

ANNEX A:

SUMMARY OF THE CONSULTATIVE GROUP MEETING FOR ENERGY TRUST-FUNDED PROGRAMS

OPENING SESSION

The Consultative Group (CG) meeting for the Energy Sector Management Assistance Program (ESMAP) was held in Washington, DC on April 29-May 1, 2019. This summary covers the discussions during the Open Sessions held on April 29-30, 2019.

Riccardo Puliti, Senior Director for the World Bank (WB) Energy and Extractives Global Practice (EEX), opened the event by emphasizing the vital role that ESMAP plays within the Energy Global Practice. He highlighted ESMAP's impacts on global policy and WB investment, as well as ESMAP's global convening power, which provides a public good to all development partners. He also stressed that this year's CG was important because ESMAP has passed the mid-point of its four-year business plan for FY2017-2020. Mr. Puliti also mentioned that countries are seeing real movements on many of the indicators for the sustainable development goal on energy (SDG7) and that now is the time to boost support for ESMAP for even stronger impact.

The CG meeting's Open Sessions, chaired by Rohit Khanna, ESMAP Program Manager, included presentations and discussions of the TAG report and examples of ESMAP support in the major thematic and cross-cutting areas, including new business areas. Discussion highlights for each session are provided below.

Session 1: Technical Advisory Group (TAG) Report to the CG

The TAG presented the portfolio review of ESMAP and its programs for the first two years of the ESMAP FY17-20 Business Plan using a set of four financial and operational indicators, including FY17-20 Business Plan targets of the ESMAP Results Framework. The TAG recommended further enhancement of the "traffic light" approach to presenting progress towards results, strengthening reporting on outcomes, reflecting on an assessment of risks in implementation delays, as well as introducing a progress report for gender and a more regional focus for the progress report on Annual Block Grants (ABGs).

Methodology: The CG expressed the need for more detail on results, key learnings, and the main risks associated with each program, rather than a methodological discussion of the indicators chosen for the review. The CG also noted that the review should have demonstrated ESMAP's impact, describing the pathway from the upstream analytical support to tangible impacts. The CG welcomed the recommendation to specifically report on the results of the gender program.

Way Forward for TAG: The CG also noted that the TAG reports were to provide a strategic analysis from an outside perspective, identifying the areas of strengths and weaknesses and necessary improvements to the business plan. The CG would welcome similar TAG analysis moving forward, while the portfolio review needs to remain an internally produced deliverable.

Next Steps: Rohit Khanna summarized the TAG discussion, noting the following key points for ESMAP focus: (a) greater consistency in reporting on global activities (i.e., own-managed activities) and country grants; (b) more rigor on defining and reporting on results at output and outcome levels and introducing evidence-based reporting on impact; and (c) development of an approach on flagging risks. ESMAP will produce progress reports on gender and ABGs with greater focus on regional results. The recommendation to focus the portfolio review on the current Business Plan vs. on a rolling basis requires a bit more consideration on how best to present a portfolio review that cuts across reporting periods, incorporating results and impact from previous Business Plans, while maintaining the integrity of reporting on the current Business Plan. Lastly, the portfolio summary provided for last year's CG will be reinstated.

Session 2: Knowledge Hub (KH) - SDG7, MTF, RISE, and Energydata.info

Elisa Portale, Senior Energy Specialist, ESMAP, presented three knowledge products developed to track the sustainable development goal on energy (SDG7)—Tracking SDG7: The Energy Progress Report, the Multi-Tier Framework (MTF), the Regulatory Indicators for Sustainable Energy (RISE)—highlighting their linked impact on client countries' decision-making for policy makers and other important stakeholders in the energy sector. Tigran Parvanyan, Energy Specialist, ESMAP, presented the Energydata.info tool, showing examples of how the various datasets housed by the tool can provide key information for sustainable energy initiatives in client countries.

Partnerships and Engagement: The CG recognized that KH products and Energydata.info apps have been well integrated into WB operations internally but expressed interest in how these products/tools are used by external organizations and partners, including other Multilateral Development Banks (MDBs) and donors to the Climate Investment Funds. The team provided examples of data partnerships with the African Development Bank (AfDB) and successful uptake of KH products for benchmarking by the World Economic Forum, the Organization for Economic Cooperation and Development, and others as well as the governments of Rwanda, Ethiopia, and all Western Balkan countries. The CG also recognized that RISE was being used by institutional investors for initial due diligence of policy environments.

Impact and Use of KH Products: The CG expressed interest in the capability of the KH products/tools to provide analysis and forecasting of country and private investor priorities, strategies, and investment flows in the energy sector. The ESMAP team recognized that this is a priority for the remainder of this business plan. The ESMAP team will continue the impact sensitivity analysis of RISE indicators to identify meaningful take-aways for individual countries, convene a RISE private sector focus group with law firms and developers, and build on the successful adoption of the definitions of the MTF tiers by the Ministries of Energy in Rwanda and Ethiopia in other countries.

Gender: The CG expressed interest in how gender is being integrated into KH products and how this can impact operations. The team clarified that gender indicators have been added to RISE and MTF to identify gaps and progress on gender issues in energy access.

Session 3: Regional Focus: ESMAP Support to West Africa and Sahel Region

Charles Cormier, Practice Manager, Energy and Extractives Global Practice, presented a regional summary of ESMAP support to West Africa and the Sahel. The region is underperforming in all key sector metrics—access rates are low and power tariffs are among the most expensive in the world. The West Africa Power Pool (WAPP) can help accelerate access by leveraging data and new technology, and focusing on human capital development, regional solutions, and public-private partnerships. WB and ESMAP are focusing on the fragile states of the Sahel where a combined donor effort is needed to combat challenges with comprehensive electrification strategies.

Upstream gas: The CG expressed concern as to how Mauritania and Senegal will be able to exit gas by 2019, based on WB priorities. The ESMAP team clarified that Ghana has subsidies close to \$1B/year making domestic markets less vulnerable to price shocks. Since there is an access issue in Senegal and Mauritania, partners are looking for midstream and downstream investments.

Power pool integration: The CG expressed concern that seasonal variations, such as those that affect Liberia—going from excess capacity to running out and relying on diesel—will be seen across the region. In addition, there was concern that private companies are not investing in off-grid solutions to combat high prices. The ESMAP team mentioned that Liberia is looking at rental power during low season but that the WB recommends purchasing power from neighboring countries to save on cost. This, however, could be remedied with the development of more power sources and least-cost planning.

Balance between grid and off grid: The CG expressed concern about the balance between grid and off-grid solutions. The team suggested that off-grid solutions are good for those countries without grid access, such as Mali. However, if consumers think the grid is coming, they will wait a few years to get connected and withhold investment in off-grid. Challenges include lack of an entrepreneurial ecosystem for developing necessary technologies, limited access to finance, and low-quality products.

Integration of off-grid solar, food security, and water: The CG expressed concern that there are no agricultural or regional programs addressing integration issues between off-grid solar, food security, and water. The ESMAP team reassured the CG that they are working with colleagues from Agriculture and Health and Nutrition Global Practices to leverage solutions.

Low quality solar products: The CG expressed concern that low-quality solar products coming from China could have a negative impact on markets. The ESMAP team highlighted that Lighting Africa has illustrated that once quality standards are introduced, word of mouth helps guide consumer purchases.

Clean Cooking: The CG asked about the strategies to address issues of clean cooking in the Sahel and West Africa. The ESMAP team pointed out that despite efforts by ESMAP and the WB, getting countries to commit to universal access to clean cooking is difficult and that finding local champions is critical.

Collaboration: The CG expressed interest at the level of collaboration efforts in the Sahel. The ESMAP team reminded the CG that the Conference in Paris will bring groups of donors together to discuss what is working and what is not working at the country level and will strengthen coordination.

Session 4: Energy Efficiency (EE), including Efficient Clean Cooling

Ivan Jaques, Senior Energy Specialist, ESMAP, and Martina Bosi, Senior Energy Economist, ESMAP, focused on EE City Services and Efficient and Sustainable Buildings. They highlighted the key role of EE to achieve climate and development goals and pointed to the recent slow-down of the pace of EE progress globally—stressing the need for renewed focus and action. They presented the program’s three strategic objectives and projects that exemplify them: (i) integrate EE across sectors; (ii) create an enabling environment; (iii) support design and implementation of delivery models and financing mechanisms to scale up EE.

Working with cities at the sub-national level: The CG expressed interest in learning more about the challenges and opportunities working with sub-national level governments. The ESMAP team emphasized focus on both sub-national and national levels, as well as a multi-sectoral approach working with global practices such as Social, Urban, Rural and Resilience, Water, and Transport, as well as the International Finance Corporation (IFC). Challenges at the sub-national level are usually associated with lack of capacity, financing and creditworthiness, and shorter political terms. To strengthen the enabling environment, ESMAP focuses on technical assistance and data and analytics for sustained engagement as seen in the examples of Brazil (FINBrazeec project) and Mexico (Municipal EE project).

Approaches to prioritize EE investments: The CG inquired how ESMAP works with governments to put EE on top of political agendas when it is not treated as a priority. The ESMAP team indicated the importance of finding the right entry points and incentives, such as cost reduction, more fiscal space to finance other priorities, better service provision and infrastructure, energy security, jobs, and climate change. For example, in Eastern Europe, European Union targets for EE and the requirement to develop EE action plans are helping to influence national agendas. In Sub-Saharan Africa, the teams are working to identify specific ways EE can support national development goals, for example by reducing the burden of strained utilities, and increasing access and disposable income. In the water sector, two main driving factors influence the uptake of EE: i) the necessity to attract commercial financing; and ii) the increase in cost-recovery as seen in the example of Uzbekistan.

Promoting gender in EE: The CG expressed interest in specific approaches to close gender gaps in EE projects. The ESMAP team reiterated the importance of using good data and engaging in stakeholder consultations to identify these gaps and devise solutions. For example, in the FinBrazeec project, ESMAP helped to assess linkages between street lighting and women’s safety. In India, the project supports the public energy services company Energy Efficiency Services Limited (EESL) to increase employment opportunities for women. While in Mexico, focus is placed on the development of a gender-sensitive EE and sustainability curriculum for public schools that will contribute to the government’s efforts to increase the number of women in the fields of science, technology, engineering and mathematics (STEM). In addition, a technical note is being developed on EE and behavior change, which will also explore gender considerations.

Replicating India’s Super-ESCO experience: The CG noted the example of India’s EESL, which has allowed the government to take EE to scale and stressed the need to replicate this example. The ESMAP team stressed that EESL’s success was made possible by several factors such as strong government commitment, conducive policies, focus on market transformation, adequate financing and local capacity to implement solutions, especially in public and residential sectors. There are many lessons to be learned from the EESL example for potential replication in other countries.

Electricity access and renewable energy: The ESMAP team noted that much of the work on electricity access (e.g. solar home systems) has been driven by EE. Collaboration started with the emergence of LEDs and is now expanding to cooling in the context of productive uses of electricity in rural communities. EE is also strongly linked to Renewable Energy (RE), especially in the context of rooftop solar photovoltaic (PV), building EE, and electric mobility. It was noted by the CG that subsidy removal is driving investment toward EE and RE. EE can be critical in facilitating the transition (reducing the economic impact on households and businesses of lower subsidy).

Tackling the agenda: The CG and the ESMAP team touched upon the newly launched Efficient and Clean Cooling program that is financially supported by seed funding from the Kigali Cooling Efficiency Program (K-CEP). Through this multi-sectoral program, the ESMAP team will target different cooling sectors, including space cooling, cold chain, cool surfaces and the mitigation of urban heat island effects and will partner with teams across the WB Global Practices and the IFC. It will engage with external stakeholders involved in the cooling agenda, liaising with both private and public entities, financial institutions, international organizations, as well as think tanks and research bodies. The program is jointly managed by ESMAP and the WB Climate Change group, building on the experience, network (including the cooling industry), and partnerships developed through the WB's involvement under the Montreal Protocol as one of its four implementing agencies.

DAY 2

Session 5: Hydropower Development Facility

Pravin Karki, Global Lead Hydropower and Dams, connected from Nepal to present the status of the Hydropower Development Facility (HDF), thanking Austria, Iceland and Switzerland for their financial contributions. The presentation focused on how the Facility aims to address one of the major constraints to the rapid development of sustainable hydropower—mainly the lack of adequately prepared, bankable hydropower projects. Managing risks through careful preparation is key to developing sustainable hydropower projects for both public and private sectors. Projects to be supported by the HDF would be selected based on specific criteria: anchorage in a power system planning process, particularly where hydropower supports integration of variable renewable energy into power grids; evidence of country commitment and transparency; prioritization of International Development Association (IDA) countries, particularly in sub-Saharan Africa; prioritization of complex projects, particularly those part of regional power pools or power trade; and potential for displacement of coal, diesel and heavy fuel oil

The HDF aims to mobilize WB lending and private financing, with an FY2021 target of two projects with hydropower components and four projects for FY2022, including mobilizing private financing where feasible. So far, six countries have submitted proposals to the HDF – Madagascar, Malawi, Bosnia, Nepal, and Papua New Guinea.

In addition, a global study on early screening in Africa and a study on Global Sediment Management are underway. The CG inquired more information on the establishment of a Hydropower Facility Advisory Panel and the ESMAP team responded that such a panel would consist of experts from scientific, technical, industry, and donor organizations. The panel will participate in quality enhancement reviews for specific studies funded by the HDF, advise WB teams on the development of the HDF's work plan, criteria and priorities, and support stakeholder outreach. The panel will also help identify best practices and participate in HDF knowledge exchange and learning events.

Session 6: Power System Planning

Debabrata Chattopadhyay, Senior Energy Specialist, Energy and Extractives Global Practice, highlighted ESMAP's increasingly important role in providing technical support to WB clients. Over the past five years, ESMAP provided demand-driven support to countries and regions on Master Plans, VRE integration studies, transmission analysis, dispatch diagnosis and regional integration studies. The new approach encompasses analysis of NDC targets, decarbonization, coal repurposing, integrated energy planning and integration of resilience in planning.

Coal repurposing: The CG noted that avoiding new coal or phasing out existing coal projects should be part of the overall package of solutions from analysis of NDC targets to closing and re-purposing existing coal. Plans to phase-out coal should focus on repurposing existing coal plants, addressing coal mining, just transition, pricing issues and relevant transmission planning issues. Planning can provide an analytical and unbiased basis for a sustainable transition by considering minimization of stranded assets and the long-term economic and social strategies including relocation, social protection reforms related to coal mine/plant closure.

Focus on access: The CG discussed the need to focus on energy access through integrated energy planning which considers off-grid components. The poverty focus is also part of the agenda since countries are looking for the lowest-cost option to provide electrification and incorporate integrated energy planning.

Donor Coordination: The CG stressed the importance of donor coordination and the ESMAP team highlighted that planning activities have ensured strong coordination in countries and regions. For example, ESMAP activities in SAPP (South African Power Pool) are being coordinated through the AREP MDTF and administered by the WB with donor contributions from SIDA and Norway. This arrangement has greatly benefited WB engagement with SAPP where all the relevant regional activities are being streamlined. Collaborations with other agencies such as KTH and IRENA are going on through the Integrated Energy Planning activities especially on the electrification and access side. A global effort led by DFID, the "Key principles for improving the support to strategic energy planning in developing and emerging economies" is also ongoing to improve the effectiveness of development partners support to country governments on strategic energy system planning.

Session 7: Energy Access Thematic Area

Dana Rysankova, Senior Energy Specialist, ESMAP, and the ESMAP Energy Access team presented progress under this thematic area stressing the challenge of reaching the more remote segments of the population in regions such as Africa and Asia. She shared examples of countries that have made progress in closing the access gap such as Ethiopia and stressed the importance of comprehensive approaches that include grid, off-grid and mini grid solutions. The team also highlighted that access to efficient, clean cooking and heating (ECCH) lags furthest behind all other SDGs despite its many benefits on health, gender, climate, and building human capital. ESMAP is leading the ECCH agenda in the WB and that there are strong synergies between access to ECCH and electricity. New business models and technologies such as pay-as-you-go, and electric cooking offer new opportunities to build on the progress on electrification. To make a paradigm shift, it is imperative to scale up public and private investment in ECCH. The Results-Based Financing (RBF) model has proven to be an effective approach for utilizing public financing to attract and leverage the private investments.

The CG highlighted that a humanitarian focus on energy access is welcome and inquired about ESMAP's role in coordinating energy access work with groups in humanitarian settings and development agencies. CG members also stressed that energy access is strongly related to the climate action agenda so there is a need to strengthen focus on the poor where climate impact is greater. The ESMAP team responded that ESMAP is actively collaborating with partners including UNITAR, GPA, AFDB, and others, including in refugee/internally displaced person areas where commercial and climate friendly approaches to energy solutions are being explored. The CG also wanted more information on what approaches work well and why, and what innovation is needed to help energy sectors reach balance of payments (BoP). The ESMAP team discussed the comprehensive support provided to Kenya to help the country make progress in electrification. The team also stressed that public-private approaches will be crucial, and subsidies will need to be part of the strategy for reaching BoP since markets alone cannot reach everyone. Ethiopia's electrification program benefited by most of ESMAP program windows such as mini grids, geospatial planning, MTF and others and this has had a stronger impact on the sector. The CG also made the point that energy is an enabler not an endpoint and that impact should be linked to country economic development plans to which the ESMAP team responded that energy access is a key element of the WB twin goals, so it is increasingly linked to productive uses and livelihoods.

The CG noted that the narrative on clean cooking needs to be strengthened and that there is a need to explore whether a different perspective, or a change of entry point for the discussion could help the issue become a priority. The CG also highlighted the need for an in-depth assessment on why there is little progress despite the large untapped market for clean cooking solutions. More transformative and unconventional approaches are needed to change the paradigm on how we approach the solutions. Lastly, the CG asserted the need for the WB to have clarity on its specific engagement with the public and private sectors and balancing the focus between electricity access and clean cooking.

Prioritization: The ESMAP team noted the lack of prioritization for ECCH solutions that impacts the level of investment. The good news is that ECCH has gained more visibility recently through the SDG7 tracking report, which highlighted slow progress. The demand for clean cooking within the WB, particularly in the Africa region, is evident from the increasing integration of clean cooking solutions into energy access projects.

Intersection with health: The ESMAP team noted that for the first time, health teams in the WB are discussing design of clean cooking solutions in health projects, especially as it pertains to child and maternal health. ESMAP has supported the launch of the Environmental Health program with a dedicated workstream on household air pollution and the ECCH sector.

Financing: The ESMAP team pointed out that public financing is needed to attract private investment and support ECCH market development. ESMAP's ECCH program has the biggest funding gap compared to others. With increasing demand from WB operational teams, additional financing is critical to capitalize on transformative opportunities. ESMAP is aiming to set up a dedicated RBF facility for clean cooking which will co-finance WB lending to leverage financing, promote innovation, deliver clean cooking solutions, and develop an impact market to attract a broad range of funding for climate, health, and gender benefits from clean cooking interventions.

Session 8: Rethinking Power Sector Reform

Vivien Foster, Chief Economist, Infrastructure VPU, presented the status of the flagship report on Rethinking Power Sector Reform, a multiyear initiative that aims to refresh the policy debate in the power sector by presenting a comprehensive picture of the reform experiences in developing countries since the 1990s. Reflecting on these findings and how recent technological trends are disrupting the sector and sparking the need for new strategies, the report points to major policy implications for the future.

Correlation of Reforms with Economic Outcomes: The CG welcomed this initiative, stressing its importance to the global energy landscape. CG members asked about the correlation of reforms and macro-economic outcomes, to which Ms. Foster responded that the links are strong. For example, the report found that in certain countries energy sector crises led to macro-economic crises. In addition, there is a link between financial sustainability and ambition of reforms. Some CG members asked to clarify between sector reform and power system planning and the correlation with energy subsidy reform.

Factors Affecting Reforms: The CG also asked if the study considers other factors such as greening of the financial system, transition risks, disruptive technologies, and physical impacts—for example how climate transitions can exacerbate pressures on utilities. Ms. Foster reiterated that the study does take these factors into account and makes recommendations accordingly; however, disruptive technologies are only a small part of the study. The role of donors at country level was also brought up by members of the CG as a factor that can potentially shape reforms. Ms. Foster acknowledged the issue but pointed out that it is usually domestic politics dictating the course of reforms.

Link to WB Operations: Another issue of importance for the CG was how the WB's Development Policy Operations (DPOs) and other instruments respond to ongoing reforms. Ms. Foster noted that good governance measures are already integrated in DPOs and that WB operational teams are usually informed of practices on the ground.

Message Clarity and Next Steps: Another point made by the CG was the need for message clarity and good outreach and dissemination of findings. Some members asked if the WB hopes that this study will incentivize change, citing that some of the recommendations of the study have already been implemented without substantial results. Ms. Foster responded that the study offers a menu of tools the countries can choose from and that the report has the potential of bringing about a major shift in the sector. The next step is to turn the report's recommendations into a roadmap with specific priorities and actions.

Session 9: Energy Subsidy Reform Facility

Sheoli Pargal, Lead Energy Economist, ESMAP, highlighted the magnitude and reform difficulty of fossil fuel subsidies, provided examples of activities and results that the facility supported, and presented the knowledge agenda—a strategic focus on deepening the internal knowledge base of fossil fuel subsidy reform over the coming years.

Uptake in technical assistance (TA): The CG inquired about the uptake of the technical assistance provided by ESMAP to which the team noted that there has been a significant increase in uptake over the past year. The team noted that reform is almost always motivated by increased fiscal pressures faced by client governments.

Reframing how subsidy reform is communicated: The CG noted the importance of communication around reform. Effective communications on envisaged subsidy reforms diversifies the message beyond the fact that fossil fuel subsidies are bad. Opening a dialogue to understand public concerns around implementation of such reforms was emphasized. Equally important is getting the facts out there and the message that customers have both rights and responsibilities.

Directing savings from subsidy reform to the poorest: The CG inquired about the use of fiscal savings from subsidy reform and whether these can be directed towards the poor. The ESMAP team indicated that it is difficult to track how savings from subsidy reform are being spent. Generally, if a reduction in subsidies increases the government's available budget, it can redirect this toward whatever priorities it has. In some countries public spending on social sectors has been seen to increase as subsidies to fossil fuels have declined.

Session 10: Renewable Energy (RE) Thematic Area

Oliver Knight, Senior Energy Specialist, ESMAP, presented the RE Thematic Area, which includes five windows – Geothermal, RE Mapping, Offshore Wind, VRE Grid Integration and Solar Scale-Up. The Geothermal window and the Small Island Developing States trust fund (the SIDS DOCK Support Program) were presented by Thrainn Fridriksson, Senior Energy Specialist, ESMAP. The presentation noted that current progress on global deployment of solar and wind power has been strong in the last 10 years, but insufficient to meet agreed climate change mitigation goals. The team presented examples of ESMAP-funded technical assistance provided to Vietnam, Pakistan and West Africa to illustrate how ESMAP and the WB are supporting a paradigm shift in the way countries deploy RE by informing their national and regional energy strategies and lending operations in the energy sector. To respond to emerging client demands and new opportunities for RE deployment, ESMAP has supported or launched several new initiatives and work programs over the last year, including: WBG Energy Storage Initiative, Solar Risk Mitigation Initiative (SRMI), Offshore Wind program, and work on distributed, floating and hydro-connected solar PV under our existing Solar Scale-Up program. The presentation on the Global Geothermal Development Plan (GGDP) highlighted: (i) the impact of the GGDP in terms of shifting MDB financing towards upstream investments; (ii) a large pipeline of geothermal projects which could depend on public sector support; (iii) examples of the types of interventions and results that the GGDP supported; and (iv) plans to further delve into geothermal heating.

Energy Storage Initiative: The CG was pleased to see the development of the new WBG Energy Storage Initiative. The initiative will focus on: (i) enabling the scale-up of investments in battery in developing countries, including with the support of climate finance; (ii) convening of a new Energy Storage Partnership (ESP) to enable sharing of experience and shift attention to the energy storage needs of developing countries. The ESP will take a technology neutral approach, covering all energy storage technologies, including hydrogen. The ESP was scheduled for announcement at the Clean Energy Ministerial Meeting on 29th of May 2019.

Climate Finance: The ESMAP team reiterated the importance of the Clean Technology Fund (CTF) to support countries to deploy affordable and sustainable RE solutions. The WBG Battery Storage Initiative is hoping to raise funds from the CTF, and SRMI will be requesting funds from the Green Climate Fund (GCF) as well as from the CTF. These initiatives will channel funds to selected country specific programs that will benefit from ESMAP technical support, thus maximizing the impact of any climate finance that is provided.

Collaboration with IFC: ESMAP works with the IFC on research pieces, such as our report series on floating solar. ESMAP also works closely with the IFC on: (i) the Offshore Wind program which is co-led by IFC; (ii) the WBG Energy Storage Initiative, under which the concessional funds raised will be available for IFC's use; and (iii) SRMI, as the IFC Scaling Solar team is supporting the development of the component on the selection of private investors and is interested in using the e-tendering platform developed under the initiative.

Global Solar and Wind Atlases: The CG was pleased with the increased traffic on both websites. This growth is mainly linked to the fact that people are satisfied with the product and are returning as regular users. A good number of the users are from IBRD/IDA countries (the majority for the Global Solar Atlas). The team is exploring translation of both websites to other languages to improve accessibility.

Offshore Wind Program: This new program has been developed in partnership with the IFC and was launched in early March 2019. The team is hopeful that key target countries such as Vietnam and India will come forward in requesting support under the program. One critical element of the program is related to safeguards, which need to be fully integrated from the start of development activities in each country.

Geothermal Financing: There is hope that there can be discussions among the donors that would permit further collaboration among MDBs to finance a continuation of the support provided by the GGDP.

Economics of Geothermal: The team indicated that the economic and financial attractiveness of geothermal is very context dependent. Due to technological change that context is changing rapidly, and it will be important to fully track costs and benefits of alternative technologies.

Session 11: Gender and Energy Program

Inka Schomer, Operations Officer, GEEES, presented the progress under ESMAP's Gender Program noting ESMAP's role in mobilizing WB financing for gender equality in the energy sector. She focused on: i) the rationale for addressing gender gaps; ii) ESMAP's work on data, especially filling data gaps on women's employment in the energy sector and Science, Technology, Engineering and Mathematics (STEM); iii) progress on knowledge and research; iv) ESMAP's tailored operational support and partnerships with other institutions with highlights from Ethiopia, Yemen and Solomon Islands; and, v) the challenges and opportunities ahead. The CG expressed overall satisfaction with the results of the Gender Program and the efforts to focus on gender equality throughout the ESMAP portfolio. CG members emphasized the importance for ESMAP to set forth an ambitious vision and outline future frontiers both within ESMAP but also throughout the WB on closing gender gaps in the energy sector. Some donors expressed that the work on gender is the primary value-add for their contributions to ESMAP overall.

Importance of Data: The CG and ESMAP agreed on the importance of data generation but highlighted the costs and benefits of generating data versus relying on other institutions that may be collating it. The ESMAP team mainly leverages energy sector engagements to include collections of gender disaggregated data within project design approaches and draws from partner organizations e.g. IRENA for data to avoid duplication of efforts. The importance of sex-disaggregated data is apparent with the work with EVN in Vietnam where data on gaps in female leadership led to initiatives focused on leadership development, mentorship programs, EDGE certification etc.

Partnerships and Networks: The CG highlighted the importance of partnerships to strengthen gender results. The ESMAP team brought up the example of the WePower conference in Nepal in February 2019 where issues related to women's employment in renewable and non-renewable energy sectors were discussed. The WePower network includes not only donors and partners, but also utilities. Other partnerships include the Africa Gender and Energy program collaboration with the USAID Engendering Utilities program curriculum review and development.

Gender in WB Projects and Lessons Learned: The CG also raised questions about the gender tagging process in WB operations. A few examples provided by the ESMAP team included: i) the WB project in Yemen where ESMAP funded studies were used to understand gender equality issues in the early stages of project design, with a focus on understanding gaps between women and men in access to technologies and access finance through Micro Finance Institutions (MFIs); ii) a project in Iraq where ESMAP's funds were used to measure the number of women engaged in income-generating activities and their dependence on energy service reliability. ESMAP has experienced positive feedback on new approaches to learning with operational teams such as role play used in e.g. Caribbean Gender and Geothermal Development Workshop in March 2019. Efforts continue to be made on collecting resources and good practices examples, conducting literature reviews, trainings, and development of a roster of experts to support task teams in the engagement with our counterparts.

What is Next for Gender: The CG expressed interest in the overall vision and the next frontiers to push not only in ESMAP but more broadly in the WB. The ESMAP team will deepen its focus on specific areas such as reducing gaps in labor force participation rates between women and men through targeted work with utilities and ministries e.g. as developing specialized internal technical skills of female employees and targeted HR reform; tackling productivity gaps of female farmers and business through energy service provision by looking at drivers of the gaps such as access to finance, extension services, mobility, time poverty etc. ; strengthening activities to increase women's access to finance as consumers and entrepreneurs e.g. tailoring collateral requirements, tackling issue of financial literacy and encouraging the recruitment of female credit ; strengthening Gender-Based Violence (GBV) prevention and response both in institutions and the project site through training to clients on codes of conducts, standardized language in procurement documents and community awareness; and exploring how to possibly deliver more impact evaluations to strengthen the evidence base on what works on gender equality interventions in the sector (however funding constraints main issue).

ANNEX B:

RESULTS AND TARGETS ACHIEVED FOR FY2017–20 BUSINESS PLAN

Regions:

AFR = Africa

EAP = East Asia and Pacific

ECA = Europe and Central Asia

LAC = Latin America and the Caribbean

MNA = Middle East and North Africa

SAR = South Asia Region

ANNUAL BLOCK GRANTS FOR GOVERNANCE, MARKETS AND PLANNING

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
10 countries confirm using the results of ESMAP-supported energy sector assessments in policy decisions	<p>22 out of 10 (exceeded the target)¹</p> <p>Albania: The Government of Albania has approved the creation of the Albanian Power Exchange (May 2019) and the Financial Recovery Plan for the Power Sector (April 2019);</p> <p>Armenia: In Armenia, the Public Services Regulatory Commission adopted new model PPA for small RE plants under 30 MW in December 2018;</p> <p>Benin and Togo: The Governments of Benin and Togo validated the reform option for CEB in December 2018 and hence strengthening their role as regional power trade partners within WAPP;</p> <p>Brazil: The Government of Brazil launched the new initiative “Novo Gas”, reflecting the ABG recommendations on the transition towards a liberalization of the gas transport, obligations to PETROBRAS to divest several transmission assets to eliminate the “di fatto” monopoly, financial mechanism to increase competitiveness in the distribution sector, and resolution/clarification of legal issues between the federal government and the States regarding the tax revenues from oil and gas;</p> <p>China: The Chinese government in May 2019 for the first time established minimum shares of electricity consumption that each subnational jurisdiction must ensure come from renewable sources in 2018-2020. This landmark reform helps overcome long-standing barriers to integration of renewable energy in China’s power sector;</p> <p>Cote d’Ivoire: The Government of Cote D’Ivoire adopted the investment prospectus for electricity access scale up in 15 regional cities that enabled to mobilize US\$60 million to expand access in these cities;</p>

¹ Results achieved in FY17-18 have been updated following TAG recommendation to report on outcomes rather than outputs.

ECOWAS: The ECOWAS Council of Ministers ECOWAS approved the Directive on the Securitization of the Cross-Border Power Trade Under the Regional Electricity Market in December 2018;

Ethiopia: The Government of Ethiopia launched the National Electrification Program (NEP) in March 2019;

Ghana: The Government of Ghana adopted a Policy on Competitive Procurement for Energy Supply and Service Contracts in May 2019 as well as approved and published the Energy Sector Recovery Program (ESRP);

Honduras: the new regulation for electricity tariff setting has been approved by CREE (regulatory entity) in June 2019 and published in the Gazette;

Jordan: Recommendations to National Electric Power Company's (NEPCO's) management and board of directors led to NEPCO's board approving an organizational restructuring;

Kenya: The Government of Kenya enacted the Energy Law (Energy Act 2019);

Lao PDR: In August 2018 the Government issued a moratorium on any new generation capacity that does not have an export market in line with the preliminary version of the country's first National Power Development Plan;

Malawi: The Parliament of Malawi approved the National Energy Policy 2018 in August 2018, preceded by the approval of the IPP Framework and the Renewable Energy Strategy by the Ministry of Natural Resources, Energy and Mining;

Moldova: in March 2017 the regulator adjusted the District Heating tariffs to cost-recovery level;

Myanmar: The Government of Myanmar adopted a National Electrification Plan and associated investment prospectus which covers both grid extension and off-grid electrification;

Myanmar: The Myanmar government in June 2019 announced electricity tariff reforms. As a result of the reforms, sector revenues are expected to increase by 70 percent, close to cost-recovery, with protections for low-consumption users;

Ukraine: The Government of Ukraine adopted, in 2018, an Action Plan for Comprehensive Reform of the District Heating Sector;

Uzbekistan: The Government of Uzbekistan created the Ministry of Energy in February 2019, unbundled Uzbekenergo in March 2019, and adopted a new tariff methodology in April 2019;

Uzbekistan: The Government of Uzbekistan adopted the RE Law on May 21, 2019;

Vietnam: The Vietnam government adopted key recommendations regarding competitive processes for LNG procurement, flexibility in LNG contracts, and consideration of floating storage and regasification units (FSRUs) siting and cost estimates;

Zimbabwe: The Government of Zimbabwe approved a Renewable Energy Policy to support private investment in non-coal generation in FY19

Preparation of 10 new investment and TA lending operations, 10 existing operations informed;

Mobiligation of private sector investment and other non-World Bank resources facilitated in 10 countries

49 out of 20 operations informed (exceeded the target):

1. Afghanistan: Herat Electrification Project (P162022)
2. Afghanistan: Incentive Program Development Policy Grant (P164882)
3. Afghanistan: Afghanistan Incentive Program Development Policy Operation (P168446)
4. Bangladesh: Enhancement and Strengthening of Power Transmission Network in Eastern Region (P159974)
5. Benin: Energy Service Improvement Project (P161015)
6. Bosnia and Herzegovina: Additional Financing for the Bosnia and Herzegovina EE Project (P165405)
7. Brazil: Energy Resilience for Climate Adaptation Project (P149522)
8. Burkina Faso: DPO series on Energy and PFM (P157060)
9. Burkina Faso: Electricity Sector Support Project (P160344)
10. China: Developing Market-based Energy Efficiency (P132748)
11. China: China Distributed Renewable Energy Scale-Up Project (P162299)
12. China: Renewable Energy and Battery Storage Promotion Project (P163679)
13. Cote d'Ivoire: Electricity Transmission and Access (P157055)
14. Dominica: Geothermal Risk Mitigation project (P162149)
15. Egypt: Second Fiscal Consolidation, Sustainable Energy & Competitiveness DPF (P161228)
16. Egypt: Third Fiscal Consolidation, Sustainable Energy & Competitiveness DPF (P164079)
17. Ethiopia: Electrification Program (P160395)
18. Ethiopia: Growth and Competitiveness DPO1 (P168566)
19. Georgia: Energy Supply Reliability and Financial Recovery Project (P169117)
20. Guinea: Power Sector Recovery Project - Additional Financing (P160771)
21. India: Andhra Pradesh 24X7 Power for All Project (P155038)
22. India: Additional Financing for Grid-Connected Rooftop Solar (P160018)
23. India: Energy Efficiency Scale-up Program (P162849)
24. India: Jharkhand Power System Improvement Project (P162086)
25. Iraq: Electricity Services Reconstruction and Enhancement Project (P162454)
26. Kazakhstan: Energy Efficiency Project (P130013)
27. Kenya: Off-grid Solar Access Project for Underserved Counties (P160009)
28. Kyrgyz Republic: Heat Supply Improvement Project (P157079)
29. Malawi: Electricity Access Project (P164331)
30. Moldova: Power System Development Project (P160829)
31. Morocco: Noor Solar Power Project Additional Financing (P164288)
32. Mozambique: Power Efficiency and Reliability Improvement Project (P158249)

33. Niger: Solar Electricity Access Project (P160170)
34. Rwanda: First Programmatic Energy Sector Development Policy Financing (P162671)
35. Sao Tome and Principe: Power Sector Recovery Project (P157096)
36. Senegal: Additional Financing to the Senegal Electricity Sector Support Project (P158655)
37. Serbia: Public Expenditure and Utilities DPL (P155694)
38. Serbia: Second Public Expenditure and Public Utilities DPL (P161184)
39. Solomon Islands: Community Benefit Sharing Pilot Project (P153986)
40. Solomon Islands: Tina River Hydro Development Project (P161319)
41. Somalia: Electricity Access Project (P165497)
42. Tanzania: Tanzania-Zambia Transmission Interconnector (P163752)
43. Tunisia: Tunisia Energy Sector Improvement Project (P168273)
44. Ukraine: Gas Supply Security Facility (P155111)
45. Uzbekistan: Rehabilitation of Transmission Substations (P156584)
46. Uzbekistan: Sustainable Transformation Toward a Market Economy Development Policy Operation #2 (P168280)
47. West Bank and Gaza: Electricity Sector Performance Improvement Project (P148600)
48. Zambia: Electricity Service Access Project (P162760)
49. Zambia: Scaling Solar II (P163958)

6 out of 10: mobilization of co-financing or other financiers

Albania, Armenia, Madagascar, Moldova, Tunisia, West Bank and Gaza

For example, in Armenia development of grid interconnection requirements for the Masrik-1 solar project under "Armenia – VRE Grid Integration Support" facilitated mobilization of USD 18 million private sector investment (i.e. private equity) and other USD 39 million in non-Bank resources (i.e. IFC, EBRD) for this first utility-scale solar project

Clients in 20 countries confirm enhanced institutional capacity to improve the performance of the power sector

24 out of 20 (exceeded the target)

Armenia, Brazil, Cambodia, China, Djibouti, Ethiopia, Ghana, Haiti, Jordan, Kenya, Lao PDR, Lebanon, Liberia, Moldova, Myanmar, Nepal, Niger, Nigeria, Sao Tome and Principe, Thailand, Tunisia, Turkey, Uzbekistan, Vietnam

For example, energy sector agencies in Ethiopia demonstrated data-driven and evidence-based planning, monitoring and implementation of the National Electrification Program; in Djibouti, Electricité de Djibouti (EDD) exploited a concrete opportunity for deploying private sector participation in the power sector to develop a 60 MW Wind PPA. This PPA was signed in May 2019 and is supported by a MIGA guarantee.

5 countries provided with technical assistance for project implementation

7 out of 5 (exceeded the target)

1. Republic of Congo: Water, Electricity and Urban Development Project (P106975)
2. Kenya Off-grid Solar Access Project for Underserved Countries (P160009)
3. Ghana Energy Sector Transformation Initiative Project (P163984)
4. Myanmar: National Electrification Project (P152936)
5. Tunisia: Tunisia –Italy Power Interconnector -Project Preparation TA (RETF)
6. Dominica: Geothermal Risk Mitigation Project (P162149)
7. Uzbekistan: Modernization and Upgrade Transmission Substations Project (P156584)

ENERGY ACCESS | EFFICIENT CLEAN COOKING AND HEATING

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
4 cooking or heating country program operations or activities developed in the lending portfolio, of which 2 with an explicit approach for improved equity of male and female participation across the value chain	<p>6 out of 4 (exceeded the target)</p> <ol style="list-style-type: none"> 1. Bangladesh: RERED II cooking component 2. Kenya: Off-Grid Solar Access Project 3. Kyrgyz Republic: Heat Supply Improvement Project 4. Bangladesh: Sustainable Forests & Livelihoods (SUFAL) Project 5. Ghana: Energy Sector Transformation Initiative Project 6. Lao PDR Clean Cookstove Initiative of which Bangladesh RERED, Kenya and Lao PDR projects have an explicit approach for improved equity of male and female participation across the value chain

2 countries or programs with new or updated enabling and regulatory frameworks

4 out of 2 (exceeded the target)

1. The East African Community Customs Union approved reduction of import duty rate from 25% to 10% for advanced appliances using biomass fuel (Legal Notice No. EAC/32/2016)
2. Hebei province of China adopted the updated stoves emission standard and testing protocol and the results-based incentive mechanism in its stove promotion program
3. Indonesia national standard body upgraded its national standard for cookstoves to adopt the Indonesia Clean Stove Initiative–Water Heating Test (CSI-WHT)
4. The Government of Burkina Faso has adopted a strategic roadmap on scaling up the biodigester program

4 enterprises that are “new entrants” in a specific country or market segment for clean cooking and heating

37 out of 4 (exceeded the target)

10 new enterprises in Indonesia, 23 in Uganda and 4 in Kyrgyzstan

ENERGY ACCESS | GLOBAL FACILITY ON MINI GRIDS

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
3 new World Bank operations informed	<p>6 out of 3 (exceeded the target)</p> <ol style="list-style-type: none"> Haiti: Renewable Energy for All (P156719) Haiti: Modern Energy Services for All (P154351) Kenya: Off-Grid Solar Access Project (K-OSAP) (P160009) Nepal: Mini Grid Energy Access (P149239) Niger: Solar Electricity Access Project (P160170) Nigeria: Electrification Project (NEP) (P161885)
US\$50 million of concessional funds mobilized	<p>US\$260.7M out of US\$50M (exceeded the target)</p> <ol style="list-style-type: none"> Haiti: US\$3M IDA Investments Haiti: US\$25.1M IDA Investments Kenya: US\$40M IDA Investments Nepal: US\$7.6M Strategic Climate Fund (SCF) Investments Niger: US\$35M IDA Investments Nigeria: US\$150M IDA Investments
5 countries supported for project identification and preparation	<p>16 out of 5 (exceeded the target)</p> <p>Burkina Faso, Burundi, Colombia, DRC, Ethiopia, Ghana, Guinea Bissau, Haiti, Liberia, Kenya, Nepal, Niger, Nigeria, Sierra Leone, Somalia, and one regional project (Horn of Africa)</p>
5 countries provided with technical assistance for project implementation	<p>12 out of 5</p> <p>DRC, Ghana, Guinea Bissau, Ethiopia, Haiti, Mali, Myanmar, Nigeria, Rwanda, Tanzania, Zambia and one regional project (Caribbean)</p>

ENERGY ACCESS | LIGHTING GLOBAL

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
At least 8 World Bank projects with solar off-grid components supporting growth of sustainable markets, mobilizing private sector funding	<p>15 out of 8 (exceeded the target)</p> <ol style="list-style-type: none"> 1. Africa: Regional Off Grid Electrification Project (ROGEP) (P160708) 2. Haiti: Modern Energy Services for All (P156719) 3. Haiti: Renewable Energy for All Project (P154351) 4. Kenya: Off Grid Solar Access Project (P160009) 5. Madagascar: Least-Cost Electricity Access Development Project (LEAD) (P163870) 6. Malawi: Electricity Access Project (P164331) 7. Mozambique Energy For All (ProEnergia) (P165453) 8. Myanmar: RBF for Off-grid Solar (P166413) 9. Niger: Solar Electricity Access Project (P160170) 10. Nigeria: Electrification Project (P161885) 11. Pakistan: Sindh Solar Energy Project (P159712) 12. Rwanda: Renewable Energy Fund Project (P160699) 13. Somalia: Electricity Access Project (P165497) 14. Yemen: Emergency Electricity Access Project (P163777) 15. Zambia: Electricity Service Access Project (P162760)

ENERGY ACCESS | ENERGY ACCESS FOR HOST COMMUNITIES AND REFUGEES²

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
2 projects with expanded scope of beneficiaries	<p>3 out of 2 (exceeded the target)</p> <ol style="list-style-type: none"> 1. Democratic Republic of Congo: Rehabilitation of Distribution Grids (P156208) 2. Dominican Republic: Distribution Grid Modernization and Loss Reduction (P147277)

² To respond to the challenges host-communities and displaced people face, ESMAP's Electricity Access for the Urban Poor Program proposed a reorientation of its mission, which was agreed with ESMAP CG in December 2018. The program, now called Energy Access for Host-Communities and Refugees, helps to provide support for the electrification of FDPs and their host communities and develops an extensive knowledge base to inform future World Bank operations. Following the reorientation of the program, the original target "2 South-South exchanges conducted" is no longer relevant. From FY19 onwards, the program is no longer reporting on it.

3. Yemen: Support to Recovery of Electricity Services in Yemen: Emergency Electricity Access Project and Power Sector Recovery and Reconstruction Program (P163777)

2 World Bank energy access projects supported

3 out of 2 (exceeded the target)

1. Yemen: Emergency Electricity Access Project (P163777)
2. Yemen: Integrated Urban Services Emergency Project (P164190)
3. Argentina: Metropolitan Buenos Aires Urban Transformation Project Additional Financing (P166935)

ENERGY ACCESS | SE4ALL TECHNICAL ASSISTANCE

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
5 countries have been supported in the definition and implementation of energy sector-wide approaches and tools	<p>13 of 5 (exceeded the target)</p> <p>Alliance for the Sahel, Burundi, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Somalia, Sudan, Tanzania, Republic of Congo and Zambia</p>

At least 4 existing geospatial plans improved

7 out of 4 (exceeded the target)

1. Colombia: Geospatial mapping and action plan for full electrification of the Guajira Region in Colombia completed
2. Ethiopia: The Government of Ethiopia adopted the National Electrification Program;
3. Ethiopia: The Government of Ethiopia adopted the National Electrification Program 2.0
4. Kenya: The Government of Kenya adopted the National Electrification Plan adopted based on ESMAP-supported geospatial plan;
5. Malawi: National Electrification Strategy has been prepared, and the Government is in the process of formally adopting it
6. Myanmar: Support provided for update of Myanmar geospatial electrification plan
7. Mozambique: The Government of Mozambique adopted the National Electrification Strategy.

ENERGY EFFICIENCY | ENERGY EFFICIENT CITY SERVICES

TARGETS FOR FY2017–20 BUSINESS PLAN

RESULTS ACHIEVED FY2017–19

At least 8 World Bank Group operations informed

24 out of 8 (exceeded the target)

1. Albania: Project for Integrated Urban and Tourism Development (PIUTD) (P155875)
2. Argentina: Metropolitan Buenos Aires Urban Transformation Project (P159843)
3. Brazil: FinBRAZEEC: Financial Instruments for Brazil Energy Efficient Cities (P162455)
4. China: Liaoning Safe and Sustainable Urban Water Supply project (P158713)
5. China: Shanghai Green Urban Financing and Innovation Project (P158124)
6. Cote d'Ivoire: Greater Abidjan Port - City Integration Project (P159697)
7. India: Efficient & Sustainable City Bus Services (P132418)
8. India: Energy Efficiency Scale-up Program (P162849)
9. India: Greater Shimla Water Supply and Sewerage Project (P167246)
10. Kazakhstan: Energy Efficiency Project (P130013)
11. Kyrgyz: Heat Supply Improvement Project (P157079)
12. Lebanon: Greater Beirut Public Transport Project (P160224)
13. Pakistan: Punjab Cities Program (P156972)
14. Ukraine: District Heating Energy Efficiency Project (P132741)
15. Uzbekistan: Alat and Karakul Water Supply Project (P118197)
16. Uzbekistan: Bukhara and Samarkand Sewerage Project (P112719)
17. Uzbekistan: District Heating Energy Efficiency Project (P146206)
18. Uzbekistan Medium-Size Cities Integrated Urban Development Project (P162929)
19. Uzbekistan: Sustaining Market Reforms in Uzbekistan Development Policy Operation (P168280)
20. Uzbekistan: Syrdarya Water Supply Project (P111760)
21. Vietnam: Energy Efficiency for Industrial Enterprises Project (P151086)
22. Vietnam Scaling Up Energy Efficiency Guarantee (P164909)
23. Vietnam Scaling Up Energy Efficiency Project (P164938)
24. Vietnam Urban Water Supply and Wastewater Project - Additional Financing (P156678)

Support at least 30 cities/regions/countries with technical assistance on energy efficient city services

61 out of 30 (exceeded the target)

61 cities/regions/countries in 23 countries, including:

1. Albania (Berat, Gjirokaster, Permet, Saranda)
2. Argentina (Buenos Aires and nationwide)
3. Brazil
4. Botswana
5. China (Anshan, Fushun, Fuxin, Fuzhou, Gaigzhou, Metropolitan Shanghai, and Shenyang)
6. Egypt (Cairo)
7. Georgia (Tbilisi)
8. Ghana
9. India (Kolkata, Shimla, and nationwide)
10. Indonesia
11. Kazakhstan (Almaty and Astana)
12. Maldives
13. Mongolia (Ulaanbaatar)
14. Morocco (Marrakech and nationwide)
15. Pakistan (Bahawalnagar, Burewala, Daska, Gojra, Hafizabad, Jaranwala, Jhang, Jhelum, Kamalia, Kamoki, Khanewal, Kot Addu, Muridke, Okara, Vehari, and Wagirabad)
16. Panama
17. Senegal
18. Serbia (Belgrade)
19. Tanzania (Zanzibar)
20. Ukraine (Chernihiv, Dnipro, Kamianets-Podilsky, Kharkiv, Kherson, Kharkiv, Mykolaiv, Odessa, and Ternopil)
21. Uzbekistan (Namangan and nationwide)
22. Vietnam
23. Zambia

4 dissemination briefs on urban energy efficiency developed and disseminated to WBG staff, clients and global fora

7 out of 4 (exceeded the target)

1. ESCO Delivery Model in Central and Northwestern India: Asian Electronics, Limited
2. Super-ESCO Delivery Model in Vizag, India: Energy Efficiency Services, Limited
3. Joint Procurement Delivery Model in Ontario, Canada
4. Public-Private Partnership Delivery Model in Birmingham, United Kingdom
5. Lease-to-Own Delivery Model in Guadalajara, Mexico
6. Municipal Financing Delivery Model in Quezon City, Philippines

7. "Electric Mobility & Development", written in collaboration with the Transport GP and the International Union of Public Transport (UITP). Launched at COP24 in Katowice Poland.

At least 5 training events/ workshops organized or facilitated for clients

26 out of 5 with 801 participants (exceeded the target)

- Participation of a Moroccan government official in the Netherlands Smart Cities Tour on May 8-12, 2017
- 17 workshops of the Leaders in Urban Transport Planning program during FY17-18, in Abidjan, Addis Ababa, Ahmedabad, Bogota, Dubai, Johannesburg, Marseille, Mexico City, Nairobi, New Delhi, Seoul, Singapore, and Washington D.C., with 554 participants
- Participation of Vietnamese government official in the INSPIRE 2018 Conference in India, November 11-13, 2018
- 7 workshops of the Leaders in Urban Transport Planning program during FY19, in Burkina Faso, Medellin, Mexico City, Seoul, Singapore, Sousse, and Zambia, with 245 participants

ENERGY EFFICIENCY | EFFICIENT AND SUSTAINABLE BUILDINGS

TARGETS FOR FY2017–20 BUSINESS PLAN

RESULTS ACHIEVED FY2017–19

At least 10 buildings-related World Bank Group operations include sustainable energy components

14 out of 10 (exceeded the target)

1. Argentina: Metropolitan Buenos Aires Urban Transformation (P159843)
2. Argentina: Metropolitan Buenos Aires Urban Transformation – Additional Financing (P166935)
3. Bosnia and Herzegovina Energy Efficiency Project - Additional Financing (P165405)
4. Brazil: Financial Instruments for Brazil Energy Efficient Cities (P162455)
5. Cote d'Ivoire: Greater Abidjan Project (P159697)
6. India: EE Scale-Up Program (P162849)
7. Jordan Equitable Growth DPF (P168130)
8. Kazakhstan: EE Project (P130013)
9. 11. Kyrgyzstan: Enhancing Resilience in Kyrgyzstan Project (P162635)
10. Kyrgyzstan: Heat Supply Improvement Project (P157079)
11. Marshall Islands: Sustainable Energy Development Project (P160910)
12. Mexico PRESEM Additional Finance for Energy Efficiency in Public Buildings (P165585)
13. Montenegro: Second EE Project (P165509)
14. Western Africa: Affordable Housing Finance (P161658)

At least 7 country building-related policies/plans/strategies informed

4 out of 7

1. Kazakhstan: City government adopted recommended EE financing mechanism (Almaty and Astana)
2. Panama: The Government of Panama adopted the Green Building Code and Energy Efficient Appliance Standards
3. Vietnam: Mandatory EE policy, with allocation of EE targets at provincial level, adopted and to be approved by the Prime Minister's Office
4. Kosovo: The Government of Kosovo established an Energy Efficiency Fund through approval of the Law on Energy Efficiency No. 06/L-079 by the Parliament in November 2018

7 knowledge products developed and disseminated to World Bank Group staff, clients, and global fora

5 out of 7

1. Report on Assessing and Measuring the Performance of EE Projects
2. Study on Using the Climate Auction Model to Catalyze Energy and Resource Efficient Buildings
3. Live Wire: Exploiting Synergies between Rooftop Solar PV and Energy Efficiency in the Built Environment
4. Live Wire: Financing EE: Revolving Funds
5. Live Wire, 3 issues: EE in the Public Sector, Residential EE, and EE in Industry

3 knowledge exchanges supported or organized

6 out of 3 (exceeded the target)

1. First knowledge exchange event on Energy Efficient Buildings and Neighborhoods in Côte d'Ivoire (with GABC and ADEME)
2. Sustainable financing knowledge event organized between Armenia and Montenegro
3. International Sustainable Cooling Conference (Washington, Nov. 2018)
4. Learning event on Sustainable Cooling (World Bank EEX Learning Week, March 2019)
5. Knowledge sharing session ("brown-bag-lunch") for WBG staff on "How cool is cooling" (World Bank, October 2018)
6. Knowledge sharing session ("brown-bag-lunch") for WBG staff on "Cool Roofs and Cool Surfaces: First Step Toward Cooling our Planet" (World Bank, Dec 2018)

ENERGY SUBSIDY REFORM AND DELIVERY TECHNICAL ASSISTANCE FACILITY

TARGETS FOR FY2017–20 BUSINESS PLAN

RESULTS ACHIEVED FY2017–19

Policy and/or regulatory reforms on energy subsidies and pricing reforms applied by at least 5 client countries over the period

19 out of 5 (exceeded the target)

1. Algeria: Government is implementing a progressive elimination of subsidies and designing a targeted cash transfer program -government has raised diesel prices by 67% and gasoline by 83% cumulatively since 2015;
2. Angola: fuel pricing methodology has been accepted by the Government. Consistent application of methodology will result in decrease in fuels subsidies;
3. Ecuador: Government: (i) created a designated unit in the Ministry of Economy and Finance for designing and implementing protection mechanisms in August 2018; (ii) eliminated off/peak electricity subsidies for industrial consumers in November 2018; and (iii) eliminated subsidy of super gasoline and partially eliminated the subsidies for extra gasoline and diesel fuels for industrial/commercial users in December 2018;
4. Ethiopia: tariff reform was approved in September 2018: as part of the reform, electricity tariffs were increased to 75% of cost recovery, from 55% in 2016. By FY22, when the tariff reform is fully implemented, the sector is expected to raise additional US\$924 million, or 0.98% of GDP, thus significantly reducing the need for electricity sector subsidies;
5. Honduras: In June 2019, Regulator, CREE, adopted the new electricity regulation that includes key principles of transparency, cost-reflectiveness and incentives to improve system's efficiency and will progressively contribute to improve the system's financial performance and limit the potential negative fiscal impact, reducing direct and indirect subsidies;
6. India: Government of Punjab scaled-up its Direct Benefit Transfer of Electricity program, based on the successful implementation of a pilot that aimed to reduce the use of subsidized power by farmers. Under the pilot, the state distribution utility paid farmers in cash for power saved (i.e., any reduction in power use vis a vis a baseline) at a rate somewhat below the cost of power. This created an incentive for farmers to limit their use of power (which remained free) and to be metered. The utility was able to save an amount equal to the difference between the payment to farmers and the cost of power, reducing the fiscal transfer required;
7. Iraq: Power subsidies for the non-poor were removed;
8. Lebanon: In April 2019, Government adopted an update to its sector policy that called for revising electricity tariffs;
9. Madagascar: gasoline, diesel and kerosene fuel subsidies eliminated in June 2017;

10. Madagascar: Successfully completed negotiations in June 2019 between the Government and private distributors of fuels to eliminate accumulated public arrears resulted in (i) a revision of pump price structure, (ii) a plan for clearing public liabilities, and (iii) renewed commitment of the Government to maintain the automatic adjustment of pump prices;
11. Mozambique: Recommendation of Financial Strengthening Plan for the utility, EDM, to increase tariffs was implemented: 25% increase for HV and MV consumers implemented in December 2018, and 25% increase for LV consumers implemented in March 2019. This reform significantly decreased the need for electricity sector subsidies;
12. Myanmar: a new electricity pricing policy was approved by the Government in April 2019, announced on June 25, 2019, and became effective from July 1, 2019. The policy moves toward cost recovery through a substantial overall increase in electricity prices: from 55% to close to 80% of cost recovery level. As costs from thermal power generation accounted for 80% of total generation costs in 2017-2018, the new tariff policy is expected to better reflect true costs of fossil fuels to the economy and decrease the demand for thermal generation. The sectors deficit will reduce from the projected US\$850 million in 2019 to US\$400 million;
13. Nigeria: Based on detailed financial, regulatory and institutional analysis as well as high-level generation planning, Government prepared and approved Power Sector Financial Recovery Plan (PSRP). Implementation of PSRP is expected to restore the financial viability of the power sector and ensure its self-sustainability by 2021, thus eliminating electricity sector subsidies. Federal Government took two critical decisions on PSRP implementation in May 2019: (i) linking future public funding (subsidies) to the power sector with the implementation of key reform measures envisaged in the Power Sector Recovery Program (PSRP); and (ii) establishing an institutional structure (a steering committee chaired by the Vice President) to oversee the implementation of the PSRP;
14. Rwanda: Rwanda's regulator implemented new electricity tariffs effective August 13, 2018, which raise the average cost recovery level, introduce new tariff categories, rationalize tariffs for selected consumers, and include quarterly "automatic tariff adjustment";
15. Rwanda: Ministry of Infrastructure and Ministry of Finance and Economic Planning jointly developed a new trajectory of fiscal transfers to the sector ensuring that electricity subsidies are contained below 2% of GDP, do not increase over time and that the sector stays on low carbon development path. This trajectory, together with the respective policy framework, was adopted by Economic Cluster of Rwanda's Cabinet of Ministers in June 2019. The results of the introduced reforms are already visible: the sector transfers from the budget were decreased from 2.28% of GDP in FY2014/15 to 1.87% in FY2018/19;
16. Serbia: Increase in electricity tariffs between 2015-17 accompanied by an expansion of coverage under the Government's Energy Vulnerable Customer Program;

17. Tunisia: first round of electricity and gas tariff adjustments enacted with the target of moving energy subsidies from 1.8% of GDP in 2017 to 1.5% of GDP in 2019.
18. Ukraine: Consumer Level Monetization (CLM) of Housing and Utilities Subsidy (HUS) was fully implemented in March 2019. Fiscal burden of HUS has been reduced from 2.97% of GDP in 2017 to 1.94% in 2018 to estimated 1.35% in 2019.

Diagnostic reports in at least 5 countries per year

35 out of 15 (exceeded the target)

106 reports completed covering 35 countries and 2 regions (MENA and Central America)

At least 5 World Bank lending operations informed over the business plan period

30 out of 5 over business plan period

1. Guinea Power Sector Recovery Project - Additional Financing (P160771)
2. Ecuador First Inclusive and Sustainable Growth DPF (P169822)
3. Ecuador Social Safety Net Project (P167416)
4. Egypt: Second Fiscal Consolidation, Sustainable Energy and Competitiveness DPF (P161228)
5. Egypt: Third Fiscal Consolidation, Sustainable Energy, and Competitiveness Programmatic Development Policy Financing (P164079)
6. Ethiopia Growth and Competitiveness DPF1 (P168566)
7. Ethiopia Renewable Energy Guarantees Program (REGREP) (P162607)
8. Iraq: Second Expenditure Rationalization, Energy Efficiency and State-Owned Enterprise Governance Programmatic Development Policy Financing DPF (P161167)
9. Jordan: First Equitable Growth and Job Creation Programmatic DPF (P166360)
10. Jordan: Second Programmatic Energy and Water Sector Reforms Development Policy Loan DPL (P160236)
11. Kyrgyz Republic, Programmatic Governance and Competitiveness DPO (P148099)
12. Madagascar: Public Finance Sustainability and Investment Development Policy Financing Operation (P160866)
13. Madagascar: Public Finance sustainability and Investment DPF II (P164137)
14. Madagascar Fiscal Sustainability and Energy DPO (P166752)
15. Madagascar Least-Cost Electricity Access Development Project (P167870)
16. Mali Electricity Sector Improvement Project (P166796)
17. Mozambique Energy for All (ProEnergia) project (P165453)
18. Mozambique TEMANE Regional Electricity Project (P160427)
19. Mozambique Social Protection Project - Additional Financing (P161351)

20. Mozambique Power Efficiency and Reliability Improvement project (P158249)
21. Myanmar: First Macroeconomic Stability and Fiscal Resilience DPO (P152734)
22. Nepal Energy Sector Development Policy Credit (P154693)
23. Rwanda: First Programmatic Energy Sector DPF (P162671)
24. Rwanda Energy Sector DPO2 (P166458)
25. Serbia: First Public Expenditure and Utilities Development Policy DPL1 Loan (P155694)
26. Togo Energy Sector Support and Investment Project (P160377)
27. Togo Second Fiscal Management & Infrastructure Reform DPO (P166739)
28. Tunisia: investment, competitiveness and inclusion DPL (P161483)
29. Tunisia Energy Sector Improvement IPF (P168273)
30. Ukraine Policy Based Guarantee (P164414)

- 10 events produced per year (including BBLs, ESROC webinars)
- 300 members on platform by the end of period
- 3 known collaborations between countries (knowledge exchange that is not an ESROC webinar) over the period

22 events organized, 6 newsletters published, 5 country briefs prepared

1. Oct 2017: BBL | Electricity tariff reform: Informing the policy dialogue in the Western Balkans
2. Nov 2017: BBL | Advancing Energy Subsidy Reform in Ukraine
3. Feb 2018: BBL | Fiscal and Welfare Impacts of Electricity Subsidies in Central America
4. April 2018: BBL | Rwanda: Making electricity services financially sustainable
5. Jun 2018: BBL | Nigeria: Switching the power sector on to a sustainable path
6. Nov 2018: BBL | Electricity sector turnaround in Nepal
7. Jan 2019: BBL | Tunisia: Reviving the energy sector's financial viability
8. Feb 2019: Energy Subsidy Reform iCoP Happy Hour and launch of the new internal ESR CoP website
9. Mar 2019: BBL | Energy Subsidy Reform in Honduras
10. Mar 2019: ESR Academy: Identifying and quantifying energy subsidies
11. Apr 2019: ESR Academy: Modeling Macroeconomic Impacts and Global Externalities
12. Apr 2019: ESR Academy: Assessing the Readiness of Social Safety Nets to Mitigate the Impact of Reform
13. May 2019: ESR Academy: Assessing the Fiscal Cost of Subsidies and Fiscal Impact of Reform
14. May 2019: ESR Academy: Incidence of Price Subsidies on Households and Distributional Impact of Reform - Qualitative Methods
15. May 2019: Energy Subsidy Reform iCoP Happy Hour
16. Jun 2019: ESR Academy: Designing Communication Campaigns for Energy Subsidy Reform

17. Jun 2019: ESR Academy; Learning Module: Analyzing the Incidence of Consumer Price Subsidies and the Impact of Reform on Households - Quantitative Analysis
18. Nov 2017: COP23 Side Event in Bonn: Energy Subsidy Reform: A comprehensive approach (Panel discussion with Mexico, Indonesia, Ukraine, Jordan, Morocco, and the IMF)
19. ESMAP Knowledge Exchange Forum, Geneva, in October 2018;
20. Presentation of ESRAF to Ministries of Finance of MNA region at the CAPE seminar in Marseille
21. Held a World Bank Spring Meetings event on energy subsidy reform – A 300\$ Billion Challenge
22. Completed Energy Subsidy Reform Assessment Framework 10th module on Firm-level impacts

Country briefs prepared that cover efforts at subsidy reform in Madagascar, Kyrgyz Republic, Serbia, Rwanda and Nepal

13 iCOP newsletters

Energy Subsidy Reform Assessment Framework completed (9 modules addressing different aspects of energy subsidy reform)

RENEWABLE ENERGY | GLOBAL GEOTHERMAL DEVELOPMENT PLAN

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
3 new World Bank operations informed	<p>4 out of 3 (exceeded the target)</p> <ol style="list-style-type: none"> 1. Chile: Technical Assistance for Geothermal Development Project (P152820) 2. Dominica Geothermal Risk Mitigation Project (P162149) 3. Indonesia: Geothermal Energy Upstream Development (P161644) 4. Turkey: Geothermal Development Project (P151739)
New round of concessional funds mobilization	\$100 million of GCF funding and \$75m of CTF funding allocated to the GREM project in Indonesia
Needs assessment in 3 countries	<p>0 out of 3</p> <p>Best practices in geothermal exploration data management defined</p>

RENEWABLE ENERGY | RENEWABLE ENERGY RESOURCE MAPPING

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
>5 WBG operations informed	4 out of 5 <ol style="list-style-type: none"> Bangladesh: Scaling-Up Renewable Energy Project (P161869) Pakistan: Sindh Solar Energy Project (P169712) Zambia: Scaling Solar Energy Guarantee Project (163958) Zambia: Second Scaling Solar Guarantee (P157943)
>5 non-ESMAP funded solar/ wind measurement projects adopt ESMAP-developed standards/guidelines	7 out of 5 (exceeded the target): <ol style="list-style-type: none"> Armenia: Utility Scale Solar Power Project Ethiopia: IFC Scaling Solar Madagascar: IFC Scaling Solar Malawi Energy Sector Project Pacific Islands and Papua New Guinea: Regional Sustainable Energy Industry Development Project [SIDS-DOCK funded] (P152653) Senegal: IFC Scaling Solar Zambia: IFC Scaling Solar
>15,000 monthly users on the Global Solar Atlas by end of FY19	>16,000 monthly users on the Global Solar Atlas by end of FY19
>10,000 monthly users on the Global Wind Atlas by end of FY19	>11,000 monthly users on the Global Wind Atlas by end of FY19

RENEWABLE ENERGY | SOLAR SCALE-UP PROGRAM

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
At least 10 operations or external projects informed	11 out of 10 (exceeded the target) <ol style="list-style-type: none"> Central African Republic: Emergency Electricity Access Project (P164885) Ethiopia Electrification Program (ELEAP) (P160395) Haiti Modern Energy Services for All (P154351)

4. Haiti Renewable Energy for All (P156719)
5. India: Shared Infrastructure for Solar Parks (P154283)
6. Kenya: Off-grid Solar Access Project for Underserved Counties (P160009)
7. Mongolia: Second Energy Sector Project (P152343)
8. Niger: Solar Electricity Access Project (P160170)
9. Pakistan Sindh Solar Energy Project (P159712)
10. Sub-Saharan Africa: Solar Development in Sub-Saharan Africa - Phase 1 (P162580)
11. Uzbekistan: Scaling Solar tender for 100MW solar (IFC project)

At least 12 country planning strategies or country policies informed

8 out of 12

1. Burkina Faso: The government decided to pilot the use of mines supported by solar and storage generation as anchor customers for increased power generation in remote regions, creating a new World Bank engagement, supported by the Global Infrastructure Facility to design the auction;
2. Egypt: The government has decided to pilot solar auction with World Bank Group assistance;
3. Indonesia: Government has adopted implementation plan for solar PV deployment in medium- to small-size grids, and requested a World Bank operation supporting such deployment (P169259);
4. Mongolia: Government passed RE law amendment in June 2019, promoting the development of a competitive bidding mechanism for deployment of RE;
5. Niger: Government has decided to adopt WBG's Scaling Solar approach to solar deployment in the country;
6. Turkey: The Government of Turkey has adopted an implementation plan for rooftop deployment and requested a World Bank lending operation supporting rooftop PV;
7. Vietnam: The Government of Vietnam decided to pilot a solar auction with World Bank assistance, creating a new engagement supported by the Global Infrastructure Facility to design the auction;
8. Uzbekistan: RE Law, adopted in May 21, 2019, strengthens the legal framework for RE development with enhanced private sector participation.

RENEWABLE ENERGY | VARIABLE RENEWABLE ENERGY GRID INTEGRATION SUPPORT PROGRAM

TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
At least 8 new World Bank operations informed	<p>12 out of 8 (exceeded the target)</p> <ol style="list-style-type: none"> 1. Central African Republic: Emergency Electricity Access Project (P164885) 2. Ethiopia: Ethiopia Electrification Program; (P160395) 3. Gambia: Electricity Restoration and Modernization Project (P163568) 4. Haiti: Modern Energy Services for All (P154351) 5. Haiti: Renewable Energy for All (P156719) 6. India: Share infrastructure for Solar Parks (P154283) 7. Kenya: Off-Grid Solar Access Project for Underserved Countries (P160009) 8. Mongolia: Second Energy Sector Project (P152343) 9. Morocco: Noor Solar Power Project Additional Financing (P164288) 10. Sub-Saharan Africa: Solar Development in Sub-Saharan Africa - Phase 1 (Sahel) (P162580) 11. Togo: Energy Sector Support and Investment Project (P160377) 12. Uzbekistan: Scaling Solar tender for 100MW solar (IFC project)

At least 12 country planning strategies informed

10 out of 12

1. Costa Rica: The Government introduced economic incentives for the deployment of new distributed assets;
2. Guatemala: the system operator updated the operational procedures to increase system security and dynamically optimize the size of the spinning reserves to integrate VRE;
3. Haiti: the government developed a VRE investment plan to scale up VRE projects, and drafted a new RE law currently under review;
4. India: the utility POSOCO adopted a dispatch optimization tool to plan the optimal allocation of reserves among its thermal and hydro generators;
5. Mongolia: The National Dispatch Center decided to commission the development of a new grid code as a result of the VRE integration study conducted;
6. Mongolia: incorporation of regional power interconnection and RE export into Mongolia Energy Master Plan;
7. Pakistan: the government's long-term electricity sector planning accounts for variable renewable energy;
8. Sri Lanka: the national utility, Ceylon Electricity Board, prepared Sri Lanka's long-term generation expansion plan (LTGEP 20180-2037);

9. Uzbekistan: RE Law, adopted in May 21, 2019, strengthens the legal framework for RE development with enhanced private sector participation;
10. Vietnam: The Ministry of Energy invested in additional flexibility to integrate 45 GW of VRE by 2035

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TARGETS FOR FY2017–20 BUSINESS PLAN	RESULTS ACHIEVED FY2017–19
RISE 2017, RISE 2018, RISE 2020	RISE 2017 and 2019: http://rise.esmap.org/
GTF 2017, GTF 2018, GTF 2019, GTF 2020	GTF 2017, 2018, 2019: https://trackingsdg7.esmap.org/
MTF 2018 and MTF 2020	Cambodia , Ethiopia , Rwanda , Myanmar , Zambia , Sao Tome and Principe
SEAR 2017 and SEAR 2019	SEAR 2017: http://esmap.org/sear/

ANNEX C: ESMAP ACTIVITIES FY19

ENERGY ACCESS

COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
Africa	Africa Clean Cooking Energy Solutions	Efficient, Clean Cooking and Heating
Africa	Lighting Africa ((Phase II)	Lighting Global
Angola	Angola Energy Sector Engagement	SEforALL Technical Assistance
Burundi	Burundi Off-grid Electrification Options	Green Mini Grids
Burundi	Burundi Off-grid Electrification Options	Lighting Global
Ethiopia	Ethiopia Energy Sector Review and Strategy (II)	SEforALL Technical Assistance
Mali	Accelerate access to electricity and increase of renewable energies in the Sahel region	SEforALL Technical Assistance
Rwanda	Re-energizing Agriculture through Solar Power in Rwanda	Green Mini Grids
Rwanda	Re-energizing Agriculture through Solar Power in Rwanda	Lighting Global
Sierra Leone	Sierra Leone - Expand electricity access in a financially sustainable manner	Green Mini Grids
Uganda	Uganda : Clean Cooking Supply Chain Expansion Project	Efficient, Clean Cooking and Heating
Uganda	Scaling Up Electricity Access in Uganda	SEforALL Technical Assistance
Western Africa	Piloting and promoting improved smoking ovens in West African Countries	Efficient, Clean Cooking and Heating
Western Africa	Sustainable and Participatory Forest and Energy Management Regional Project: Clean Cooking Component	Efficient, Clean Cooking and Heating
Indonesia	Indonesia Sustainable and Least-cost Electrification (ISLE)	Green Mini Grids
Indonesia	Indonesia Sustainable and Least-cost Electrification (ISLE)	Lighting Global
Indonesia	Indonesia Sustainable and Least-cost Electrification (ISLE)	SEforALL Technical Assistance
Moldova	Optimization of DH System and Fuel Supply Options Study	Efficient, Clean Cooking and Heating
Tajikistan	Tajikistan: Geospatial first order investment analysis for rural electrification project in FCV regions	SEforALL Technical Assistance
Multi-Regional	Energy Access for Host-Communities and Refugees	SEforALL Technical Assistance
World	Global Facility on Mini Grids	Green Mini Grids
World	World: Role of liquefied petroleum gas as a household fuel	Efficient, Clean Cooking and Heating
World	Strengthening the health foundation of ECCH operational capacity	Efficient, Clean Cooking and Heating
Bangladesh	Bangladesh Rural Electrification Program: Financial Sustainability Review	SEforALL Technical Assistance

Bangladesh	Implementation Support for Bangladesh Clean Cooking Program	Efficient, Clean Cooking and Heating
Maldives	Maldives: Supporting Energy Transition and Integrated Resource Planning in an Island-Grid Context	

ENERGY EFFICIENCY

COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
Senegal	Promoting operational and financial viability of the power sector in Senegal	Efficient, Clean Cooking and Heating
Senegal	Promoting operational and financial viability of the power sector in Senegal	Efficient and Sustainable Buildings
Tanzania	Tanzania : Promoting Energy Efficiency in Service Delivery and Infrastructure Investments in Zangibar	Efficient City Services
Tanzania	Tanzania : Promoting Energy Efficiency in Service Delivery and Infrastructure Investments in Zangibar	Efficient and Sustainable Buildings
China	China: Development of Green and Energy Efficient Urban Industrial Zones	Efficient City Services
China	China: Development of Green and Energy Efficient Urban Industrial Zones	Efficient and Sustainable Buildings
Belarus	Belarus: Development of Implementation Guidance and Outreach Campaign Strategy for Thermal Renovation Component of SESUP	Efficient and Sustainable Buildings
Moldova	Moldova: Public Sector Energy Efficiency Financing Options	Efficient and Sustainable Buildings
Serbia	SERBIA: District Heating Tariff Study and Poverty and Social Impact Assessment	Efficient City Services
Serbia	SERBIA: District Heating Tariff Study and Poverty and Social Impact Assessment	Efficient and Sustainable Buildings
Uzbekistan	Uzbekistan Energy Sector Development Programmatic Support	Efficient and Sustainable Buildings
Brazil	Financial Instruments for Brazil Energy Efficient Cities: Capacity building and gender support	Efficient City Services
Brazil	Financial Instruments for Brazil Energy Efficient Cities: Capacity building and gender support	Efficient and Sustainable Buildings
Latin America	Analysis of impact of electromobility scale-up in the Brazilian power sector	Efficient City Services
Latin America	Argentina & Paraguay: Promoting Cleaner and Sustainable Energy Systems	Efficient City Services
World	Electric Mobility Position Paper for COP 24 in Katowice Poland	Efficient City Services
World	Efficient Clean Cooling	Efficient and Sustainable Buildings
Maldives	Maldives: Supporting Energy Transition and Integrated Resource Planning in an Island-Grid Context	Efficient City Services

SUBSIDY REFORM

COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
Angola	Angola energy subsidy reform	
Angola	Angola Energy Sector Engagement	
Ethiopia	Ethiopia: Electricity Subsidy Reform	
Mozambique	Mozambique - Facilitating Financial Recovery of the Power Sector	
Nigeria	Nigeria: Facilitating Implementation of Power Sector Recovery Program	
Senegal	Promoting operational and financial viability of the power sector in Senegal	
Serbia	SERBIA: District Heating Tariff Study and Poverty and Social Impact Assessment	
Uzbekistan	Uzbekistan Energy Sector Development Programmatic Support	
Ecuador	Sustainable and Equitable Energy Subsidy Reforms in Ecuador	
World	Energy Subsidy Reform Facility	
World	World: Energy Subsidy Reform Online Community	
World	Energy Subsidy Reform Knowledge	

GOVERNANCE, MARKETS & PLANNING

COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
Africa	State of African Utilities	
Africa	ECOWAS Energy Policy White Paper	
Angola	Angola Energy Sector Engagement	
Burundi	Legal review of Rugizi III commercial agreements	
Senegal	Promoting operational and financial viability of the power sector in Senegal	
China	Informing new operation for renewable energy and battery storage - China	
Indonesia	Indonesia Sustainable and Least-cost Electrification (ISLE)	
Lao People's Democratic Republic	Generation Planning and Capacity Building for Lao PDR	
Myanmar	Myanmar Energy InfraSAP	

Vietnam	Vietnam Power Development Plan: Supporting Activities
Albania	Albanian Grid Optimization for Renewable Energy Integration
Armenia	Armenia VRE Grid Integration Support Phase 2
Armenia	Maximizing Finance for Development in the Armenian Power Sector
Belarus	Belarus: Development of Implementation Guidance and Outreach Campaign Strategy for Thermal Renovation Component of SESUP
Georgia	Maximizing Finance for Development in the Georgian Power Sector
Georgia	Georgia Wholesale Electricity Market Reform Just-in-time Support
Turkey	Turkey - Advisory Support for Turkey Smart Grid Options and Generation Planning
Uzbekistan	Uzbekistan Energy Sector Development Programmatic Support
Western Balkans	Integrated Hydropower Development in the Drina River Basin
Western Balkans	Western Balkans: Market-based mechanisms for the promotion of renewables
Western Balkans	Montenegro VRE Integration Analysis
Brazil	Financial Instruments for Brazil Energy Efficient Cities: Capacity building and gender support
Latin America	Analysis of impact of electromobility scale-up in the Brazilian power sector
Latin America	Argentina & Paraguay: Promoting Cleaner and Sustainable Energy Systems
Iraq	Iraq: IQ: Energy Sector Programmatic Technical Assistance
Iraq	Iraq Gas Sector Reform
Libya	Libya: Support for Preparation of LNG Import Component
Middle East and North Africa	Increasing Pan-Arab Regional Energy Trade (Phase III)
Middle East and North Africa	Disruptive energy transition and the opportunities for job creation in the Middle East and North Africa
Tunisia	Power Interconnector - Project Preparation TA in the Republic of Tunisia (RETF)
World	Global Assessment of Distributed Solar PV
World	Revisiting Electricity Pricing for the Poor in an Era of Disruptive Technologies

India	Addressing Development Challenges in India's Hydropower Sector
India	INDIA: Assessment of potential role of natural gas in urban air quality improvement
Nepal	Nepal: Technical Assistance and Capacity Building Support for Institutional Strengthening of the NEA for Environmental and Social Management

RENEWABLE ENERGY

COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
Africa	Accelerating utility-scale solar development in Southern Africa	Integrating Variable Renewable
Burkina Faso	Burkina Faso: Sustainable Power to Mine	Solar Scale-Up Program
Congo, Democratic Republic of	Mapping and prioritization of hydropower resources in the Democratic Republic of Congo	RE Resource Mapping
Senegal	Promoting operational and financial viability of the power sector in Senegal	Integrating Variable Renewable
Zambia	Zambia - Capacity Building for Integration of Variable Renewable Energy into Grid Operations	RE Resource Mapping
China	China: Knowledge exchange on distributed and integrated renewable energy	Integrating Variable Renewable
Indonesia	Indonesia Sustainable and Least-cost Electrification (ISLE)	Integrating Variable Renewable
Vietnam	Developing Rooftop Solar PV in Vietnam	Solar Scale-Up Program
Vietnam	Vietnam Power Development Plan: Supporting Activities	Integrating Variable Renewable
Albania	Albanian Grid Optimization for Renewable Energy Integration	
Turkey	Characterizing the declining CO2 emissions from Turkish geothermal power plants	Global Geothermal Development Plan (GGDP)
Turkey	Turkey - Advisory Support for Turkey Smart Grid Options and Generation Planning	
Uzbekistan	Uzbekistan Energy Sector Development Programmatic Support	
Western Balkans	Western Balkans: Market-based mechanisms for the promotion of renewables	
El Salvador	Increasing power generation from geothermal resources in El Salvador	Global Geothermal Development Plan (GGDP)
Mexico	Opportunities for Geothermal Development in Mexico	Global Geothermal Development Plan (GGDP)
World	OGE-VRE Grid Integration Support Program	

World	Offshore Wind Development Program	
World	Energy Storage Partnership	Integrating Variable Renewable
India	India : Supporting Himachal Pradesh in tapping its Renewable Energy Potential	Integrating Variable Renewable
Maldives	Maldives: Supporting Energy Transition and Integrated Resource Planning in an Island-Grid Context	Integrating Variable Renewable
Pakistan	Pakistan Renewable Energy Technical Assistance: Planning and Integration	Integrating Variable Renewable
Pakistan	Pakistan: Roadmap to scale-up renewable energy in Khyber Pakhtunkhwa	Integrating Variable Renewable

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COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
World	SDG7 Tracking Report 2019: Electricity Access	
World	Global rollout of Readiness for Investment in Sustainable Energy (RISE)	

SMALL ISLAND DEVELOPING STATES (SIDS-DOCK)

COUNTRY/REGION	NEW ACTIVITY	PRIORITY (IF APPLICABLE)
Solomon Islands	Solomon Islands: Electricity Access and Renewable Energy Expansion Project	

ANNEX D: ESMAP PUBLICATIONS, FY2019

Regions:

AFR = Africa

EAP = East Asia and Pacific

ECA = Europe and Central Asia

LAC = Latin America and the Caribbean

MNA = Middle East and North Africa

SAR = South Asia Region

ISBN, PUB NO., OR PROJECT NO.	COUNTRY / REGION	TITLE	AUTHOR / TTL
P146259	Afghanistan	Energy Security Trade-Offs Under High Uncertainty: Resolving Afghanistan's Power Sector Development Dilemma	Richard Jeremy Spencer
WB Policy Research Working Paper 8677	Bangladesh	How Much Would Bangladesh Gain from the Removal of Subsidies on Electricity and Natural Gas	Gowinda R. Timilsina/Sheoli Pargal/Marinos E. Tsigas/Sebnem Sahin
P150086	Bangladesh	Lighting the Way: Achievements, Opportunities, and Challenges in Bangladesh's Power Sector	Sheoli Pargal
WB Policy Research Working Paper 8771	Colombia	Learning from Developing Country Power Market Experiences: The Case of Colombia	Hugh Rudnick/Constantin Velásquez
P154383	EAP & ECA	Mini Grids and the Arrival of the Main Grid: Lessons from Cambodia, Sri Lanka, and Indonesia	Jon Exel
Technical Report	EAP	Urban Growth Scenarios: Chongqing 2035	Xueman Wang/Calthorpe Analytics/CSTC/Peter Calthorpe.
Overview	EAP	Spatial & Economic Transformation for a Global City. Chongqing 2035, Overview	EAP
Supporting Report 1	EAP	Spatial Transformation Strategy: Increasing Efficiency and Livability by Promoting Compact and Human-Centered Development	Serge Salat/Xueman Wang/Zhou Linjun

<u>P163073</u>	ECA	<u>Advancing Heating Services Beyond the Last Mile: Central Asia Pilot Experience with High-Efficiency, Low Emissions Heating Technologies</u>	Yabei Zhang
LiveWire 2019/99	ECA	<u>Beyond the Last Mile: Piloting High-Efficiency, Low-Emissions Heating Technologies in Central Asia</u>	Yabei Zhang/Normal Adams/ Crispin Pemberton-Pigott
<u>P157434</u>	Global	<u>Compensation and Devices to Support Grid Integration of Variable Renewable Energy</u>	Silvia Martinez Romero/Chong Suk Song/Martin Schroeder/ Kiamran Radjabli/Chris Edward Jackson/Fabian Koehrer/ Paulo Cesar Fernandez/Noel Aubut/Pascal Prud'Homme/ Sylvain Bastien/Alessandro De Cristofaro/Gaetano Marletta
<u>P168045</u>	Global	<u>Electric Mobility and Development</u>	Dominic Pasquale Patella, Ivan Jaques
Live Wire 2018/96	Global	<u>Energy Efficiency in Industry</u>	Zugana Dobrotkova/Aditya Lukas/ Jas Singh
Live Wire 2018/96	Global	<u>Ensuring that Regulations Evolve as Mini Grids Mature</u>	Global Facility on Mini Grids Team
Live Wire 2018/96	Global	<u>Financing Energy Efficiency. Part 1: Revolving Funds</u>	Lukas Aditya
<u>P163363</u>	Global	<u>Gender and Energy Role Playing: Training Guidebook</u>	Elisabeth Maier/Niki Angelou/ Inka Ivette Schomer/Amanda Beaujon Marin/Giacomo Palmisano/Cindy J. Suh
<u>P130625</u> ESMAP Knowledge Series 028/19	Global	<u>Gender Equality in Geothermal Energy: Road to Sustainability</u>	Inka Ivette Schomer/Thrainn Fridriksson
<u>P157434</u>	Global	<u>Grid Integration Requirements for Variable Renewable Energy</u>	Silvia Martinez Romero/ Chong Suk Song/Martin Schroeder/Kiamran Radjabli/ Chris Edward Jackson/ Fabian Koehrer/Paulo Cesar Fernandez/Noel Aubut/Pascal Prud'Homme/Sylvain Bastien/ Alessandro De Cristofaro/ Gaetano Marletta

P131926	Global	Guidance on Mesoscale Wind Mapping	Oliver Knight
P154486	Global	Incidence of Price Subsidies on Households and Distributional Impact of Reform—Qualitative Methods: Energy Subsidy Reform Assessment Framework (ESRAF) Good Practice Note 4	Sophia Georgieva/Eggi Canpolat/Thomas Flochel
LiveWire 2019/97	Global	Investing in Mini Grids Now, Integrating with the Main Grid Later: A Menu of Good Policy and Regulatory Options	Global Facility on Mini Grids Team
P163837	Global	Key Entry Points for Gender Equity in Energy Access, Energy Policy, Renewable Energy, and Transmission and Distribution	Eggi Canpolat/Samantha Constant
P154383 ESMAP Technical Report 014/19 ES	Global	Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers, Executive Summary	Juliette Besnard/Ricky Buch/Sunita Dubey/Chris Greacen/James Knuckles/Tatia Lemondzhava/ Subodh Mathur/Ashish Shrestha/ Castalia/INENSUS/SNV Netherlands.
P154461	Global	Policy Matters: Regulatory Indicators for Sustainable Energy (RISE)	Vivien Foster/Elisa Portale/Daron Bedrosyan/Juliette Suzanne Georgette Besnard/Tigran Parvanyan
Live Wire 2018/95	Global	Residential Energy Efficiency	Aditya Lukas
P157434	Global	Studies for Grid Interconnection of Variable Renewable Energy Generation Plants	Silvia Martinez Romero/Chong Suk Song/Martin Schroeder/Kiamran Rajdabli/Chris Edward Jackson/Fabian Koehrer/Sam Wheeler/Innocent Kamwa/Fernando Viollaz Garófalo/Paulo Cesar Fernandez
WB Policy Research Working Paper 8518	Global	Taking Stock of the Political Economy of Power Sector Reforms in Developing Countries: A Literature Review	Alan David Lee/Zainab Usman
P168050	Global	Tracking SDG7: The Energy Progress Report 2019	Elisa Portale
Livewire 2019/100	Global	Where and How Slum Electrification Succeeds: A Proposal for Replication	Rutu Dave/Connie Smyser/Fabian Koehrer

<u>P161277</u>	Global	<u>Where Sun Meets Water: Floating Solar Market Report Executive Summary</u>	Thomas Reindl/Celine Paton/ Abhishek Kumar/Haohui Liu/ Vijay Anand Krishnamurthy/ Ji Zhang/ Stephen Tay/Yanqin Zhan/Zugana Dobrotkova/ Sandra Chavez/Chris Jackson/ Oliver Knight/Sabine Cornieti/ Pierre Audinet/Gailius Draugelis/Surbhi Goyal, Pierre Lorillou/Stratos Tavoulareas/ Dgenan Malovic/Hemant Mandal/ Jean-Francois Mercier/ Ishan Purohit
<u>P161277</u>		<u>Where Sun Meets Water: Floating Solar Market Report</u>	Thomas Reindl/Celine Paton/ Abhishek Kumar/Haohui Liu/ Vijay Anand Krishnamurthy/ Ji Zhang/ Stephen Tay/Yanqin Zhan/Zugana Dobrotkova/ Sandra Chavez/Chris Jackson/Oliver Knight/Sabine Cornieti/Pierre Audinet/Gailius Draugelis/Surbhi Goyal, Pierre Lorillou/Stratos Tavoulareas/ Dgenan Malovic/Hemant Mandal/ Jean-Francois Mercier/Ishan Purohit
<u>P157434</u>	Global	<u>Using Forecasting Systems to Reduce Cost and Improve Dispatch of Variable Renewable Energy</u>	Silvia Martinez Romero/ Chong Suk Song/Fernando de Sisternes/Martin Schroeder/ Sandra Chavez/Varun Nangia/ Chris Edward Jackson/Fabian Koehrer/Claudio Pregagnoli/Eric Desrosiers/Julien Choissard
<u>P127974</u>	India	<u>Understanding and Assessing Impact of Transmission and Distribution Projects on Electricity Access: North Eastern Region Power System Improvement Project (NERSIP)</u>	Rohit Mittal/Amol Gupta/ Kwawu Mensan Gaba
Live Wire 2018/89	Kenya	<u>Kenya's Strategy to Make Liquefied Petroleum Gas the Nation's Primary Cooking Fuel</u>	Inge C. van den Berg
<u>Science of the Total Environment, Volume 676</u>	Lao PDR	<u>Machine-Learned Modeling of PM2.5 Exposures in Rural Lao PDR</u>	Seiyed Mossa Hosseini/Esmaeel Parizi/Behzad Ataie-Ashtiani/ Craig T. Simmons

Live Wire 2018/93	Lao PDR	<u>Making a Difference in People's Lives: Rural Electrification in the Lao People's Democratic Republic</u>	Hussain Sumad/Elisa Portale
<u>P163837</u>	Lebanon	<u>Shedding Light on Female Talent in Lebanon's Energy Sector</u>	Sarah Keener/Elisabeth Maier
	MNA	<u>Shedding Light on Electricity Utilities in the Middle East and North Africa: Insights from a Performance Diagnostic</u>	Daniel Camos/Robert Bacon/ Antonio Estache/Mohamad Mahgoub Hamid
WB Policy Research Working Paper 8772	Peru	<u>Learning from Country Power Market Experiences: The Case of Peru</u>	Hugh Rudnick/ Constantin Velásquez
WB Policy Research Working Paper 8721	The Philippines	<u>Learning from Developing Power Market Experiences: The Case of the Philippines</u>	Hugh Rudnick/ Constantin Velásquez
ESMAP Country Profile 133963	Rwanda	<u>Energy Subsidy Reform Facility Country Brief: Rwanda</u>	ESMAP
<u>P166628</u>	SAR	<u>Pathways to Power: South Asia Region Baseline Assessment for Women Engineers in the Power Sector</u>	Maria Beatriz Orlando/ Gunjan Gautam
<u>P153679</u>	Uganda	<u>Uganda Clean Cooking Behavioral Diagnostic</u>	Besnik Hyseni