along with mini grids using renewables and hybrids; off-grid renewable energy and/or hybrid solutions; regional interconnections and cross-border links; and, efficiency and demand-side management options
  - o For Cooking and Heating | clean cookstoves (improved/advanced); biogas digesters; sustainable fuel management (e.g., efficient production of charcoal); fuel switching (e.g., LPG, kerosene, biofuels, etc.); and solar space and water heating
- F | Support government's efforts to leverage funding to implement the national energy action plans. The objective would be to seek firm funding commitments for investment from donors and private sector entities against specific program/project proposals. Active coordination will be ensured with other access initiatives, such as Energy+ and the Scaling up Renewable Energy Program (SREP). ESMAP would facilitate country-led donor conferences and provide operational



support to World Bank regional units in preparing project components to be financed by World Bank and the International Finance Corporation (IFC). Tools such as SWAp successfully adopted in Rwanda and Kenya (see Box 3) will be utilized as appropriate.

### Box 3 | Electricity Access Program Investment Prospectus in Rwanda

ESMAP supported the Government of Rwanda to develop, through a sector-wide approach (SWAp), a national investment prospectus that helped boost electricity access. Prior to ESMAP's intervention, Rwanda had less than 65,000 electricity connections, representing a national electrification rate of 6%. Many small energy access projects, funded separately by several donors, and using different institutional frameworks and procedures, had been implemented with limited on-the-ground results. To increase aid effectiveness in boosting electricity access, the government adopted SWAp—a country-led, results-focused framework that brings together development partners and other stakeholders to coordinate aid and interventions in a specific sector. It established the energy sector working group that comprised government institutions and development partners.

The program investment prospectus aimed to meet the government's target to increase the national electrification rate to 16% by 2013, and was prepared in close collaboration with members of the energy sector working group. The investment prospectus includes: (i) a geospatial electricity access rollout plan, (ii) a program implementation plan, and (iii) an estimated investment requirements from the development community. By mid-2012, the access rate improved to 11% and is on track to meet the 2013 target. SWAp is now being replicated in Kenya and other African countries are considering it.

72. **Timeline and Budget.** The duration of a particular country program will depend on the specific requirements of the country and is expected to last about 24-36 months. It is also estimated that each technical assistance program may cost on an average about US\$ 2-3 million to support all the tasks described above. A total budget of US\$ 19 million is proposed for the program over FY2014-16. In the event of a funding gap in the FY2014-16 Business Plan period, expansion beyond the countries listed in Table 2 would be suspended.
73. ESMAP will have a small, dedicated team to offer technical support of staff and consultants to Bank regional energy units for project identification, development, appraisal, and implementation targeted at household energy and off-grid energy solutions as part of the SE4ALL Technical Assistance. The focus will be on innovations in business models and technologies and building linkages with other sectors, such as health, telecommunications, and natural resource management.
74. **Contribution to SE4ALL Global Tracking Framework.** ESMAP will partner with the Bank's Energy Anchor and other development partners to support the SE4ALL global tracking framework. A methodology for global and country-level tracking is currently under development and subject to further consultation on the scope and institutional arrangements for implementation. The proposed budget for FY2014-16 is US\$ 2 million. The components of this work will include:
- A. *Reproducing Basic Global Tracking Framework Report.* This is the updating of the databases on access, renewables, and efficiency on which the Global Tracking Framework is based and the creation of a synthesis report based on a similar model to the first one.
  - B. *Improving Basis for Energy Access Tracking Over Time.* Beyond the basic, binary tracking of access there is a need to improve the ability to measure access based on the multitier framework that has been developed and proposed:
    - o Strengthening global omnibus surveys. The first step in this direction would be to improve existing global omnibus surveys questionnaire design so that the Tracking Framework can go

- from binary access to three levels. This, for example, would enable the Framework to distinguish between off-grid solar electrification and grid-based electrification and, in particular, between improved and unimproved cook stoves for biomass.
- Piloting multi-tier framework at the country level. The next step would be to pilot the more comprehensive five-tier access framework developed in the report in a number of the opt-in countries that then could be used for country tracking. Most of these costs would be picked up at the project level and by bilateral partners, but a core capability in ESMAP would be needed to coordinate the questionnaire design and data analysis.
  - Globalizing multitier framework. The final step would be to take the tested survey from the country pilots and convert it into a customized global energy survey that could be used for global tracking.

### **Partnership with Cities Alliance on Energy Access for the Peri-Urban/Urban Poor**

75. According to the United Nations, the global urban population will double from 2.5 billion to 5 billion over the next two decades. About 90% of this increase will be in developing countries. Urban populations in South and South-Eastern Asia are projected to grow at an annual rate of 2%, whilst SSA is projected to grow at a higher rate of 3.3% (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Urbanization Prospects: The 2009 Revision*). By comparison, rural populations are projected to grow slowly at just 0.2% per annum, with a negative population growth rate projected by 2040.
76. Despite the efforts of some governments, the sheer challenge of providing basic services on such a scale is proving to be extremely difficult, even where the political will exists. As a result, most urban growth in developing countries is informal, and will continue to be so for the foreseeable future. Informal settlements, slums, favelas, and barrios are the face of this urban growth. According to a recent report by UN Habitat, the absolute number of slum dwellers has actually increased from 776.7 million in 2000 to some 827.6 million in 2010 (UN Habitat [2010/2011], *State of the World's Cities-Bridging the Urban Divide*). These growing slums are distinguished by poor quality of housing, overcrowding, unhealthy living conditions, and social exclusion.
77. Although there is often close proximity of urban poor areas to the grid, meeting increasing demand for electricity among the urban poor presents several social, financial, and technological challenges. Years of social exclusion, poverty, and marginalization have led to the breakdown of trust between public authorities and the urban poor. Illegal and costly energy distribution systems, often managed by private illegal entrepreneurs and/or slumlords, have led to the poor paying a price premium for energy services. The insecurity of tenure of illegal settlements and the consequential unwillingness of utilities to serve the slums often results in the urban poor resorting to illicit connections to the grid and significant financial losses to the utilities. To further compound the situation, the risk profile of poor residents and the challenging physical characteristics of slums make access costly and barriers high for serving this kind of customer. Yet, the formal provision of energy to millions of slum dwellers is both a social and an economic necessity.
78. In addition to the challenges faced in providing infrastructure services to the urban poor in slums, national and local authorities also face particular difficulties in meeting the needs of peri-urban populations. Peri-urban areas have a number of causes, but tend to spring up on the peripheries of rapidly expanding major cities, their growth often fuelled by a migrant workforce that cannot afford the high rents of the cities in which they seek employment. By remaining beyond the jurisdiction of the local authority, immediate costs are reduced, not least through the non-provision of services. In reality, peri-

urban areas become slums that will ultimately be incorporated into the town or city, either by being enveloped or through the conscious expansion of the city. For millions of poor people, a combination of ill-defined property rights, inadequate infrastructure and housing policies, and dysfunctional land markets are contributing to rapid peri-urban growth in developing countries.

79. Peri-urban areas differ from inner-city slums, as they typically have lower demographic densities, worse basic services indicators, poorer urban infrastructure, and mixed land use. These areas might encompass a wide range of activities, including agriculture, small-scale industries, and land speculation. Peri-urban areas are generally beyond or between legal and administrative boundaries of municipalities, and tend to be unregulated by government authorities. As a result, they may become a dumping ground for industrial activities and the city's waste with resulting environmental degradation and health hazards. Urban expansion tends to be unplanned, informal, and illegal with frequent struggles over land ownership and use.
80. ESMAP will continue its program of analytical and advisory activities to address energy access of peri-urban communities and the urban poor through collaboration with the Cities Alliance, which is a global partnership for urban poverty reduction and the promotion of the role of cities in sustainable development. By promoting the positive impacts of urbanization and improved coherence of effort, the Cities Alliance supports learning among cities of all sizes, and also among cities, governments, international development agencies, and financial institutions.
81. The Cities Alliance uses its Country Program to offer developing countries a medium- to long-term partnership to respond to the challenges and opportunities associated with urbanization, promoting a more effective urban agenda centered on sustainable, inclusive cities. The Cities Alliance is currently developing Country Programs in five countries, each tailored to local conditions and priorities: Uganda, Ghana, Burkina Faso, Vietnam, and Mozambique. Given the nature and scale of the urban transformation, a combination of national policy dialogue, as well as city development and slum upgrading strategies, remain the key support offered through the Cities Alliance. In addition to the five Country Programs, the Cities Alliance also has extensive slum upgrading and city activities underway in Brazil, South Africa, India, Indonesia, and the Philippines.
82. ESMAP will support the inclusion of expertise in the energy sector in the preparation of the Country Programs. For its part, the Cities Alliance will actively promote the partnership with ESMAP, as well as the use of its tools. This will include technical assistance on policy formulation and program/project design and implementation related to technology options and business models for energy services (both electrification and household energy, such as for cooking and heating). The emphasis will be on strengthening the linkages between energy efficiency in municipal services with energy access and distributed generation with renewable energy, thereby focusing on energy systems transformation in cities.
83. This program will have a mix of activities: design of field-level interventions to improve energy access and efficiency; development of knowledge products supporting such interventions; and South-South exchange of best practice that informs the intervention design. A US\$ 3 million budget is estimated for these tasks during the Business Plan period.

### **State of Energy Access Report**

84. Drawing on its wide-ranging coverage of various aspects of energy access, ESMAP proposes to bring out a comprehensive report on the "state of energy access." The main objective of the report—envisaged as a regular publication every two or three years—would be to present a detailed qualitative and

quantitative assessment of different facets of energy access interventions, under SE4ALL, as well as by various global, regional, and national partners. The report would draw on the global tracking report to be produced under the aegis of SE4ALL, which would monitor and present quantitative progress on SE4ALL goals and is being coordinated by the World Bank/ESMAP and IEA in partnership with a number of other international organizations.

85. Using a format similar to the World Bank’s *World Development Report*, the State of Energy Access Report would present various programs, national and regional initiatives, technologies, achievements, case studies of best practice and lessons to be learned, and innovative approaches. Based on the information presented and analyzed, the report would reflect on the evolving agenda and the challenges to be tackled in enhancing energy access. The report would be a comprehensive reference guide that caters to different stakeholders, and would be developed in collaboration with internal and external partners. The inaugural report is expected to be released in mid-2014 and the second in 2017. For the Business Plan period of FY2014-16, a budget requirement of about US\$ 2million is estimated.

**Table 3 | Energy Access**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• Approved in-country energy access programs/projects catalyzed by ESMAP</li> <li>• Client country policy reform measures, strategies, and programs initiated that have been influenced by ESMAP</li> <li>• Client country legislative/regulatory programs in which the drafting has been influenced by ESMAP interventions</li> <li>• Countries mobilize financing from development agencies and the private sector to implement specific projects and programs, which are part of their SE4ALL investment prospectus to achieve universal access by 2030</li> <li>• Governments initiate action through SE4ALL TA to establish enabling environment for private sector investments and a creditworthy power sector</li> <li>• Cities Alliance country program incorporates energy services in city development strategies</li> <li>• SE4ALL strategic directions shaped by State of Access Report and global access tracking framework</li> <li>• Suitable research products published and openly accessible through peer review literature</li> <li>• Citations of ESMAP research from third party sources</li> </ul>	US\$ 26 million <sup>8</sup>

**Africa Renewable Energy and Access (AFREA) Program**

86. ESMAP and the World Bank Africa Region are launching AFREA II, which will build on the achievements of the original AFREA program. The AFREA was established in 2008 as ESMAP’s program for Africa. AFREA is an ESMAP-financed program with delegated management authority to the Africa Energy Unit.
87. The establishment of this program reflects the special situation of the SSA region, namely the urgent need to develop scalable, innovative solutions to close Africa’s energy access gap. The first phase (AFREA I) was financed by a contribution of US\$ 28.875 million from The Netherlands.

<sup>8</sup> Excludes funding for energy access activities through regional Annual Block Grants.

88. The objective of AFREA II is to support the scale up of energy access and clean energy solutions in SSA. The aim is to mobilize US\$ 50 million over 5 years. Full-scale implementation of AFREA II is subject to sufficient donor pledges.
89. AFREA II will deepen and expand the successful AFREA I activities. In particular, AFREA II will continue and expand the regional programmatic activities developed by AFREA I, including:
- A | **Lighting Africa** | a joint World Bank-IFC program which seeks to accelerate the adoption of clean off-grid lighting technologies by households and businesses throughout SSA that rely for their lighting needs on candles, kerosene, and other inferior and harmful fuels.
  - B | **Africa Clean Cooking Energy Solutions (ACCES)** | to accelerate the development of the clean cooking sector in SSA to increase access to modern technologies and cooking fuels to alleviate the adverse health, environment, and socioeconomic impacts of traditional cooking practices in SSA.
  - C | **Africa Electrification Initiative** | to create and sustain a living body of practical knowledge and network of SSA practitioners in the area of design and implementation of rural, peri-urban, and urban on-grid and off-grid electrification programs.
  - D | **Gender and Energy** | objective to develop and mainstream the application of good practices in applying a gender-sensitive approach to energy policies and projects.
90. AFREA II will strengthen its strategic focus in order to maximize the impact and sustainability of its interventions. In particular, AFREA II will build a tighter connection to IDA/IBRD lending in order to leverage better the available funding. While AFREA I focused primarily on piloting of innovative solutions, AFREA II will support their scaling up, including mainstreaming of pro-poor and clean energy approaches. AFREA II will give more attention to improving policy frameworks and strengthening institutions, in order to make the approaches and innovations developed under AFREA sustainable in the long term. Finally, AFREA II will give more attention to the needs of post-conflict and fragile states, as they often require different approaches than those applied in other SSA countries.
91. AFREA II will be technology neutral. Both grid-connected and off-grid renewables will be supported. Also, all forms of energy access will be considered—grid expansion, mini-grid, stand-alone systems, lighting, and clean cooking solutions.
- Thematically, AFREA II activities will fall under four pillars: (i) investments, (ii) policies and institutions, (iii) markets, and (iv) knowledge and capacity. The pillars will be supported by two cross-cutting themes: enhancing impact, and supporting post-conflict and fragile states.
92. **Pillar 1 | Supporting clean energy and access investments.** This pillar will support investments and technical assistance activities that will lead to scaling up of clean energy and access investments. This pillar will build on the lessons of the government-executed investment grants implemented under AFREA I. The focus, however, will shift from piloting innovations and new approaches to scaling up such approaches, and mainstreaming them into larger government and donor interventions. Particular attention will be given to mobilizing, better targeting, and improving use of IDA/IBRD resources, such as through the provision of technical assistance for more ambitious access expansion programs, introducing innovations and/or for the inclusion of pro-poor access expansion components in larger

energy projects. Also, this activity, among others, will include development and implementation of SWAp<sup>9</sup> to improve planning and mobilize funds for ambitious energy access interventions.

93. **Pillar 2 | Improving policy and regulatory frameworks and building institutions.** While massive investments are needed to reach universal access, it is unlikely that these investments will reach the desired outcomes if they are not accompanied by appropriate policy actions. Most of the SSA energy sector policy and regulatory frameworks are still suffering from severe shortcomings—state-owned utilities are operating inefficiently without cost-reflective tariffs; subsidies are regressive, benefiting primarily higher income quintiles; utilities do not have incentives to extend service to the poor and connection charges are prohibitive for the poor (e.g., over US\$ 500); biomass policies are lacking or are not being enforced; and private sector developers interested in off-grid solutions are struggling with either lack of regulation or over-regulation. The objective for AFREA II, therefore, would be to start addressing the key policy, regulatory, and institutional bottlenecks currently impeding rapid and sustained energy access expansion efforts. Examples of activities included in Pillar 2 include improving subsidy design and targeting; optimizing renewable energy investments; off-grid electricity regulation; designing and implementing of pro-poor policy and regulatory frameworks; analysis of political economy of policy changes, policy frameworks for sustainable use of biomass, and institutional options for access expansion scale-up in Africa.
94. AFREA II will also support clean energy and access scale-up through regional integration and cooperation. It will build on AFREA I's existing cooperation with ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) and could also involve other regional bodies, such as East African Community (EAC) and South African Development Community (SADC). These bodies can play an important role in the promotion of harmonized policies and approaches to expand access and clean energy and to facilitate development of regional programs (e.g., ECOWAS/ECREEE are developing regional small hydropower program). In addition, support could be provided to regional power pools.
95. **Pillar 3 | Leveraging markets to provide services to the poor.** This pillar will support activities that promote scale-up of energy access through enterprise-based models. The objective is to create an enabling environment for the private sector to serve the unelectrified populations. Given the large number of people without electricity in SSA and its rapid population growth, it is unlikely that government programs alone will lead to universal access to sustainable energy by 2030. The Lighting Africa example has shown that under the right conditions, the private sector can be motivated to provide services for low-income individuals at the Base-of-the-Pyramid market. Pillar III, therefore, will finance Lighting Africa expansion and it will also extend the principle of market transformation to other market segments, particularly clean cookstoves and fuels (ACCES program).
96. **Pillar 4 | Knowledge exchange and capacity building.** This pillar will continue advancing the Bank and client government knowledge of technical, economic, financial, policy, regulatory and institutional issues related to the clean energy and energy access scale-up. The focus will be primarily on analyzing latest trends, opportunities and challenges related to clean energy and energy access, and how they are impacting Sub-Saharan Africa. The objective will be to provide practical advice to SSA governments on what they can do in order to take better advantage of existing opportunities and/or remove particular bottlenecks for scaling up clean energy and access. This work will be done through (i) Africa Electrification initiative, (ii) capacity building of both governments and non-governmental institutions, including regional educational institutions, and (iii) dissemination of lessons learned from Pillars I to III.

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<sup>9</sup> Excluding countries where SE4ALL will develop SWAps.

The capacity building activities will be developed in close cooperation with other development partners active in this area, such as IRENA, EUEI-PDF, Africa-EU Energy Partnership, and Unido.

97. **Cross-Cutting Theme 1 | Enhancing impact of interventions.** AFREA II will continue its *Gender and Energy* activity, initiated under AFREA I with the objective to develop and mainstream the application of good practices in applying a gender-sensitive approach to energy policies and projects. AFREA II would support, where appropriate, integration of *productive uses* in the design of IDA/IBRD electrification operation, building on the past research and the productive uses toolkit developed by EUEI-PDF with Africa Electrification Initiative (AEI) and GIZ cooperation.
98. **Cross-Cutting Theme 2 | Supporting post-conflict and fragile states.** AFREA will provide specific additional resources to activities that benefit post-conflict and fragile states in order to ensure that the AFREA resources are allocated equitably and that post-conflict/fragile states are not excluded due to their capacity constraints.
99. AFREA will supplement the ESMAP ABG allocation for the Africa region, by providing additional resources for activities that will have direct relevance to renewable energy and access. ESMAP’s SE4ALL TAF will provide scaled-up resources to a targeted set of countries in Africa and other regions for policy reform and institutional development, capacity building, preparation of SWAPs, project pre-feasibility, and development of an investment prospectus for resource mobilization. AFREA would complement the SE4ALL TAF, by focusing on the remaining countries in the region. Similarly, AFREA resources would not be allocated to countries eligible for SIDS DOCK funding.

**Table 4 | Africa Renewable Energy and Access (AFREA) Program**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• IDA/IBRD operations design enhanced by AFREA to (i) significantly increase access and/or clean energy, (ii) integrate Lighting Africa and/or ACCES components, and (iii) improve pro-poor targeting</li> <li>• New approaches for energy access/renewable energy scale-up developed and piloted in IDA/IBRD projects or AFREA recipient-executed grants</li> </ul>	US\$ 24 million

## CLEAN ENERGY PROGRAM

100. Global investment in clean energy has undergone a quantum leap in the last decade. This Business Plan expects this trend to continue in line with projections of several analysts (e.g., see IEA, *World Energy Outlook 2012*), as developing countries face the compound challenges of growing energy demand, rising costs, and sustainability. In most developing countries, responding to these challenges requires an all-out strategy in which expanding clean energy plays an increasing role.
101. For many countries, the deployment of clean energy is not perceived simply as an environmentally advantageous source of reinforced energy security, providing additional energy access and a less fossil-fuel dependent energy supply. It is also considered a broader economic opportunity, helping to diversify the skill base, and to boost industrial development from associated manufacturing in larger countries.
102. Over the next few years, clean energy supply will expand amidst a fairly volatile environment, affected by some or all of the following factors: growth in the availability of natural gas; potentially sustained high prices of coal and oil; continued reductions in the cost of renewable energy technologies, and,

therefore, the relative prices of electricity generating options; stop-and-go in renewable energy regulations in OECD countries; and the gradual emergence of a carbon price in some countries.

103. The vision that drove the previous Business Plan was dictated by the need to nurture nascent clean energy markets, stimulate demonstration projects, and build the capacity for the assessment of low carbon development pathways over the long term. Challenges differ today: renewable energy equipment markets are more mature; renewable energy supply unit costs are decreasing for several technologies; most countries have set up clear renewable energy expansion targets, facilitating the mobilization of public support and private investment; and planning for low carbon, climate resilient development is well understood and increasing widely practiced.

104. The focus of this Business Plan's Clean Energy Program is on solving specific problems to scale up clean energy investments through a mix of targeted analysis, knowledge dissemination, and operational support. The following objectives/focus areas have been identified:

**Focus Area 1 |** Enhancing the World Bank Group and development partners' capacities to design and implement clean energy policies and investments

**Focus Area 2 |** Mainstreaming the use of energy modeling tools to support low carbon development planning

**Focus Area 3 |** Supporting in-country scale-up of distributed renewable energy resources (biomass, small hydropower, solar, wind) through mapping and geospatial planning

**Focus Area 4 |** Building a geothermal energy investment pipeline through concessional finance mobilization

**Focus Area 5 |** Helping the energy sector adapt to climate change

### **Focus Area 1 | Enhancing the World Bank Group and development partners' capacities to design and implement clean energy policies and investments**

105. With renewable energy representing 44% of all WBG energy lending as of FY2012, there is a substantial need for Bank staff to have the latest knowledge and tools at their command. The core outcome of the Focus Area 1 is to inform investment lending preparation and increase client capacity and knowledge.

106. To achieve these outcomes, Focus Area 1 is centered on production and dissemination of knowledge and lessons learned to design and implement renewable energy investment operations. This includes knowledge on technologies, policies, regulations, and promotion of private sector investment, as well as practical know-how on ways to mitigate investment risks, ensure adequate grid integration, mitigate environmental and social impacts, and promote sustainable investment mobilization.

107. A first main output of this focus area is a comprehensive training program on renewable energy for World Bank Group staff, clients, and development partners, launched by ESMAP in FY2012 in collaboration with the Advisory Services of the IFC. Several bilateral development partners provided trainers (e.g., from Finland) and the training was opened to external participants. The practice to involve ESMAP external partners will be expanded in the forthcoming Business Plan period.



108. The training program is designed to strengthen staff knowledge so that they can better support clients in renewable energy policy development and investment design and implementation. Each module was developed and delivered by World Bank and external experts. Eight training modules were offered between March and December 2012 and attended by more than 500 World Bank Group staff. They covered: wind power; solar PV power; CSP; geothermal energy; bioenergy; renewable energy policy incentives; financing renewable energy and renewable energy grid integration issues; and renewable energy policy incentives. A session on environmental impacts was included in each of the technology sessions. The content of all the modules is now accessible together with other publications and materials related to each topic via the ESMAP website.
109. During the period of the FY2014-16 Business Plan, ESMAP will scale back the training to two or three modules per year, focusing on broadening the training audience to client representatives, bilateral development agencies, and regional development banks, and the provision of customized training on renewable energy at the regional level in selected country offices. ESMAP will also actively disseminate the material from the training modules to ensure adoption of practices in operation design and implementation.
110. During FY2012, ESMAP started reviving the Renewable Energy Toolkit (REToolkit), an on-line repository of information to assist Bank staff and country counterparts in improving the design and implementation of renewable energy projects. REToolkit is operationally oriented to address practical implementation needs at each stage in the project cycle with case studies, examples of terms of reference for specific studies (environmental impact assessments, feasibility studies, etc.), examples of financial and economic assessment models, sample tender documents, sample policies, etc. The REToolkit will incorporate material from the renewable energy training contents, improving the ability to search documents and adding links to external sources of information relevant for donors' operational staff and client country counterparts. The REToolkit will be accessible from ESMAP's website in FY2014. Collaboration with World Bank Institute is being explored for the management of the online resources.
111. ESMAP will continue to maintain a significant level of effort to ensure that lessons learned through individual projects undertaken in the Bank's regional units and funded through ABGs are disseminated more globally, through the preparation of specific stand-alone publications, by compiling lessons from different projects into single knowledge products, or by supporting project teams undertaking extra efforts to prepare publications of scientific quality to be published externally.
112. Finally, a last output of the Focus Area 1 will be to support the preparation of several knowledge pieces around renewable energy grid integration, smart grids, and decentralized clean electricity production in collaboration with IFC and the energy anchor units of the World Bank. On smart grids, short technical notes describing different smart grid technologies will be produced based on presentations by industry representatives and technology experts, to be organized and finalized in FY2013-14. On renewable energy grid integration, a study on the economics of energy storage options will be completed in FY2014 for publication in early FY2015.
113. A budget of US\$ 1.5 million is estimated for Focus Area 1 over FY2014-16, which also includes budget for just-in-time support to regions for specific innovative analytical or technical assistance needs related to project preparation and knowledge increase. A particular area of focus of such operational support will be the Clean Technology Fund's portfolio of CSP projects.

## **Focus Area 2 | Mainstreaming the use of energy modeling tools to support low carbon development planning**

114. While supporting preparation of Low Carbon Growth Country Studies over FY2008-12, ESMAP developed two quantitative tools to assess low carbon options: (i) Energy Forecasting Framework and Emissions Consensus Tool (EFFECT), a bottom-up, multi-sectoral model for projecting and comparing different long-term emissions trajectories; and (ii) Marginal Abatement Cost Tool (MACTool), which is used to generate marginal abatement cost curves for different emissions abatement options. Along with the Tool for Rapid Assessment of City Energy (TRACE) for city energy efficiency benchmarking, and the recently released Model for Electricity Technology Assessment (META) tool for comparing the levelized cost of different electricity generating technologies, ESMAP now has four tools to help planners at the national, provincial, and municipal levels take strategic decisions on policy and investment priorities in support of low carbon development in a time of increasing complexity.
115. Demand from developing countries for support in assessing low carbon development options has grown since 2008, and has been matched by an increasing proliferation of organizations working in this field. In response, ESMAP's focus in the FY2014-16 Business Plan will be on leveraging its investment in EFFECT and MACTool to support low carbon development planning being undertaken with the support of the World Bank and other development partners, while focusing core support on staying at the cutting edge of low carbon planning in the energy sector.
116. To do so, ESMAP will refocus its work on low carbon development with the following objectives: (i) support the dissemination and development of cutting-edge analytical tools and datasets related to energy use and supply; (ii) strengthen the capacity of external providers to deploy and develop these tools; and, (iii) provide dedicated resources to the World Bank regions for selectively carrying out low carbon development planning in the energy sector using external providers, seeking external co-funding where available.
117. The first output of Focus Area 2 will be to design and implement an online platform for open-source energy planning tools, designed in partnership with external partners and World Bank operational teams to maximize uptake and influence in specific investment operations. Collaboration is being explored with a number of organizations, such as Argonne National Laboratory (US), Energypedia (Germany), Stockholm Technology Institute (Sweden), and Department of Energy and Climate Change (DECC, UK). The platform, currently under development, will be in beta stage in FY2014. ESMAP will limit further development of the existing tools to maintenance and targeted user improvements to ensure their smooth adoption by client countries, consultants and other users. ESMAP will also collaborate with the Bank's Climate Smart Development Platform in this area.
118. The second output of Focus Area 2 will be funding for around eight low carbon energy assessments undertaken in a strictly selected group of priority countries where there is most potential greenhouse gas emission avoided and for policy change and/or the development of new planning or analytical methodologies.
119. The third output of Focus Area 2 will be the development of tailored training modules for MACTool to complement the training already offered for EFFECT and TRACE.

120. A budget of US\$ 1.5 million is estimated for Focus Area 2 over the period of the Business Plan, deployed half by ESMAP centrally, and half through direct support to the regions. This budget covers the maintenance and updating of all tools, including META and TRACE.

**Focus Area 3 | Supporting in-country scale-up of distributed renewable energy resources (biomass, small hydropower, solar, wind) through mapping and geospatial planning**

121. During FY2012, ESMAP consulted widely on the need for a new large-scale initiative in support of renewable energy resource mapping and geospatial planning. Strong support for the proposed initiative led to its launch by ESMAP in FY2013.
122. The objective of this new initiative is to facilitate the scaling up of renewable electricity generation by providing governments and the private sector with improved information on countrywide resource potential, and to carry out geospatial planning to help guide the sustainable development of renewable energy resources. Many of the Bank’s client countries, in particular low-income countries, have very limited awareness of the potential or location of indigenous renewable energy resources other than large hydropower. This severely limits their ability to scale up renewable energy investments, reduces the capacity to plan sustainable exploitation of these resources, and to negotiate with commercial developers. It also limits private sector investment by creating a higher barrier to market entry and greater uncertainty over government policy.
123. Working closely with the World Bank regional energy units, the IFC, and other multilateral (Climate Investment Funds, Global Environment Facility) and bilateral development partners, ESMAP aims to directly support at least 10 resource mapping projects over 4 years, covering biomass, small hydropower, solar, and wind. The expected outcomes will be wide-ranging, but the expectation is that this work will improve country policy frameworks, inform new and existing lending operations, facilitate private sector investment, help share and disseminate knowledge, and pilot a number of innovative approaches.

**Table 5 | Initial Pipeline of Renewable Energy Resource Mapping Projects**

AFRICA	EAST ASIA & PACIFIC	SOUTH ASIA
Madagascar	Indonesia	Maldives
Niger	Papua New Guinea	Pakistan
Tanzania	Vietnam	
Zambia		

124. ESMAP will produce standardized terms of reference and establish a series of framework agreements with resource assessment service providers to reduce project-related transaction costs and ensure high quality outputs. These will be made publicly available to facilitate resource mapping activities undertaken without ESMAP or World Bank involvement.
125. The initiative will include provision for (costly but essential) ground-based data collection where necessary, with all data made publicly available according to ‘linked open data’ standards. To this effect, ESMAP is partnering with IRENA to support efforts to create a global database of renewable energy resources. Once resource maps have been developed and presented to the client, ESMAP will support geospatial analysis and Strategic Environmental Assessment (including analysis of land use changes) to help turn resource maps into practical, evidence-based policy frameworks for the renewable energy

resource(s) in question. Where there are existing or planned donor-funded activities, ESMAP-funded projects will seek a coordinating and gap-filling role to best leverage the contribution of all relevant stakeholders.

126. Demand for resource mapping support has been high, with over 10 expressions of interest received so far from the World Bank regions and the IFC, acting on behalf of their client country counterparts. Once the initiative is in full swing, ESMAP expects further requests for support to materialize. The business model adopted allows for a significant scaling in the initiative to accommodate additional demand through the use of standardized project materials and processes and a strong network of specialist providers and experts.
127. In terms of resources, this initiative is a significant expansion of ESMAP's support for country-focused activities. Furthermore, the individual project costs are much higher than for standard assessments and reports due to the requirement for ground-based data collection and specialist modeling and mapping outputs. The cost of an individual country project are likely to range from around US\$ 500,000 for analysis of a single energy resource to up to US\$ 3 million for multiple resources in a large country. ESMAP core costs (program support, guidance, and research) are estimated at US\$ 500,000 over 3 years. Therefore, a budget of US\$ 15 million has been proposed over this Business Plan cycle, sufficient to meet known demand and generate resource mapping projects in at least 10 countries.

#### **Focus Area 4 | Building geothermal energy investment pipeline through concessional finance mobilization and knowledge development**

128. In FY2012, ESMAP's CG endorsed the proposal by ESMAP to initiate preparation of a Global Geothermal Development Plan (GGDP), a dedicated effort focused on addressing geothermal resource risk in developing countries by supporting geothermal resource assessment and validation through test drillings. Resource risk is the main financial and technical hurdle to expansion of geothermal energy, considerably limiting a source of electricity supply that could potentially represent a sizeable share of dispatchable power in the electricity mix in around 40 developing countries. Development banks and other bilateral funding agencies have accumulated experience in geothermal energy development, but have limited experience in supporting geothermal resource assessment projects given their intrinsic risk.
129. Over the course of the FY2014-16 Business Plan, ESMAP will follow up on work already started during FY2013 to prepare and roll out the GGDP's various components, focusing on facilitating coordination across the WBG and external funding agencies to mobilize resources to enable new investment operations in selected countries. The second outcome will be to strengthen knowledge on geothermal energy resource assessment, including on financing modalities, as efforts to compile and disseminate good practices remain limited. In FY2013, ESMAP agreed to provide analytical and grant support to the Djibouti Geothermal Power Generation Program, through the AFREA program, considered a pilot project for the GGDP. Through ESMAP's US\$ 1.1 million funding, the Djibouti Geothermal Power Generation Program is the first project of the GGDP ready for appraisal. By providing significant support, ESMAP will draw a number of lessons from implementation of this project to help other similar efforts.
130. The key activities of Focus Area 4 will be: (i) the preparation of the GGDP, a global pipeline of geothermal resource assessment investments diversifying risks across a balanced number of operations to be presented to donors for funding; (ii) support to the preparation of selected investment operations; and (iii) the preparation of targeted knowledge products and best practice guidance to expand geothermal development.

131. The estimated budget is US\$ 5 million, of which US\$ 4 million will be deployed by the World Bank regions in the form of technical assistance to support investment project design and implementation. The remaining funding will be used for knowledge generation and to prepare the GGDP and help identify a pipeline of projects.

### Focus Area 5 | Helping the energy sector adapt to climate change

132. ESMAP is also continuing its work on climate risk and adaptation for energy systems. Although the need for adaptation in energy is often considered less pressing than in other sectors (e.g., in agriculture or water management), global energy utilities are expressing the importance of targeted adaptation investments, as energy systems are becoming increasingly weather and climate dependent. The growing share of wind, solar, and hydropower energy sources in the supply mix raises the importance of quality meteorological systems to improve operations and their integration in total supply. Increases in extreme weather events pushes for strengthening emergency preparedness systems. The gradual increase in average temperature and rising sea levels reinforces the need for utilities to plan for long-term changes in energy demand and potentially modify the location of their infrastructure assets.
133. ESMAP is building on the Hands-on Energy Adaptation Toolkit (HEAT) and the *Climate Impacts on Energy Systems* flagship report published in FY2011. In FY2012, ESMAP prepared a report taking stock of initiatives from electricity utilities aimed at assessing and managing the risks of a changing climate, and extracted lessons for developing countries. The report was presented at the *First International Conference for Energy and Meteorology* in Queensland, sponsored by CSIRO (Australia) and ESMAP. ESMAP also contributed to strengthening the Bank’s Climate Knowledge Portal through the preparation of an energy sector Climate Risk Rapid Assessment Tool. In FY2013, activities related to this line of business will be consolidated through piloting the tool in different countries in collaboration with regional operational units and will add energy and climate adaptation to the Adaptation Country Profiles in the portal.
134. During FY2014-16, ESMAP will expand work on adaptation and climate resilience to: (i) raise awareness of the importance of adaptation in energy sector planning and emergency preparedness; (ii) generate and disseminate knowledge on adaptation-smart energy sector interventions through cost-benefit analysis for integrating adaptation in long-term energy investments and production of a guidance note on options to reduce energy sector climate change vulnerability; (iii) integrate adaptation considerations into broader energy sector dialogue with client countries and possibly support the design of investment operations in selected countries.
135. The estimated budget for Focus Area 5 is US\$ 1.5 million, deployed half by ESMAP centrally, and the rest through selected support to the World Bank regions.

**Table 6 | Clean Energy**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>Approved in-country renewable energy programs/projects catalyzed by ESMAP</li> <li>Client country policy reform measures, strategies, and programs initiated that have been influenced by ESMAP</li> <li>Client country legislative/regulatory programs in which the drafting has been influenced by ESMAP interventions</li> </ul>	US\$ 24.5 million <sup>10</sup>

<sup>10</sup> Excludes allocations for Clean Energy activities through regional ABGs.

- Resource mapping informs investments in transmission and distribution, generation and access
- Resource mapping is combined with spatial planning to produce country policy frameworks to guide commercial investment in renewable electricity generation
- New geothermal test drilling investments prepared and financed
- Development partners utilize knowledge on geothermal financing modalities, project structuring, and management
- Countries deploy EFFECT/MACTool in their energy sector planning, low emissions development strategies and/or NAMAs
- Countries enhance their knowledge of climate risks to energy sector
- Partner organizations are collaborating with ESMAP in providing enhanced access to open-source energy planning tools
- Suitable research products published and openly accessible through peer review literature
- Citations of ESMAP research from third-party sources

## ENERGY ASSESSMENTS AND STRATEGIES PROGRAM

136. The Energy Assessments and Strategies Program (EASP) has formed the core of ESMAP's engagement with clients since ESMAP's establishment. A key objective of EASP has been to distill good practices and policies from around the world and adapt them for country and regional contexts. Energy assessments help countries take stock of their resource endowments, review the strengths and weaknesses of national policies and market structures, build capacity for improved sector performance and governance, and develop and enhance energy sector institutions. During the last Business Plan, EASP's portfolio covered a wide array of subjects in the broad area of energy assessment and strategies, including regional electricity trade and integration, governance, and planning; pricing and regulatory issues in the energy sector; private sector participation in various parts of the electricity business; transmission system planning, open access and smart grid approaches; and, managing oil and gas price volatility. EASP's main outcomes are related to informing government and Bank policy in the energy sector and supporting development financing of key energy investments.
137. ESMAP's EASP is important for achieving the goals of SE4ALL. Delivering modern and sustainable energy and expanding access requires attention not only to the promotion of renewable energy, energy efficiency, and increased access, but also to the overarching regulatory and institutional environments. In order to achieve the objectives of increased use of clean energy, improved energy efficiency, and expanding energy access, an economically, financially, and technically viable energy sector with strong institutions and economically sound pricing and regulatory policies is essential. ESMAP, therefore, aims to strengthen the EASP program in order to assist clients in developing effective energy policies, practices, and institutions to achieve the SE4ALL targets.
138. Going forward, EASP is aiming to continue its demand-driven focus, both through a continued emphasis on the needs of regional and country clients expressed through the regional ABGs program, as well as through enhanced own-managed work on important areas of global relevance. It is expected that a significant portion of EASP's funding will continue to be utilized through the ABG program in support of country and regional client needs. As in the past, in the next Business Plan, the regional ABGs particularly, are expected to help inform client country policies and development financing.

139. Several ESMAP activities that are being pursued in a specific region or country context may be relevant in other regions or even globally. ESMAP will seek to develop selected such activities for broader global knowledge dissemination and cross-regional knowledge exchange, with a view to enabling a wider spread of the benefits. Therefore, ESMAP's own-managed focus areas are expected to help increase client capacity, and facilitate the exchange and dissemination of good practices.

140. EASP aims to focus on the following areas during the FY2014-16 Business Plan period:

1 | **Governance, Planning, and Markets.** Market structure and associated governance and planning mechanisms have a powerful influence on whether and to what extent the electricity sector can achieve improvements in performance. Since the early 1990's, more than 70 developing countries have embarked on the restructuring of the power sector—through greater private sector participation and through the introduction of competition and market forces. Many of these countries now face planning and governance challenges in the restructured environment. Towards helping client countries respond to these challenges, this broad focus area could cover aspects such as utility governance, pricing and regulatory aspects, sector/market reform, and regional markets/integration. A budget of US\$ 2 million is planned for this focus area, with new activities to commence in FY2015:

A | *Electricity Sector Planning in an Era of Private Sector Participation and Increased Risk.* One of the first topics will be the question of electricity system planning in the current environment of increased risk, plus unbundled competitive markets. The role of system planning and planners is evolving as private sector participation increases, electricity markets develop, and as countries begin focusing on low carbon development. In parallel, the range and scale of risks has expanded: volatility of fuel prices, particularly oil; risks associated with domestic environmental and social aspects; over-reliance on a single source of energy; potential future carbon related constraints or costs; technology-specific risks (e.g., for some renewable energy options); etc. This work will aim to review the experience of various countries that went through unbundling and reform and how they adapted their electricity system planning approach and philosophy, how they built capacity in-house to demonstrate system planning and investments requirements and deal with regulators and decision makers. This task will also carry out an overview of the current types of planning models and the manner and extent to which they include various risks. Depending on the findings of this work, ESMAP may organize a training workshop involving practitioners from developing countries and from countries that have adopted planning in some manner, plus industry leaders in planning models and methodologies.

B | *Doing Business Energy.* The massive scale of global energy investment needs is prompting a search for greater private sector participation in delivering energy infrastructure. In this context, there is significant global interest in an investment climate index for the energy sector that captures the key aspects of the policy environment needed to promote private investment across the full range of energy access, renewable energy, and energy efficiency needs. ESMAP will support various parts of the Bank that are working to develop a Doing Business style product for the energy sector, which builds upon the established Doing Business brand and data collection platform, and its reputation for stimulating policy reforms.

C | *Energy Security in the Developing World.* ESMAP will support various parts of the Bank to carry out a study aimed at examining different strategies for improving energy security in the developing world, including moving towards closer regional integration of energy markets, taking advantage of recent technological developments in the gas sector, increasing the renewable energy share as a means of reducing import dependency, and promoting energy efficiency to limit demand growth. The study plans to also assess feasible long-term options for

achieving energy security while reducing dependency on coal, as well as identifying the critical measures that need to be taken today to facilitate such a transition.

D | In addition, in 2014, ESMAP aims to update and *launch the Model for Electricity Technology Assessment (META)*, which was prepared during the previous Business Plan. This tool has been used by several consultants, Bank staff, and researchers in their work, and the feedback provided by these users will be used to update the tool and make it more user-friendly.

2 | **Pricing and Subsidies.** It is evident that in order for countries to focus on developing clean energy options—be it renewable or energy efficiency—or to expand access, cost-reflective tariffs and sound regulatory policies that encourage efficiency and economy are important. Additionally, fossil fuel or other types of subsidies can distort the playing field, making it that much more difficult to implement clean energy solutions.<sup>11</sup> At the same time, pricing reform can have adverse impacts on the poor and vulnerable, so these have to be mitigated or minimized in some manner.

A | *Assessment of options for safeguarding the poor from adverse impacts of electricity price increases.* Several countries struggle with electricity tariffs that are well below cost-recovery levels, and at the same time are faced with large investment needs and strong growth in demand. It is also becoming clear that subsidized tariffs distort incentives for energy efficiency and renewable resources, and also impose a fiscal impact on the government. At the same time, while such pricing reform and phase out of subsidy is critical, there is also a need to put in place social support mechanisms to safeguard the welfare of the poor and the vulnerable. Based on feedback from the Bank's regional energy teams, ESMAP is considering a program of analytical and advisory activities with the objective of assessing options that are available for safeguarding the poor and vulnerable from adverse impacts of tariff increases. ESMAP will also try to assess the gender dimensions of this subject, to see whether impacts are gender neutral, and whether mitigation measures can be made gender-sensitive. Among the possible causes for tariff increases which could affect the poor adversely, the proposed study will also include an assessment of the impact of feed-in tariffs, which lead to a rise in end-use tariffs. This work will focus on a few countries that are currently faced with the need for tariff increases, and which could benefit from this work. US\$ 1.5 million has been budgeted for FY2014-16 for this focus area—and could be significantly expanded to cover phase out of fossil fuel subsidy, if supplemental donor contributions were forthcoming.

3 | **Energy Resources and Linkages.** The water-energy-food nexus is attracting increasing attention—even as water is becoming a binding development constraint in many parts of the world, sector development plans often fail to take into account competing demands for water. In particular, the considerable water demands entailed by both conventional and renewable power generation technologies are seldom fully taken into account. Given the increasing water scarcity and the likelihood of increasing intensification of energy-water-food linkages, a better understanding of cross-sectoral implications of energy, water, and food demand growth would be important for sustainable energy development. ESMAP plans to collaborate with other parts of the Bank on studies on the water-energy and energy-food nexus. The first study, to be led by the World Bank Water Department, will look at an integrated approach to planning for energy and water investments. Separately, energy and food linkages are also going to be examined. In addition to studying the water-energy and energy-food nexus, ESMAP will also build on efforts at studying the water-energy-food nexus, mainly to distill lessons from initiatives and experiences in this area. An ongoing study by ESMAP looks at the issue of subsidized use of energy in water pumping for

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<sup>11</sup> World Bank, “Subsidies in the Energy Sector: An Overview” (July 2010),



agriculture in India, which is one of the core elements of the nexus between water, agriculture, and energy. Once the study is completed, ESMAP will examine follow-on possibilities arising out of this study's recommendations. US\$ 1,000,000 has been budgeted for this focus area.

141. ESMAP will actively seek opportunities to collaborate with bilateral donors, particularly in the areas of sector planning and regional energy integration. Discussions are ongoing with Swedish International Development Cooperation Agency (SIDA) to work together on possible regional integration studies. Collaboration with Denmark on the proposed study on social impact of tariff increases is also under discussion.

**Table 7 | Energy Assessments and Strategies**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• Client country policy reform measures, strategies, and programs initiated that have been influenced by ESMAP</li> <li>• Country legislative/regulatory programs in which the drafting has been influenced by ESMAP interventions</li> <li>• Client institutions that have been strengthened through ESMAP interventions</li> <li>• Countries use META in project options assessment</li> <li>• Development partners use Doing Business Energy to define assistance strategies</li> <li>• Client country adopts recommended social protection approaches in its policies on electricity pricing and subsidies</li> <li>• Country institution's capacity strengthened to incorporate risk in system planning</li> <li>• Suitable research products published and openly accessible through peer review literature</li> <li>• Observations of influence (research into use) of ESMAP knowledge on decisions by key decision makers in developing countries</li> <li>• Citations of ESMAP research from third-party sources</li> </ul>	US\$ 3.5 million <sup>12</sup>

## ENERGY EFFICIENT CITIES PROGRAM

142. Cities account for half of the world's population and two-thirds of global energy demand. Projections show that these trends will intensify, especially in the developing world. This is already posing major challenges for a sustainable world, which cannot be conceived without sustainable cities. It is in this context that ESMAP's Energy Efficient Cities Initiative (EECI) has created a niche supporting cities achieve this goal by enhancing the efficiency of their main energy consuming systems (transport, buildings, lighting, water). The ESMAP program is based on the premise that these systems do not function in isolation, and therefore must be addressed in an integrated manner to better address the drivers of energy consumption. This is the case, for example, of the relation between urban form and transport development, which has a significant impact on activity levels. Work to date has focused on three key elements: knowledge creation, knowledge dissemination, and operational support to World Bank regional units.

<sup>12</sup> Excludes allocations to energy assessments and strategies through regional ABGs.

143. ESMAP's Energy Efficient Cities program's main goal for the new Business Plan is to consolidate as the reference point for urban energy efficiency issues. To that aim, it will enhance the successful activities developed under previous Business Plans, and venture into emerging areas, such as the link between energy efficiency and energy access. The main focus will continue to be the energy consuming systems that are directly or indirectly influenced by city authorities. At the same time, ESMAP will support broader requirements on energy efficiency issues through a) ABGs and b) operational support to regional energy units with a focus on IDA countries, cross-sectoral linkages, and innovations. A key success factor will be the enhancement of partnerships and joint work with bilateral development agencies and other organizations (such as C40, Climateworks, and ICLEI).

144. The specific program lines are summarized below.

### **Energy Efficient Cities Transformation**

145. ESMAP proposes to launch, with external and internal partners, an initiative to support a targeted group of 3-5 cities with multi-year, multi-sectoral technical assistance to transform their energy consumption systems. ESMAP will seek to bring together expertise from energy, water, urban, and transport sectors to provide a comprehensive and practical solutions package to support the enhancement of energy efficiency in participating cities. This initiative will include knowledge exchange (particularly South-South exchanges, but also from cities in the developed world that have relevant best practices); targeted capacity building; assessment of energy efficiency opportunities; development of action and implementation plans; and mobilization of financing and technical support to implement and monitor these plans.

146. Several activities from the previous Business Plan will be continued to complement this technical assistance program, including the *Leaders in Urban Transport Planning* training program, the expansion of the best practice case studies database, dissemination of decision-support tools, and analytical work on key urban issues.

147. In particular, the TRACE has proven to be instrumental in helping cities to quickly identify and prioritize the key sectors and actions they can undertake to enhance service provision through the improvement of energy efficiency of the city's major energy consuming sectors (transportation, public lighting, buildings, power and heat, waste, and water and wastewater). To date, TRACE has been deployed in more than 15 cities in Africa, Asia, Eastern Europe, and Latin America, informing policy and Bank lending, and providing key inputs for cities' sustainable development strategies.

148. TRACE deployment will be enhanced in this new Business Plan, through partnerships, support to third parties (such as bilateral development agencies and their country counterparts) and virtual or in-person training to increase the base of people qualified to use it, with the aim of significantly expanding the number of deployments per year. Furthermore, there will be two updates to the software to improve data and methodology, and to expand the number of available energy efficiency recommendations and case studies. Special consideration will be given to linking this diagnostic phase to action plans and concrete investments, particularly by strengthening linkages with other multilateral and bilateral development agencies. A budget of US\$ 9 million is proposed for the Business Plan period.

### **Leveraging Global Knowledge and Innovative Solutions in World Bank Operations**

149. EEI will continue to maintain a strong operational leverage using its global knowledge on best practices, innovative policies, and instruments to scale up energy efficiency in cities through Bank operations. The three focal areas for operational support are: (i) energy efficiency-focused urban energy operations, including energy efficiency investments in buildings and other urban sectors; (ii) urban water

and sanitation operations; and (iii) urban transport operations. However, support may also include broader requirements related to the urban energy efficiency agenda, including industrial energy efficiency issues and the Bank's reform of its procurement policies and guidelines. To this end, EECl will work closely with the Bank's sector units of selected regions and seek opportunities to achieve operational leverage through the investment and technical assistance programs of bilateral development agencies. A budget of US\$ 1.5 million is planned for this component.

**Table 8 | Energy Efficient Cities**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• Approved in-country energy efficiency program/projects catalyzed by ESMAP</li> <li>• World Bank transport, urban, and/or water investment projects are approved with energy efficiency components</li> <li>• Client country policy reform measures, strategies, and programs initiated that have been influenced by ESMAP</li> <li>• Client country legislative/regulatory programs in which the drafting has been influenced by ESMAP interventions</li> <li>• Client institutions have been strengthened through ESMAP interventions</li> <li>• Cities adopt TRACE results in urban planning</li> <li>• Suitable research products published and openly accessible through peer review literature</li> <li>• Citations of ESMAP research from third party sources</li> </ul>	US\$ 10.5 million <sup>13</sup>

## GENDER | SOCIAL INCLUSION IN THE ENERGY SECTOR: FOCUS ON GENDER CONSIDERATIONS

150. ESMAP proposes to launch a new program on social inclusion in the energy sector, with a specific initial focus on gender. “Social inclusion” refers to the development of institutions, policies, social norms, and behaviors that provide an opportunity for previously marginalized groups to increase their voice and access to assets. Using the broader lens of social inclusion for this new program is intended to emphasize that a focus on gender is an integral part of efforts to address social development challenges. Gender is not a new or isolated add-on to activities in the energy sector. Rather, developing a better understanding gender considerations is a natural extension of on-going efforts to focus on the development impact of interventions in the energy sector, rather than the kilowatt-hours produced or kilometers of wire strung.
151. In the context of the ESMAP program, the term “gender” refers to the socially constructed roles and learned behaviors associated with men and women. Whether an individual is male or female shapes that individual’s opportunities to participate in, influence, and benefit from the economy and society. The *2012 World Development Report* emphasized that greater gender equality can enhance productivity, make institutions more representative, and improve development outcomes for the next generation. By increasing the understanding of gender considerations in aspects of the energy sector, the ESMAP program will contribute toward increasing gender equality, and, hence, improved development outcomes of energy sector interventions.

<sup>13</sup> Excludes funding allocated to energy efficiency activities through regional ABGs.

152. Under the previous Business Plan, ESMAP’s support for gender activities involved a specific focus on household energy (access to electricity and energy for cooking) under the AFREA program. It is anticipated that support for the “gender in household energy” topic will continue under AFREA II. Knowledge products from the AFREA experience will inform household energy activities in other regions, and lessons on processes and methodologies from the AFREA work will form the starting point for the new Gender in Energy program.
153. The scope of the new ESMAP program goes explicitly beyond the household energy topic. The goal is to investigate gender aspects of other topics in energy, specifically (i) large energy infrastructure, (ii) energy sector reform and pricing (through the EASP work on the social impacts of subsidy reforms), and possibly a third area such as energy efficiency or small-scale energy infrastructure. The choice of these focal topics is, in part, a response to expressed demand from clients through the World Bank’s regional units. Investigating by energy topic also lends itself to close alignment with energy sector project preparation and related dialog with counterparts. This linkage would offer the potential to utilize existing social assessments and consultations as the vehicles for introducing the study of gender, to ensure the analysis and feedback is linked to a concrete energy investment with greater potential for follow up action.
154. The topic approach is also driven by a view that these topics will naturally highlight and provide in-depth assessment of different core “Gender in Energy” themes. For example, resettlement and compensation are typical features of large energy infrastructure projects whether hydropower or transmission corridors. Key gender aspects associated with resettlement include differences between men and women’s rights and ownership of land and other assets, and “voice” in community decision making. The rural context may involve customary law, with traditional authorities and decision-making processes as an important feature of the analysis and possible solutions. In contrast, in an energy sector reform project a critical aspect would be the different impacts of tariff changes on men and women, primarily in an urban or peri-urban setting where formal policy, law, regulation, and institutions would be important factors. In small-scale energy infrastructure, there may be more emphasis on new opportunities for advancing gender equality in employment or income generation at a local level. And there will be common themes that would feature across the topics.
155. The primary objective of the program of activities set out in the FY2014-16 “Gender in Energy” program is to establish a core body of evidence to demonstrate that promoting improved gender equality in energy projects improves development outcomes, and state-of-the-art approaches for how to improve gender equality in energy projects. The success criterion of the program would be a number of projects utilizing this knowledge in project design, development, and implementation.
156. The main activities planned under this Business Plan are:
- 1 | **Assessments** | The major focus of effort and budget will be a detailed gender assessment in (i) large energy infrastructure, (ii) energy sector reform and pricing, and possibly a third area such as energy efficiency or small-scale energy infrastructure. Each assessment would be associated with a specific energy sector operation. Each assessment would be expected to yield an exhaustive analysis of impact pathways and their relative importance, a detailed assessment of opportunities to improve gender equality, and a full scoping of approaches to avoid negative gender impacts and opportunities to take advantage for increasing gender equality, with recommended actions for the specific country, project, or program where the study is conducted. To achieve this, at least one suitable operation in one of the new focus areas would need to be identified each year. In addition

to building evidence on the target topic, the linkage to a project would provide a good opportunity for strengthening the capacity of both the Bank task team and the country counterparts.

- 2 | **Knowledge Development and Dissemination** | Two types of products are envisaged under this activity: (i) preparation of summary reports on each assessment topic, packaging the messages of the assessments together with experience from other projects where ESMAP is assisting with gender support for preparation and implementation (#4 below), and from the literature; and (ii) updating ESMAP's on-line Gender and Energy resource page with reports, terms of reference, etc. derived from the operational support. This will be a light-handed approach to disseminating cutting-edge knowledge and lessons, both internally and to external clients.
- 3 | **Training** | The program includes one internal World Bank or external training event each year.
- 4 | **Supporting Operational Task Teams** | ESMAP will provide technical support to task teams in design and implementation of gender aspects into energy operations targeting, where possible, operations in the focus areas covered in the assessments. To cast a broader net—both in terms of capacity strengthening and generating new insights into gender issues and opportunities—the program will offer one "clinic" for task teams each year.
- 5 | **Screening ABGs and ESMAP Own-Managed Knowledge Products** | All ABGs and all ESMAP own-managed activities will be screened at an early stage to assess the scope for gender-specific considerations to be incorporated into proposed activities. It is expected that incorporating gender considerations in ABGs will contribute to the exchange of best practice with clients and potentially influence lending and / or policy and strategy decisions.

**Table 9 | Gender in Energy**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• Client country energy sector institutions have capacity to carry out gender assessment</li> </ul>	US\$ 1.5 million
<ul style="list-style-type: none"> <li>• Evidence established that promoting gender equality in energy sector projects improves development outcomes</li> </ul>	
<ul style="list-style-type: none"> <li>• Large energy infrastructure, energy sector reform, small-scale energy infrastructure, or energy efficiency projects that utilize knowledge on gender in design and/or implementation</li> </ul>	

## RESULTS-BASED FUNDING APPROACHES

157. During FY2012, ESMAP launched a new cross-cutting work program on results-based approaches to energy sector development in recognition of the increasing interest in this topic from several quarters. The objective was to assess how, and under what circumstances, results-based approaches can be used to improve outcomes and scale up financing in the energy sector through a combination of targeted knowledge products and operational support.
158. The work carried out during FY2012-13 has focused mainly on developing a more robust understanding of how results-based approaches might be deployed in the energy sector, with a number of ongoing multilateral initiatives as the main clients for this work, including the Energising Development (EnDev) program managed by GIZ, the Energy+ Partnership, and the Scaling-up Renewable Energy Program (SREP). Close links have also been maintained between this work program and ESMAP-funded work on defining and measuring energy access.

159. Within the Bank, uptake of results-based approaches in the energy sector by clients (beyond ‘output-based aid,’ which is seen as a tried and tested model) has been more cautious, despite the introduction during FY2012 of the World Bank’s new Program-for-Results lending instrument designed to fill the gap between investment loans and development policy loans. However, there are increasing signs of interest in results-based approaches from a number of regions and special initiatives (such as Lighting Africa), so demand for ESMAP support in this area is likely to increase over the FY2014-16 period.
160. Going forward, ESMAP’s priorities are three-fold:
- To continue to provide knowledge products and guidance on the use and design of results-based approaches in the energy sector for a wide range of audiences: client country governments, development partners, and the multilateral development banks
  - To support the piloting and adoption of results-based approaches in World Bank energy sector operations through the provision of dedicated funding for project design and preparation
  - To support the piloting and adoption of results-based approaches by client countries and bilateral and multilateral development partners through dissemination activities and the provision of ESMAP staff time to assist with program and project design
161. A budget of US\$ 1 million has been allocated to this work program over the FY2014-16 period, most of which will be allocated to a special window to support the design and preparation of Bank or other development partners’ operations that include results-based approaches in either their disbursement, or within the client country program they are helping to finance.

**Table 10 | Results-Based Funding**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• Results-Based Funding operations approved through the World Bank and other development partners</li> <li>• Suitable research products published and openly accessible through peer review literature</li> <li>• Observations of influence (research into use) of ESMAP knowledge on decisions by key decision makers in developing countries</li> <li>• Citations of ESMAP research from third party sources</li> </ul>	<p>US\$ 1 million</p>

## PROJECT PREPARATION FACILITY FOR TRANSFORMATIONAL LOW CARBON PROJECTS

162. A number of important ‘transformational,’ low carbon projects are on the drawing board in a number of our client countries. These range from geothermal, CSP, and PV to hydropower, smart grids, and regional transmission interconnections. As the Green Climate Fund is being developed, it is opportune to ensure that a robust pipeline of projects is identified and prepared in a timely fashion.
163. The real difficulty in financing these projects arises when private financiers/project sponsors are unable to determine whether these transformational projects are economically, technically, and financially viable<sup>14</sup>—and therefore worth investing in. The Bank’s preliminary assessments suggest that current overall project preparation requirements for transformational energy and transport opportunities in SSA alone exceed US\$ 1.8 billion.

<sup>14</sup> James Leigland and Andrew Roberts “The African Project Preparations Gap.” GridLines-18, Note no. 18—Mar. 2007.

164. Where the private sector needs to take the initiative in preparing such projects, the developmental risks due to size and/or complexity is often considered too high to be borne alone when balanced against the long-term payment risk. **The private sector, in many such projects, therefore, is looking for public support in order to ‘risk share’ on the project preparation. Such risk sharing is seen to be key, at this stage, to unblocking preparation activity on these projects.** Risk sharing requires an adequate source of project preparation funds that project sponsors and investors can tap into.
165. Current resources for the preparation of large-scale clean energy projects are insufficient. Typically, resources are locked up in a number of small funds with separate application processes which do not provide sufficient financing to prepare transformational projects.
166. ESMAP, in collaboration with World Bank’s Financial Solutions Group, is proposing to set up a pilot **Clean Energy Project Preparation Facility (PPF)** in FY2015 premised on the following principles:
- A | The PPF would provide risk-sharing support to the private sector and therefore PPF funds should be available directly to the private and public sectors.
  - B | The PPF would aim to prepare projects for financing by the World Bank Group, other multilateral development banks, bilateral development banks and agencies, and commercial banks, and would work closely with the community of international financial institutions in developing the portfolio—in general, it is proposed that candidate projects should be prepared for co-financing by the World Bank Group and at least one other bilateral or multilateral development bank.
  - C | Projects selected for PPF support should result from a low carbon/low emissions assessment or planning process carried out by the country, and should be part of national priorities, such as nationally appropriate mitigation actions (NAMAs) and sector investment plans.
  - D | Administration of PPF grants (procurement of goods and services) or supervision of grant recipients’ implementation of grants would be carried out by the World Bank’s regional energy units.<sup>15</sup>
  - E | Procurement for activities funded by PPF in middle-income countries or by sophisticated firms operating in low-income countries would be undertaken by the respective beneficiaries in accordance with well-established private sector procurement methods or commercial practices that shall be acceptable to the Bank (as per guidelines for procurement under World Bank loans to Financial Intermediaries and Entities). Low-income country environments and low-income country government para-statal would employ Bank guidelines typically applicable to low-income country environments. Environmental and social safeguards would follow World Bank Group guidelines.
  - F | Projects would cover the power (generation, transmission, and distribution) and urban transport (with a focus on energy efficiency) sectors.
  - G | PPF support would be on a cost-share basis. For projects in IDA-only countries, PPF funding could be more than 50% of the preparation cost. For projects in IBRD or blend countries or private sector, PPF funds would not exceed 50% of the total preparation cost.

**Table 11 | Low Carbon Project Preparation Facility**

KEY PERFORMANCE INDICATORS	FY2014-16 BUDGET
<ul style="list-style-type: none"> <li>• Approved in-country renewable energy and energy efficiency projects with co-financing from World Bank and bilateral/multilateral development banks</li> </ul>	US\$ 2.35 million

<sup>15</sup> The Low Carbon Project Preparation Facility would require CG endorsement of recipient-execution modality in ESMAP Multi-Donor Trust Fund administration agreements.

# MONITORING AND EVALUATION SYSTEM

## Background and Objectives

167. A comprehensive portfolio Monitoring and Evaluation (M&E) system was put in place in 2010 with the objective of assessing the effectiveness of ESMAP activities in enabling client countries to achieve energy security, address energy poverty, and mitigate and adapt to climate change. The M&E system enables ESMAP's donors and management to:

- Assess the effectiveness of ESMAP's programs and initiatives in achieving timely and sustainable outcomes for clients
- Promote accountability for the achievement of ESMAP's program-level outcomes through the systematic assessment of results and the performance effectiveness of diverse stakeholders who are implementing and benefiting from ESMAP activities
- Enhance the use of performance-based criteria as a basis for decision-making on ESMAP policies, strategies, program management, and activities
- Facilitate feedback, learning, and sharing of knowledge and lessons learned, leading to better recognition of ESMAP achievements and wider replication of its results

## Key Developments

- A | **ESMAP Alignment with World Bank's Results Framework for Analytical Advisory Activities.** In September 2011, the World Bank implemented a new results framework for its Economic and Sector Work (ESW) and non-lending Technical Assistance (TA) to be more responsive to the business needs of regions and networks, more effective in sharing knowledge, and better reflect the evolving role of the Bank, not only as a producer of knowledge, but as a customizer and connector. ESMAP has aligned with the Bank's new operational framework and adopted key changes in the way the Bank processes ESW and TA. These include new online project templates (Concept Note) with clearly defined sections related to objectives, audience, and results, as well as automatic document capture and disclosure to facilitate knowledge sharing. To better reflect the expected results, the Bank also revised the outcomes and related indicators for AAA, which were also revised and adopted under ESMAP's M&E system.
- B | **Integration of Results and Lessons in ESMAP Planning Processes.** The external evaluation of ESMAP documents a number of lessons and recommendations to improve program performance. These have been integrated into the planning process through an action plan approved by the CG and monitored for progress. Furthermore, the ESMAP M&E system now includes an annual Portfolio Review, which provides an overview of portfolio composition and trends, an analysis of results and outcomes, and assessment of lessons learned and strategic implications for the programs. For example, a key conclusion from the Portfolio Review FY 2009-12 that is being applied to the current Business Plan is that ESMAP is able to have the most impact in its own-managed activities when it devotes a critical mass of resources to a particular area. This enables the program to mobilize technical and financial resources for clients, remain engaged in that area, and follow up in supporting implementation of initial analytical work. The impact is particularly high when ESMAP is able to build synergies with Bank-country dialogue and lending operations. By contrast, one-off studies and stand-alone activities tend not to have as many outcomes.
- C | **Enhanced Quality and Monitoring of Activities.** As part of the implementation of the results framework, ESMAP has enhanced its quality control for reviewing and monitoring activities from



identification until completion and dissemination. Clear rules, roles, and responsibilities have been identified and implemented for Project Team Leaders, Regional ESMAP Coordinators, and ESMAP staff. In particular, *ESMAP Reviewers* are now assigned to activities throughout the project cycle; they are responsible for providing comments on key project documents/final outputs, participate in review meetings, update activity progress, provide recommendations for ESMAP dissemination and knowledge products, and maintain a proactive role in overseeing the portfolio and communicating results.

- D | Articulation of Outputs, Outcomes, and Strategic Relevance.** All ESMAP activities are required to clearly define the expected outputs and outcomes at the identification stage. Proposed activities must also include specific baseline and target values and articulate the direct or indirect linkage global thematic challenges (energy security, energy and poverty, energy and climate change) and the ESMAP Business Plan, and specify their relevance regarding social and/or gender aspects.
- E | ESMAP's Results-Based Monitoring System (M&E Portal).** The M&E Portal is a virtual web-based platform to enable the input, administration, tracking, analysis, and reporting of M&E data for activities supported by ESMAP since fiscal year 2009. The portal systematically tracks the inputs (budget allocation), corresponding outputs, and the outcomes (planned, achieved, or not achieved) under each activity and aims at identifying the risks and corresponding mitigation measures. The M&E Portal also provides key reports on ESMAP's budget and disbursements, activity allocation by region, project, and product line; and status of outcomes planned, achieved, or not achieved.
- F | Logical Framework.** ESMAP has developed a new logical framework for the new Business Plan in consultation with donors and in alignment with the World Bank's results framework for AAA and knowledge products. The logframe identifies the strategic elements (inputs, activities, outputs, outcomes, and impacts) and their causal relationship, indicators, targets, and assumptions that may influence the implementation of the ESMAP program for the period FY2014-16. (See Annexes 1 and 2)
- G | Impact Stories.** ESMAP will develop and disseminate "anecdotal impact stories" linking ESMAP work to ground-level projects, impacts, and achievements. The impact stories are to be based on ESMAP activities recently delivered, highlighting the background, type of ESMAP support, key outcomes, and impact achieved.
- H | Mainstreaming of Gender Issues in M&E.** As part of its ongoing efforts to further improve its results framework, ESMAP has undertaken efforts to incorporate gender dimensions in its M&E system. One of the key efforts has been to formally incorporate the gender aspect under ESMAP's portfolio review with the dual objective of first, establishing a baseline for tracking gender components in ESMAP activities and second, trying to identify the impact, influence, and relevance of ESMAP activities related to the gender dimension. A second milestone has been the screening of all ESMAP activities for gender considerations starting in FY2013.
- I | ESMAP Operational Manual.** To further support the implementation of the results framework, ESMAP has developed an *Operational Manual* to provide ESMAP staff with the necessary guidance and resources to ensure the consistent and timely processing and delivery of activities. The manual sets out the quality assurance, internal procedures, and approval processes, M&E roles and responsibilities, reporting and dissemination requirements for activities, and other ESMAP-business related aspects.

168. ESMAP will allocate US\$ 1.2 million over FY2014-16 for M&E activities, including the External Evaluation to be conducted in 2015.

## COMMUNICATIONS AND DISSEMINATION

169. As ESMAP's portfolio has grown and demand has increased for its services and knowledge products, it has faced substantially greater needs for communication and dissemination support. In FY2012, ESMAP hired a Communications Officer, created a new communications strategy, and put in place an integrated communications, publications, and web team. This team has already substantially updated and improved ESMAP's website, online newsletter, brochures, and other collateral; established a new series of technical reports; implemented guidelines for production and dissemination of reports and other knowledge products; and expanded the format of ESMAP's Knowledge Exchange Forums.
170. The primary goals of communications at ESMAP are to:
- Improve the delivery and dissemination of ESMAP's knowledge products to key decision-maker audiences both within and outside the World Bank Group
  - Facilitate the exchange of knowledge among ESMAP clients, donors, partners, World Bank Group staff, and affiliated experts
  - Increase awareness about ESMAP itself, in support of the program's engagement with client countries and its role as a think tank and service provider within the World Bank Group
171. The following describes the primary areas of focus of the Communications Team going forward, in support of these goals and the work of the program teams at ESMAP.

### Publications

172. ESMAP publishes on average 10-20 reports and other knowledge products each year through its own-managed programs, with an equivalent number produced by the regional units of the World Bank through the ABG process. The Communications Team is responsible for production of ESMAP's own-managed reports, and for ensuring proper branding of ESMAP-supported reports produced by regional units. There are currently three types of ESMAP publications:
- **Technical Reports** | ESMAP's flagship publications, with a focus on important topical issues, cutting-edge research, and best practices that can be widely replicated
  - **Knowledge Series** | Focused studies, guidance notes, and briefing notes often taken from longer reports or studies
  - **Web-Only Reports** | Generally narrowly focused studies developed for a single client, which are published in digital form only

### Dissemination

173. A key priority for the Communications Team is improving and expanding the dissemination of ESMAP knowledge products so that they reach and are used by those audiences and stakeholders who are best positioned to transform this knowledge into new policies, programs, and lending operations. Target audiences include World Bank regional units and task teams; technical experts, including staff in other multilateral and bilateral development agencies and banks; and policymakers and practitioners in client countries. A **dissemination protocol** has been developed for ESMAP knowledge products that differs depending on whether the report is produced by the ESMAP core team or the World Bank's regional units.

### Knowledge Delivery

174. As well as improved dissemination of knowledge, the Communications Team will also focus on improving the packaging and delivery of ESMAP-produced knowledge. While technical reports will continue to be ESMAP's flagship knowledge products, there is also demand for more concise, targeted products.
175. For senior policymakers, a series of **policy notes** will be launched. These are generally summaries of the policy findings and recommendations from longer technical reports and studies. For technical experts and academics, ESMAP will support the publication of **articles in peer-reviewed journals**. ESMAP will encourage the publication of such articles as part of ESMAP-supported activities, where the articles would be likely to lead to improved policies or the dissemination of global best practices.

### Knowledge Exchange

176. One of ESMAP's primary functions is to facilitate the exchange of knowledge among client countries, technical experts and Bank staff and partners. A three-day ESMAP Knowledge Exchange Forum, held in Washington in May 2012, substantially expanded the format of previous forums. This was followed by a knowledge exchange for experts from bilateral agencies held in November 2012.
177. This work will continue to grow, as ESMAP helps client countries share solutions to common energy sector challenges. The Communications Team will help to organize an **annual ESMAP Knowledge Exchange Forum**, as well as **at least two thematic knowledge exchanges** on areas of substantial client interest, each year.

### Communications Support for ESMAP Initiatives

178. As country clients face increasingly complex choices as they work to map out their energy future, ESMAP has expanded its own-managed portfolio of targeted global initiatives designed to address these needs. Another major focus area for the communications team will be support to these initiatives.
179. As of FY2013, these initiatives include the technical assistance program for national energy access strategies in support of Sustainable Energy for All, Renewable Energy Resource Mapping, the Global Geothermal Development Plan, and the SIDS DOCK program. All these efforts require additional communication support, such as special collateral (presentations, briefing notes, flyers), development of key messages, support to launch events and knowledge exchange events, and, where appropriate, press releases and media outreach.

### Online Channels

180. The Communications Team will continue to develop the **ESMAP website** ([www.esmap.org](http://www.esmap.org)) as the primary location for ESMAP knowledge products and information about ESMAP initiatives. Efforts will continue to make the website more intuitive and informative and the online publication archive easier to use. The team will also support **special online initiatives** to better deliver knowledge to Bank staff and clients, such as the REToolkit, the Gender Toolkit, online collaboration spaces for specific activities, and platforms for low carbon planning tools.
181. The team has also worked to improve a monthly online newsletter, the **ESMAP E-Bulletin**, which is distributed to donors, partners, and clients, as well as the World Bank's energy practice. Work will also continue to refine the **ESMAP mailing list**, which currently contains 2,000+ energy contacts in government, private sector, academia, and civil society.

### Branding and Collateral

182. Finally, the Communications Team will produce and develop collateral for ESMAP and to refine the program’s branding. The ESMAP **Annual Report** will continue to be the primary formal channel for delivering information about the program’s performance and achievements to donors and partners. Starting in 2013, a new series of **impact stories** will be produced to demonstrate the linkages between ESMAP’s upstream work and positive outcomes for clients. Building on the new logo, brochures, and templates that have been developed in since FY2012, branded materials will continue to be produced and refined to help strengthen ESMAP’s identity among key stakeholders and new audiences.

### Budget

183. Estimated budget for ESMAP communications, including communications/publications/web team; production of publications; and development and maintenance of websites, online collaboration platforms, collateral, outreach, and associated activities: US\$ 2.5 million over FY2014-16.

## PROPOSED BUDGET FOR FY2014-16

184. The Business Plan proposes a budget of US\$ 137 million for the three-year period. The proposed budget for FY2014 is presented below, along with indicative budget plans for FY2015-16. Flexibility will be retained to take up new issues and make adjustments to the program as circumstances require during the three-year period.

**Table 12 | ESMAP Business Plan: Proposed FY2014-16 Budget, by Program**

PROGRAM	FY14 (US\$)	FY15 (US\$)	FY16 (US\$)	TOTAL
<b>ANNUAL BLOCK GRANTS</b>	7,000,000	7,000,000	7,000,000	21,000,000
<b>ENERGY ACCESS</b>				
SE4All Technical Assistance Program	6,000,000	6,000,000	7,000,000	19,000,000
SE4All Global Tracking Framework	500,000	500,000	1,000,000	2,000,000
Energy Access for the Urban Poor (Cities Alliance)	500,000	1,000,000	1,500,000	3,000,000
State of Energy Access Report	500,000	1,000,000	500,000	2,000,000
<b>AFREA</b>	3,800,000	10,100,00	10,100,00	24,000,000
<b>CLEAN ENERGY</b>				
Knowledge/Capacity/Operational Support	500,000	500,000	500,000	1,500,000
Planning Tools	500,000	500,000	500,000	1,500,000
Global Geothermal Development Plan	2,000,000	1,500,000	1,500,000	5,000,000
RE Resource Mapping	6,000,000	5,000,000	4,000,000	15,000,000
Climate Adaptation	500,000	500,000	500,000	1,500,000
<b>ENERGY ASSESSMENTS AND STRATEGIES</b>				
Subsidies Reform	500,000	500,000	500,000	1,500,000
Governance, Planning, Markets	-	1,000,000	1,000,000	2,000,000
Energy-Water-Food Nexus	500,000	300,000	200,000	1,000,000
<b>ENERGY EFFICIENT CITIES INITIATIVE</b>				
Energy Efficient/Low Carbon Cities Transformation	3,000,000	3,000,000	3,000,000	9,000,000
Operational Support	500,000	500,000	500,000	1,500,000
<b>GENDER &amp; ENERGY</b>	500,000	500,000	500,000	1,500,000
<b>RESULTS-BASED FUNDING APPROACHES</b>	300,000	300,000	400,000	1,000,000
<b>LOW CARBON PROJECT PREPARATION FACILITY</b>	50,000	1,100,000	1,200,000	2,350,000
<b>MONITORING AND EVALUATION</b>	300,000	600,000	300,000	1,200,000
<b>COMMUNICATIONS AND DISSEMINATION</b>	700,000	900,000	900,000	2,500,000

<b>PROGRAM MANAGEMENT &amp; TRUST FUND ADMINISTRATION</b>	1,000,000	1,000,000	1,000,000	3,000,000
<b>ESMAP MDTF TOTAL</b>	<b>35,150,000</b>	<b>43,300,000</b>	<b>43,600,000</b>	<b>122,050,000</b>
<b>SIDS DOCK SUPPORT PROGRAM MDTF</b>	5,000,000	5,000,000	5,000,000	15,000,000

185. The proposed resource envelope for the FY2014-16 Business Plan is a substantial increase over the cumulative total disbursements of US\$ 76 million between FY2009-12. This growth is driven mostly by four new programs to supplement the annual block grants to the Bank’s regional energy units:

- 1 | SIDS-DOCK Support Program: US\$ 15 million
- 2 | AFREA II: US\$ 24 million for
- 3 | SE4All TA Facility: US\$ 19 million
- 4 | Renewable Energy Resource Mapping: US\$ 15 million

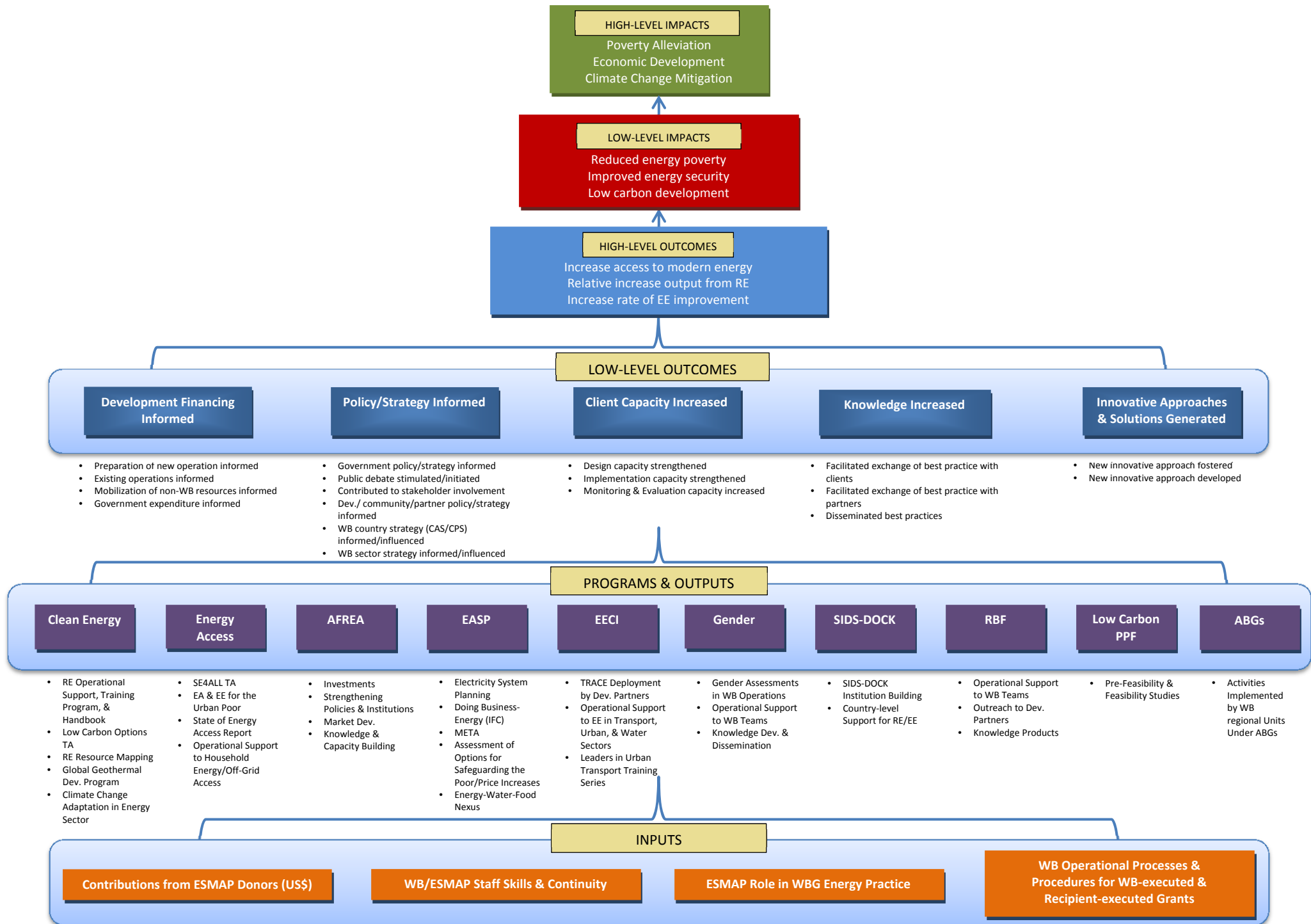
186. The budget also reflects a strengthened emphasis on gender, social inclusion, energy sector governance and planning (including subsidy reform), and adaptation to climate change as key elements of an environmentally, socially, and financially sustainable energy sector. For various ESMAP energy sector planning tools, the budget reflects a shift to a “wholesaling” mode, working through the World Bank Institute and partner organizations to deliver to clients, away from the “retail” mode of the previous Business Plan. The budget also includes increased resources for M&E and Communications.

187. As noted in the attached logframe, the total number of activities to be funded does not increase proportionately to the proposed growth in budget. This is due to the fact that ESMAP will initiate a smaller number of activities, relative to prior business plan periods, but larger in size, each of which is projected to have multiple outcomes. (see Annex 2)

188. ESMAP’s non-program costs include:

- Program Management/Governance/Trust Fund Administration | US\$ 3 million over three years, plus US\$ 250,000 per year for SIDS DOCK program management
- M&E (including an external evaluation in FY2015) | US\$ 1.2 million over three years
- Communications | US\$ 2.5 million over three years

# ANNEX 1 | ESMAP RESULTS CHAIN, FY2014-16



## ANNEX 2 | ESMAP PROGRAM LOGFRAME, FY2014-16

### HIGHER LEVEL OUTCOMES AND IMPACTS

RESULT LEVEL	OBJECTIVE	ESMAP ATTRIBUTION	INDICATOR <sup>1</sup>	SOURCE	ESMAP BUSINESS PLAN					2030 TARGET	
					BASELINE JUNE 2013	FY2014	FY2015	FY2016	TOTAL (TARGET)		
7	Higher Level Impacts	Very low	7.1 Poverty Alleviation	Percentage of population below US\$ 1.25 (PPP) a day (%)	WB	22.7 % (2008)					New post-2015 development goals
			7.2 Economic Development	Average annual GDP per capita (IBRD and IDA countries)	WB	US\$ 2,080 (2011)					
			7.3 Climate Change Mitigation	Global CO <sub>2</sub> concentration level equivalent	UNFCCC	391 ppm					
6	Lower Level Impacts	Low	6.1 Reduced Energy Poverty	Multi-dimensional Energy Poverty Index (MEPI) or equivalent index	WB	Country-level baseline					All IDA countries will have a MEPI of less than 0.7
			6.2 Improved Energy Security	Annual outages	Energy Utilities / Regulators client countries	Country-level baseline					100% of IBRD/IDA client countries will have reduced annual outages in electricity supply
			6.3 Low Carbon Development	<ul style="list-style-type: none"> <li>GHG intensity of GDP growth</li> <li>Global investment flows to clean energy projects</li> </ul>	WB / UNFCCC	Country-level baseline					100% of IBRD/IDA client countries have reduced GHG intensity of GDP growth
5	Higher Level Outcomes	Low	5.1 Increase Access to Modern Energy Services	Universal energy access (electricity and modern cooking fuels)	SE4ALL	<ul style="list-style-type: none"> <li>1.14 billion people without access to electricity</li> <li>2.8 billion people dependent on traditional use of biomass for cooking and heating</li> </ul>					<ul style="list-style-type: none"> <li>1.5 billion additional people with access to electricity</li> <li>2.4 billion additional people with access to clean cooking</li> </ul>
			5.2 Relative Increase Output from RE	RE share in global energy mix	SE4ALL	15%					30%
			5.3 Increase Rate of EE Improvement	Global rate of improvement in EE	SE4ALL	1.40%					2.80%

<sup>1</sup> Indicators used for energy poverty and energy access will be updated in line with the ongoing work under SEFA (and supported by ESMAP).

## LOWER LEVEL OUTCOMES

RESULT LEVEL	OBJECTIVE	ESMAP ATTRIBUTION	INDICATOR	SOURCE	ESMAP BUSINESS PLAN				2030 TARGET			
					BASELINE JUNE 2013	FY2014	FY2015	FY2016		TOTAL (TARGET)		
4	Lower Level Outcomes	4.1	<b>Development Financing Informed:</b> Client countries provided with "just-in-time" technical assistance for pre-investment activities necessary to resolve program design issues and offer additional options.	Medium	<ul style="list-style-type: none"> <li>Existing operations informed</li> <li>Government expenditure informed</li> <li>Mobilization of non-Bank resources informed</li> <li>Preparation of new operation informed</li> </ul>	ESMAP	65				<b>90 of which:</b> <ul style="list-style-type: none"> <li>20 approved operations including: (i) in-country renewable energy, energy access and energy efficiency programs catalyzed by ESMAP; (ii) Results-Based Funding operations through the WB and other development partners; (iii) operations in transport, urban and/or water investment projects with energy efficiency components.</li> <li>SIDS-DOCK support will lead to either increased RE generation (MW) or increased efficiency (kWh/year) or increased number of people with access.</li> <li>7 countries mobilize financing from development agencies and the private sector to implement specific projects and programs which are part of their SE4All investment prospectus to achieve universal access by 2030.</li> <li>Resource mapping informs 8 investments in transmission and distribution, generation and access.</li> <li>5 new geothermal test drilling investments prepared and financed.</li> <li>12 IDA/IBRD operations design enhanced by AFREA to (i) significantly increase access and/or clean energy, (ii) integrate Lighting Africa and/or ACCES components, and (iii) improve pro-poor targeting.</li> </ul>	
		4.2	<b>Policy &amp; Strategy Informed and Client Capacity Increased:</b> Increased institutional capacity of ESMAP client countries to plan, manage, and regulate the implementation of policies, strategies, and programs that deliver clean, reliable, and affordable energy	Medium	<ul style="list-style-type: none"> <li>Bank country strategy (CAS/CPS) informed/influenced</li> <li>Bank sector strategy informed/influenced</li> <li>Contributed to stakeholder involvement</li> <li>Development community/partner policy/strategy informed</li> <li>Government policy/strategy informed</li> </ul>	ESMAP	84				<b>150, of which:</b> <ul style="list-style-type: none"> <li>25 client countries adopt policy reform measures, legislative, regulatory programs or strategies (including in SIDS-DOCK countries) that have been influenced by ESMAP.</li> <li>10 countries use, adopt, and/or deploy ESMAP models and toolkits, including (i) TRACE results in urban planning; (ii) META in project options assessments; or (iii) EFFECT/MACTool in their energy sector planning, low emissions</li> </ul>	



RESULT LEVEL	OBJECTIVE	ESMAP ATTRIBUTION	INDICATOR	SOURCE	ESMAP BUSINESS PLAN					2030 TARGET
					BASELINE JUNE 2013	FY2014	FY2015	FY2016	TOTAL (TARGET)	
	services required by their citizens for poverty reduction and environmentally sustainable economic growth.		<ul style="list-style-type: none"> <li>Public debate stimulated/initiated</li> <li>Client is recognized with good practice or similar awards</li> <li>Design capacity strengthened</li> <li>Implementation capacity strengthened</li> </ul>						<ul style="list-style-type: none"> <li>development strategies, and/or NAMA preparation.</li> <li>3 countries with capacity to integrate gender in areas such as large infrastructure, energy efficiency, and power sector reform.</li> <li>3 countries institutions' capacity strengthened to incorporate risk in system planning.</li> <li>3 countries adopt recommended approaches in their policies on electricity pricing and subsidies.</li> <li>At least 6 countries, of which at least 2 post-conflict/fragile states, which have benefited from AFREA have directly contributed to the Government formulation/revision of pro-poor/access/clean energy policies, strategies and regulatory frameworks.</li> <li>7 governments initiate action through SE4All TA to establish enabling environment for private sector investments and a creditworthy power sector.</li> <li>Resource mapping is combined with spatial planning to produce 8 country policy frameworks to guide commercial investments.</li> <li>At least one Cities Alliance country program incorporates energy services in city development strategies.</li> <li>At least one development partner uses Doing Business -Energy to define assistance strategies.</li> </ul>	

RESULT LEVEL	OBJECTIVE		ESMAP ATTRIBUTION	INDICATOR	SOURCE	ESMAP BUSINESS PLAN				2030 TARGET	
						BASELINE JUNE 2013	FY2014	FY2015	FY2016		TOTAL (TARGET)
	4.3	<p><b>Knowledge Increased/Deepened and Innovative Approaches &amp; Solutions Generated:</b> ESMAP-supported research and analyses strengthen the sector's knowledge and evidence-base to deliver improved clean energy access, energy efficiency, and generation in developing countries.</p>	Medium	<ul style="list-style-type: none"> <li>Disseminated best practices</li> <li>Facilitated exchange of best practice with clients</li> <li>Facilitated exchange of best practice with partners</li> <li>New innovative approach developed</li> <li>Other action/behavior adopted or observed</li> <li>New innovative approach fostered</li> </ul>	ESMAP	41				<p><b>75, of which:</b></p> <ul style="list-style-type: none"> <li>25 suitable research products published and openly accessible through peer review literature.</li> <li>At least 3 countries enhance their knowledge of climate risks to energy sector.</li> <li>12 observations of influence (research into use) of ESMAP knowledge on decisions by key decision makers in developing countries, including adoption of integrated approaches to planning for energy and water investments.</li> <li>12 citations of ESMAP research from third party sources.</li> <li>SE4All strategic directions shaped by State of Access Report and global access tracking framework.</li> <li>At least 2 development partners utilize knowledge on geothermal financing modalities, project structuring, and management.</li> <li>Evidence established that promoting gender equality in energy sector projects improves development outcomes.</li> <li>At least 3 projects in large energy infrastructure, energy sector reform, small-scale energy infrastructure or energy efficiency utilize knowledge on gender in design and/or implementation.</li> <li>New approaches for energy access/renewable energy scale-up developed and piloted in at least 6 IDA/IBRD projects or AFREA recipient-executed grants.</li> <li>At least five organizations are collaborating with ESMAP in providing enhanced access to open-source energy planning tools.</li> </ul>	

## INPUTS, ACTIVITIES, AND OUTPUTS

RESULT LEVEL	OBJECTIVE	ESMAP ATTRIBUTION	INDICATOR	SOURCE	ESMAP BUSINESS PLAN					2030 TARGET	
					BASELINE JUNE 2013	FY2014	FY2015	FY2016	TOTAL (TARGET)		
3	Outputs	ESW and TA / Research & KPs	High	Number of research (ESW, TA) and KPs published	ESMAP	241 (FY09-12)				250 (FY14-16)	
2	Activities/Programs	Clean Energy	Very high	<b>Programs/activities in:</b> RE Operational Support, Training Program, and Handbook Low Carbon Options TA RE Resource Mapping Global Geothermal Development Program Climate Change Adaptation in Energy Sector ABGs to Regions	ESMAP						
		Energy Access		<b>Programs/activities in:</b> SE4ALL TA Energy Access & Efficiency for the Urban Poor State of Energy Access Report Operational Support to Household Energy/Off-Grid Access ABGs to Regions	ESMAP						
		Africa Renewal Energy Access Program (AFREA)		<b>Programs/activities in:</b> Investments Strengthening Policies & Institutions Market Development Knowledge & Capacity-Building	ESMAP						
		Energy Assessment and Strategies		<b>Programs/activities in:</b> Electricity System Planning Doing Business - Energy (IFC) Model for Electricity Technology Assessment (META) Assessment of options for safeguarding the poor/price increases Energy-Water-Food Nexus ABGs to Regions	ESMAP						

RESULT LEVEL	OBJECTIVE	ESMAP ATTRIBUTION	INDICATOR	SOURCE	ESMAP BUSINESS PLAN					2030 TARGET
					BASELINE JUNE 2013	FY2014	FY2015	FY2016	TOTAL (TARGET)	
	Energy Efficient Cities		<b>Programs/activities in:</b> TRACE deployment by development partners Operational Support to EE in Transport, Urban and Water Sectors Leaders in Urban Transport Training Series ABGs to Regions	ESMAP						
	Energy and Social Inclusion: Gender		<b>Programs/activities in:</b> Gender Assessments in WB Operations Operational Support to WB Teams Knowledge Development & Dissemination	ESMAP						
	SIDS-DOCK		<b>Programs/activities in:</b> SIDS-DOCK Institution Building Country-Level Support for RE/EE	ESMAP						
	Results-Based Financing (RBF)		<b>Programs/activities in:</b> Operational Support to WB Teams Outreach to Development Partners KPs	ESMAP						
	Project Preparation Facility for Low Carbon Projects		<b>Programs/activities in:</b> Pre-Feasibility & Feasibility Studies	ESMAP						
<b>1</b>	<b>Inputs</b>	Resources required for conducting and delivering ESMAP work program: <ul style="list-style-type: none"> <li>• Staff skills and continuity</li> <li>• Contributions from Donors (US\$ '000)</li> <li>• ESMAP role in WBG energy practice</li> <li>• WB operational processes and procedures for WB-executed and Recipient-executed grants</li> </ul>	Very high	ESMAP	<b>\$75,600 (FY09-12)</b>	\$40,150	\$48,300	\$48,600	\$137,050	