JOBS GENERATED BY THE KOSOVO ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECT

Job Creation Potential of the Clean Energy Transition
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The Energy Sector Management Assistance Program (ESMAP) is a partnership between the World Bank and over 20 partners to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Through the World Bank, ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7), which ensures access to affordable, reliable, sustainable, and modern energy for all. It helps shape World Bank's strategies and programs to achieve the World Bank Climate Change Action Plan targets. Learn more at: https://www.esmap.org.

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About this Report

This report presents the findings and conclusions of a case study undertaken under a program of analytical work that investigates the impacts of the global transition to clean energy on the quantity and quality of jobs in low- and middle-income countries. Under the program, entitled “Estimating the Job Creation Potential of the Clean Energy Transition,” the World Bank’s Energy Sector Management Assistance Program (ESMAP) undertook multiple streams of analysis:

- A review of the literature and commonly used methodologies of investigation
- Modeling of economywide job impacts of policies supporting the clean energy transition in selected countries in Sub-Saharan Africa
- Case studies of the effects on employment of selected World Bank clean energy projects
- Deep dives into the impact on jobs of closure of coal-fired power plants; of productive uses of electricity associated with mini grids in Nigeria; and of the Rusumo Falls Hydropower Project.

Building on the above-mentioned streams of analysis, the program has also produced a high-level report summarizing its findings and conclusions “Jobs for a Livable Planet: Job Creation Potential of the Clean Energy Transition” and a discussion paper to support project design “Tracking Jobs in Projects Focused on Clean Energy and Productive Uses of Electricity”, providing strategies for tracking and enhancing job creation that can be used in the clean energy projects.

The reports developed under this program together aim to support low- and middle-income countries in reaping greater socioeconomic benefits from the energy transition by supporting them in increasing the number and quality of local jobs generated while implementing clean energy projects. Realizing the benefits of the jobs created by clean energy interventions will depend on effective planning and preparation in the early stages of projects and sustained support during their implementation.

The reports target multiple audiences, from policy makers to development practitioners and academics. They also aim to familiarize energy specialists with the effects of energy projects on jobs and give them tools that enable them to take account of—and, where possible, maximize—the socioeconomic benefits of the clean energy transition.

The reports can be found at https://www.esmap.org/publications.
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPS</td>
<td>Country Partnership Strategy</td>
</tr>
<tr>
<td>EBRD</td>
<td>European Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FTE</td>
<td>full-time equivalent</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>GGGI</td>
<td>Global Green Growth Institute</td>
</tr>
<tr>
<td>GoK</td>
<td>Government of Kosovo</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organization</td>
</tr>
<tr>
<td>KEEA</td>
<td>Kosovo Energy Efficiency Agency</td>
</tr>
<tr>
<td>KEEREP</td>
<td>Kosovo Energy Efficiency and Renewable Energy Project</td>
</tr>
<tr>
<td>kW</td>
<td>kilowatt</td>
</tr>
<tr>
<td>MCC</td>
<td>Millennium Challenge Corporation</td>
</tr>
<tr>
<td>MW</td>
<td>megawatt</td>
</tr>
<tr>
<td>MWh</td>
<td>megawatt-hour</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>operation and maintenance</td>
</tr>
<tr>
<td>PIU</td>
<td>project implementation unit</td>
</tr>
<tr>
<td>PV</td>
<td>photovoltaics</td>
</tr>
<tr>
<td>TOC</td>
<td>theory of change</td>
</tr>
<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
</tr>
</tbody>
</table>

All currency is in United States dollars (US$, USD), unless otherwise indicated.
Key Findings

The Kosovo Energy Efficiency and Renewable Energy Project (KEEREP) successfully generated direct and indirect employment opportunities in Kosovo through EE retrofits and related activities. The project also contributed to skill development and market growth in the EE sector, potentially leading to further job creation in the future. However, challenges related to the importation of materials and the need for domestic certification were identified as areas for improvement in facilitating domestic job growth. Key findings from the case study were:

**Employment Impact:** Component 1 of KEEREP, which involved retrofitting and upgrading 87 public buildings with a budget of $16 million, generated a total of 418 person-years of direct and indirect employment.

**Direct Jobs:** Direct employment opportunities were created in the design and construction of EE retrofits, solar and EE appliance installation, and in training and conducting EE audits. During the implementation period, 326 person-years of direct employment were generated, with the highest number of jobs in construction, particularly in EE building façade and window installation. These jobs were primarily short-term, and the workforce was predominantly local.

**Skilled Roles:** Skilled positions like engineering and architecture offered longer-term contracts, and companies faced no challenges in sourcing skilled labor. While no specific measures were reported for hiring women, a small fraction of women were employed in skilled roles in architecture, engineering, and management.

**Indirect Jobs:** Indirect jobs resulted from the demand for inputs like EE building materials and appliances. Estimates based on a direct-to-indirect job ratio from German retrofit projects yielded 31 domestic person-years and 92 foreign person-years of indirect employment. Most products and materials used were imported, indicating a potential for further job creation if domestic certification and standards were met.

**Market Development:** KEEREP contributed to the development of the EE market in Kosovo, increasing the number of experienced construction workers with new skills. This could lead to additional employment opportunities in EE, known as “replication jobs.”

**Training:** A total of 223 building staff received training for operations and maintenance, enhancing their skills and employability in the EE sector.
ONE

INTRODUCTION
This case study seeks to shed light on the employment impacts associated with World Bank financing for energy efficiency and renewable energy investments in public buildings overseen by the central government as part of the Kosovo Energy Efficiency and Renewable Energy Project (KEEREP), which was approved by the World Bank in June 2014 and is expected to close in December 2023.

Despite the global financial crisis of 2007–08 and the recessionary period that followed, Kosovo achieved robust economic growth—averaging 4.3 percent per year—between independence in 2008 and 2012. This resilience of its economy to the global downturn reflected a variety of factors, including limited international integration with global markets, a steady influx of remittances from its diaspora, and the generally pro-growth composition of the national budget (which allowed for approximately 40 percent of public expenditures to be directed to public investments) (World Bank 2014).

Yet, the country also struggled with high rates of unemployment and poverty. Joblessness in particular—at over 30 percent in 2012—remained a central economic policy challenge (World Bank 2014). In addition, with a per capita gross domestic product (GDP) of approximately €2,800 (about $3,700 in 2012) and nearly 30 percent of its population living below the poverty line, Kosovo was one of the poorest countries in Europe (World Bank 2014).

Infrastructure bottlenecks, and insufficient and unreliable electricity access, in particular, were among the top constraints of future economic growth and enhanced productivity. Kosovo was unable to generate sufficient domestic electricity to fully meet its energy demand. This impeded the country's economic growth and development. In 2014, for instance, Kosovo's electrical operating capacity was approximately 950 megawatts (MW), most of which came from two antiquated coal-fired power plants operating at well below their installed capacity (World Bank 2013). Continued reliance on expensive electricity imports—estimated at about 10 percent of annual electricity demand in 2012—reduced the resources available to address other critical development priorities. In addition, underdeveloped electricity infrastructure imposed a burden on firms, discouraged private sector investment, and dampened job creation. Approximately half of the firms that participated in the 2013 nationwide Business Environment and Enterprise Performance Survey, for instance, noted that unreliable electricity access was a major obstacle to the growth of their businesses (World Bank and EBRD 2013).

KEEREP sought to address these challenges by increasing the efficiency of energy use in Kosovo, thereby enhancing energy security (by reducing current deficits and reliance on imports), lowering energy-related public expenditure, and improving the environmental impacts of energy use.¹ Specifically, KEEREP aimed to (1) reduce energy consumption and fossil fuel use in public buildings through energy efficiency and renewable energy investments, and (2) enhance the wider policy and regulatory environment for energy efficiency and renewable energy (World Bank 2014).

The next section presents a more detailed description of KEEREP within the context of the country's energy sector priorities. The case study then describes the labor market conditions in the country. Further, it summarizes the findings from a series of interviews of KEEREP stakeholders. Finally, the last section summarizes the results of this case study.

Endnote

1. Additional information about KEEREP is available at: https://projects.worldbank.org/en/projects-operations/project-detail/P143055.
TWO KEEREP AND THE KOSOVO ENERGY SECTOR
Increasing the efficiency of national energy consumption has been a key policy goal for the Government of Kosovo (GoK). As part of recent policy dialogues surrounding Kosovo's accession to the European Union (EU), for example, the GoK has committed to implementing the specific objectives of the EU's so-called “20-20-20” energy and climate targets, which require the country to “reduce greenhouse gas emissions by 20 percent, increase renewable energy share of final energy consumption to 20 percent, and improve energy efficiency by 20 percent by 2022” (Ministry of Economic Development, Republic of Kosovo 2017).

Energy efficiency has the potential to play an important role in Kosovo's economy for a number of reasons. First, energy efficiency could enhance energy security by reducing seasonal energy imports, which comprise a substantial share of electricity used nationally. A market assessment conducted before KEEREP's launch, for instance, indicated that Kosovo could reduce energy consumption by about 11 percent, which could, in turn, bring about a nearly 45 percent reduction in electricity imports (World Bank 2013). The related savings in energy expenditure could contribute to substantial budgetary savings for the GoK, and allow other necessary investments in the economy.

Second, energy tariffs are expected to increase, which could further encourage investments in energy efficiency. The country's existing power plants are fully depreciated. The publicly owned enterprise that owns the two existing power plants may need to raise tariffs to fund repairs for them and/or replacement plants. Furthermore, the current supply of lignite in Kosovo is from low-cost mining operations. Investments in new power generation will be more expensive than the existing coal-based power-generating capacity; this will impose additional upward pressure on energy prices. Future adoption of carbon pricing may further exacerbate this trend.

Finally, although burdensome regulatory regimes have hindered Kosovo from achieving economic growth, regulations have been less problematic for energy efficiency. Most private businesses in Kosovo have to invest significant time and capital in numerous permits, approvals, and authorization. However, few permits and approvals are required to implement energy efficiency projects, making future energy efficiency improvements increasingly attractive for business consumers and households in Kosovo (US Department of Commerce 2021).

Overview of the Kosovo Energy Efficiency and Renewable Energy Project

KEEREP was designed in line with high-level objectives. For instance, the World Bank's Country Partnership Strategy (CPS) for Kosovo (covering the period 2012–15) aimed to help (1) accelerate broad-based economic growth and employment generation, and (2) improve environmental management (World Bank 2014). Among other areas, Pillar I of the CPS sought to accelerate broad-based and sustained growth, including in strengthening infrastructure, particularly that of energy in recognition of the fact that energy security is crucial to achieving accelerated economic growth and job creation, improved quality of life, and an improved business environment. Pillar II
of the CPS aimed to support the GoK in increasing energy efficiency and the use of renewable energy, and reducing environmental hazards (World Bank 2014). KEEREP aimed to address both pillars.

Specifically, KEEREP sought to increase energy efficiency in the country through its focus on (1) reducing energy consumption and fossil fuel use in public buildings through energy efficiency and renewable energy investments, and (2) enhancing the wider policy and regulatory environment for energy efficiency and renewable energy (World Bank 2014). To achieve these objectives, KEEREP provides:

1. Investment financing for energy efficiency and renewable energy subprojects in eligible central government–owned buildings;
2. Demonstrations of the commercial viability and program models for energy efficiency and renewable energy investments in municipal buildings;
3. Support to develop a robust policy and regulatory framework that will help attract investments in and scale up energy efficiency and renewable energy; and
4. Support for project implementation.

KEEREP is broken down into three components (World Bank 2014):

1. **Energy efficiency and renewable energy investments in public buildings:** This component supports energy efficiency and renewable energy investments through subprojects undertaken in public facilities to generate demonstrable energy cost savings and social cobenefits. The subprojects include investments in improved insulation, heating/cooling systems and fuel switching, lighting, and operations and management practices. Activities within this component are further categorized into four subcomponents: (1) energy efficiency and renewable energy investments in central government buildings, (2) piloting of energy efficiency schemes in public buildings overseen by municipalities, (3) technical studies and supervision (including building energy audits and technical assessments to facilitate the disposal of hazardous construction materials), and (4) training of energy efficiency and renewable energy service providers (including design and construction firms) to ensure adequate technical competency (including in understanding energy audits and identifying construction weaknesses).

2. **Policy and regulatory support for renewable energy and energy efficiency:** This component seeks to enhance the policy and regulatory environment surrounding sustainable energy in Kosovo through two subcomponents: (1) support to the Energy Regulatory Office to facilitate renewable energy development (including streamlining the permitting and licensing processes, formalizing grid integration rules, and conducting a detailed assessment of national renewable energy resources); and (2) support to the Ministry of Economic Development for developing the relevant policies and procedures to support a municipal renewable energy financing scheme, procurement guidelines for energy efficiency equipment, and the further piloting and promotion of energy efficiency measures (e.g., through legislation surrounding the establishment of homeowner associations).

3. **Project implementation support:** This component supports the Kosovo Energy Efficiency Agency (KEEA), the main implementing agency, in ensuring the effective implementation of
Components 1 and 2 (including the creation of a project implementation unit [PIU] to oversee procurement and financial management, and training of relevant KEEA staff).

During the planning stage, it was anticipated that KEEREP would have a wide range of stakeholders and beneficiaries, including the central and municipal governments (through renovations of building stocks), different ministries and implementing agencies (through enhanced capacity development to support sustainable energy projects), energy efficiency and renewable energy suppliers and service providers (through increased demand), and the general public (through improved comfort and functionality in public buildings). KEEREP began in September 2014 and was expected to conclude in August 2020, but it was extended to December 2023 due to project delays.

In addition, in 2013–14, when KEEREP was designed, other donors (namely, the German development bank KfW and the European Commission) were also supporting energy efficiency investments in public municipal buildings. Specifically, the European Commission was renovating around 65 municipal buildings (63 schools and 2 hospitals) on a grant basis, while KfW was finalizing concessional loans to renovate about 30 municipal buildings (World Bank 2014). Additionally, in 2014, the European Bank for Reconstruction and Development (EBRD) launched a €12 million credit line for energy efficiency and renewable energy investments for small and medium enterprises and households (World Bank 2014).


This case study focuses on the first subcomponent within Component 1 of KEEREP (namely, energy efficiency and renewable energy investments in central government buildings—hereafter “Subcomponent 1.1”). The allocated funding for this subcomponent was US$22 million (approximately 70 percent of the total World Bank funding allocated to KEEREP) (World Bank 2014).¹

There are several reasons why Subcomponent 1.1 is KEEREP’s primary focus in terms of total allocated funding. First, inefficient buildings were the primary cause of high energy use in Kosovo’s building sector. According to a market assessment conducted as part of the World Bank’s National Building Energy Efficiency Study, the building stock (which comprises public buildings, private buildings owned by households, and private service sector buildings) accounted for 48 percent of the total energy consumption in Kosovo in 2010, before the project started (World Bank 2013). Much of Kosovo’s building stock in 2014 was uninsulated and inefficient, leading to large energy losses (Qehaja 2015), and public buildings contributed substantially to these energy efficiency issues. Indeed, as noted in the Project Appraisal...
Document (World Bank 2014), across Kosovo, there were about 330 central government–owned buildings with a floor area of more than 180,000 square meters, together reflecting an estimated energy savings potential of over 40 percent. Subcomponent 1.1 was designed to finance eligible energy efficiency and renewable energy subprojects in about 140 of these central government buildings, thereby significantly reducing energy use and public expenditures in heating and power services. Specifically, based on an analysis of public building energy audits conducted as part of KEEREP, investments in energy efficiency in public buildings had the potential to reduce energy consumption by up to 62 and 54 percent in central and municipal government buildings, respectively (World Bank 2016a).

Energy efficiency interventions could generate substantial cost savings. According to World Bank estimates, investments in the energy efficiency of public buildings could save the country’s public budget approximately €18 million per year (World Bank 2014). Additionally, energy efficiency measures can typically be implemented more rapidly than other green energy projects (e.g., investments in solar and wind energy infrastructure).

Subcomponent 1.1 has had a number of implementation successes even though the project is not yet complete. As of December 2021, 87 public buildings have been retrofitted through four completed packages, which are the focus of this case study. Table 1 summarizes these packages, based on an interview with the PIU. The table shows that these energy efficiency renovations have had over 41,000 direct beneficiaries (building users), and it is estimated that the project will achieve about 750,000 megawatt-hours (MWh) of energy savings per building over a period of 20 years.

### Table 1
Basic Information on “Packages” of Public Building Retrofits Financed by the World Bank

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>PROJECT YEARS</th>
<th>LOCATION/MUNICIPALITY</th>
<th>PUBLIC BUILDINGS RETROFITTED</th>
<th>TOTAL COST (€) (^{b})</th>
<th>ENERGY SAVINGS ACHIEVED (MWH/YEAR)</th>
<th>BENEFICIARIES (PUBLIC BUILDING USERS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2016</td>
<td>Prishtina</td>
<td>13</td>
<td>2,337,663</td>
<td>6,220</td>
<td>4,522</td>
</tr>
<tr>
<td>3</td>
<td>2017–18</td>
<td>Prishtina, Vushtri, Gjakove, Ferizaj, Peje, Istog, Prizren, Shtime</td>
<td>20</td>
<td>3,339,896</td>
<td>8,282</td>
<td>2,950</td>
</tr>
<tr>
<td>4</td>
<td>2019</td>
<td>Prishtina, Gjilan, Shtime, Podujeve, Prizren, Gjakove, Peje</td>
<td>25</td>
<td>3,648,617</td>
<td>11,927</td>
<td>13,723</td>
</tr>
<tr>
<td>5</td>
<td>2020–21</td>
<td>Ferizaj, Gjilan, Mitrovice, Prizren, Peje, Gjakove, Prishtina</td>
<td>29</td>
<td>4,190,388</td>
<td>11,021</td>
<td>19,909</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>87</td>
<td>13,516,564</td>
<td>37,450</td>
<td>41,104</td>
</tr>
</tbody>
</table>

Source: Interview with the KEEREP PIU.

Note: \(^{a}\) Each package took about one year to complete. \(^{b}\) The total cost includes design, construction, and supervision. MWh = megawatt-hour.
It is also worth noting that, as of February 2022, a substantial amount of the funding for Subcomponent 1.1 has not yet been allocated. Of the total allocated World Bank funding of US$22 million for Subcomponent 1.1, the four packages covered in this study cost a total of about €13.5 million (approximately US$16 million using an exchange rate as of December 2014). The original plans for Subcomponent 1.1 included World Bank funding for six packages. KEEREP did not finance the first package due to irregularities found during the procurement process. With an extension granted for the project from December 2022 to December 2023, it is expected that all the initial capital will be committed within the new deadline.

Endnotes

1. Components 2 and 3 of KEERE received US$2.3 million and US$0.64 million, respectively, in World Bank funding.
2. A “package” refers to a round of procurement of energy efficiency investments in central government buildings as part of KEERE.
3. This package was eventually implemented by KEEA with separate funding. It is thus not covered in this case study.
THREE
OVERVIEW OF
THE LABOR
MARKET
Unemployment has been a serious policy challenge in many countries in southeast Europe. However, Kosovo topped the list with the highest unemployment rate in the region (at 35 percent) in 2014 (World Bank 2015). Youth unemployment, in particular, was especially elevated: nearly 60 percent of young men and over 70 percent of young women were unemployed in 2014.

At the same time, a perception that employment opportunities were generally unavailable also resulted in low labor force participation. In 2015, for instance, the overall labor force participation rate (the share of the working-age population that is employed or seeking work) was approximately 38 percent, half the level in the EU countries (World Bank 2016b). Roughly 14 percent of the total working-age population was inactive (i.e., neither employed nor looking for work) (Kosovo Agency of Statistics 2016).

Job creation was curtailed in part due to skill mismatches. For instance, nearly half of the firms that responded to the 2013 Business Environment and Enterprise Performance Survey indicated that skills and education of available workers was a major problem (World Bank and EBRD 2013). At the same time, about half of unemployed individuals cited a lack of appropriate education and adequate skills as a reason for their inability to find work (World Bank 2016b).

To become more competitive regionally, Kosovo sought to foster a more flexible labor market, which would facilitate much easier hiring and firing decisions, in the hopes that foreign firms would be attracted by potential cost savings and invest in the country. According to the 2013 Business Environment and Enterprise Performance Survey, for instance, only 5 percent of the firms cited labor regulations as a hindrance to their business activity (World Bank and EBRD 2013). Moreover, in the Organisation for Economic Co-operation and Development’s 2015 Employment Protections Legislation Index, Kosovo was ranked as having the most flexible labor market in the region (OECD 2016).

It is also worth noting that Kosovo has had the lowest cost of labor in Europe, with a monthly average gross salary of €360 in 2015 (MCC 2017). However, given the public sector’s role as the largest employer in the country, substantial increases in public sector wages negatively impacted the private sector’s competitiveness by making it more challenging for that sector to attract and retain skilled workers. High reliance on remittances, which finance over a third of the average receiving household’s expenditures, was thought to further constrain employment-seeking behavior and job creation by increasing the reservation wage (Rudi 2014).
FOUR IDENTIFICATION AND QUANTIFICATION OF JOBS
Objectives and Overall Methodology

This case study seeks to shed light on the direct, indirect, and induced jobs that were generated by Subcomponent 1.1 of KEEREP. Specifically, a series of key informant interviews with key stakeholders and implementers highlighted that the activities undertaken as part of Subcomponent 1.1 generated information about three types of jobs:

**Direct jobs:** This case study considers three types of job families identified as direct jobs during qualitative interviews: (1) design and construction of energy efficiency building retrofits, (2) installation and maintenance of solar and energy efficiency appliances, and (3) training in and audits of energy efficiency services. The case study uses insights from interviews conducted with, and hiring-related data obtained from, the firms involved in the design and supervision, construction, maintenance, and operations of the intervention. It also uses contractor data from the KEEREP PIU to assess employment impacts.

**Indirect jobs:** The case study considers two types of indirect jobs identified during qualitative interviews: (1) manufacturing of energy efficiency building materials, and (2) manufacturing of energy efficiency heating and cooling appliances. To estimate the indirect jobs associated with KEEREP, the case study used a direct-indirect domestic job ratio reported by the United Nations Industrial Development Organization and Global Green Growth Institute (UNIDO and GGGI 2015) for the building retrofits sector in Germany. Germany has a similar climate to that of Kosovo, although they differ substantially in terms of income per capita and total GDP, suggesting that Kosovo might need to import more energy efficiency materials than Germany. Hence, the estimate of indirect domestic jobs in this case study also adjusts for the fraction of inputs procured in Kosovo using data compiled by the PIU, which provides information on the origin and cost of the materials used for Packages 2 and 3.

**Induced jobs:** This case study looks only at replication jobs within the induced jobs category. These jobs are created when the demand for a product increases due to the project. Although this case study has not included the quantification of such jobs due to limited information, the study considers the ways in which KEEREP may have contributed to increased demand for energy efficiency investments within Kosovo, which in turn would generate additional employment opportunities for workers in the sector.

Data Collection Approach

This case study relied on qualitative interviews with key project stakeholders combined with reviews of reports, programmatic documents (such as construction contracts), and relevant secondary data (such as labor statistics). Interviews were conducted with staff of the World Bank, the local project management unit, and the construction firms that implemented the energy efficiency upgrades delivered as part of Subcomponent 1.1; staff of the design and
supervision firm; staff of the public relations firm that produced the video for KEEA; and the head of KEEA. The case study staff also met with the representatives of the firms who attended the energy efficiency training conducted by the project. Insights from these interviews were complemented by reviews of relevant programmatic and sectoral documentation, as well as basic descriptive analyses using relevant administration and secondary data sources. Table 2 summarizes each of these data sources and their associated job information insights.

TABLE 2
Data Sources and Job Types

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>DIRECT</th>
<th>INDIRECT</th>
<th>INDUCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entities interviewed (number of interviews)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Bank lead (1)</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Project management unit (1)</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Construction companies (2)</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Design and supervision company (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companies whose staff attended trainings conducted by KEEREP (2)</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Public relations firm (1)</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Kosovo Energy Efficiency Agency (1)</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Reports and existing data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN Global Alliance for report on energy efficiency jobs</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Construction contracts (2)</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Labor force statistics survey data</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Employment factor data from surveys conducted in other countries</td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>


Endnote

1. In total, there were two design and supervision firms involved in the implementation. This case study relies on interviews with one of these firms because the other firm was involved in ongoing legal proceedings with the World Bank at the time of data collection. However, direct jobs for the second firm are estimated using the data provided by the first firm.
FIVE RESULTS
Direct Jobs

KEEREP created several jobs as well as training opportunities (principally related to operation and maintenance [O&M] for building staff). Specifically, considering the scale of the project (a total of 87 public buildings with investment packages that each included between 13 and 29 public buildings), firms responsible for carrying out construction and retrofit activities delivered as part of Subcomponent 1.1 typically had to hire additional labor to increase their existing capacity.

Direct jobs under KEEREP came from the construction, design, and supervision firms. Construction firms hired managerial staff, architects, engineers, operation workers, and construction workers to install energy efficiency retrofits. The design and supervision firm hired a technical director, engineers, and architects to design and supervise the construction work. The majority of direct jobs were created during the construction phase, and they were primarily related to the installation of building façades and windows.

Tables 3 and 4 describe the number of jobs created by each construction firm for carrying out the activities associated with one package under Subcomponent 1.1 over the course of

### TABLE 3
Direct Jobs Created by Construction Firm 2 during the 12-Month Implementation of One Package

<table>
<thead>
<tr>
<th>JOB TYPE</th>
<th>PERSON-YEARS</th>
<th>PERSON-YEARS FOR WOMEN</th>
<th>QUALIFICATIONS</th>
<th>AVERAGE WAGES (£/MONTH)</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>10</td>
<td>1</td>
<td>Higher education/ work experience</td>
<td>800–4,000</td>
<td>Benefits as required by law (annual leave, sick leave)</td>
</tr>
<tr>
<td>Architect</td>
<td>20</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical engineer</td>
<td>7–8</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineer/heating</td>
<td>10</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction worker (façade, windows)</td>
<td>20</td>
<td>0</td>
<td>Relevant work experience</td>
<td>800–900</td>
<td>Benefits as required by law (annual leave, sick leave), one meal per day, transportation</td>
</tr>
<tr>
<td>Workman/assistant</td>
<td>20</td>
<td>0</td>
<td>N/A</td>
<td>500</td>
<td>Benefits as required by law (annual leave, sick leave), one meal per day, transportation</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>4</td>
<td></td>
<td>1,616</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Interviews with staff from the firm.

**Note:** All jobs are domestic and formal for this firm. The data on person-years were provided as the total number of staff for managerial workers and typical workers per day for other types of staff. The person-years estimates assume that the firm employed the per-day workers every day during the implementation year, whereas the managerial workers were employed for the full year. The average wage in the last row is the average of the midpoints from the cells above, weighted by the person-years for each cell.
### TABLE 4
Direct Jobs Created by Construction Firm 1 during the 12-Month Implementation of One Package

<table>
<thead>
<tr>
<th>JOB TYPE</th>
<th>PERSONS-YEARS</th>
<th>PERSON-YEARS FOR WOMEN</th>
<th>QUALIFICATIONS</th>
<th>AVERAGE WAGES (€/MONTH)</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>6</td>
<td>2</td>
<td>Higher education/ work experience</td>
<td>Up to 4,000</td>
<td>Benefits as required by law (annual leave, sick leave)</td>
</tr>
<tr>
<td>Architect</td>
<td>10</td>
<td>1</td>
<td></td>
<td>800–1,000</td>
<td></td>
</tr>
<tr>
<td>Electrical engineer</td>
<td>3</td>
<td>1</td>
<td></td>
<td>800–1,000</td>
<td></td>
</tr>
<tr>
<td>Mechanical engineer</td>
<td>3</td>
<td>1</td>
<td></td>
<td>800–1,000</td>
<td></td>
</tr>
<tr>
<td>Construction worker</td>
<td>25</td>
<td>0</td>
<td>Relevant work experience</td>
<td>400–500</td>
<td>Benefits as required by law (annual leave, sick leave, one meal per day, transportation)</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>5</td>
<td></td>
<td>865</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Interviews with staff from the firm.

**Notes:** All jobs are domestic and formal for this firm. The data were provided as persons employed, except for construction workers, in which case, they were provided as typical workers employed on a given day. The person-years estimates assume that the firm employed 25 construction workers each workday during the implementation year, whereas all other workers were employed for the full year. The average wage in the last row is the average of the midpoints from the cells above, weighted by the person-years for each cell, assuming managers get at least €1,000/month.

12 months of implementation. Table 5 presents the same information for the design and supervision firm. Each package took about one year to implement, and each construction company implemented two intervention packages. Table 6 summarizes the results across all packages that were completed. Insights from interviews and other sources suggest that in total, the firms created 326 person-years of direct jobs during the implementation period. This estimate excludes O&M because the data required to accurately estimate full-time equivalents (FTEs) for that group of workers were unavailable. The ratios for FTEs per million euros and FTEs per thousand MWh/year of energy savings varied across packages. The ratios for FTEs per million euros varied from 17 to 31, whereas the ratios for FTEs per thousand MWh/year varied from 5 to 12.

**Skilled, unskilled, and semiskilled labor:** Skilled jobs in management, architecture, and engineering required university-level training and relevant work experience. These workers were also provided on-the-job training in conducting energy audits. Semiskilled workers required relevant work experience in O&M roles. The level of experience for both skilled and semiskilled workers determined their salary and job type. For example, installation of building façades and windows was considered a specialized role relative to other forms of construction work, and more experienced semiskilled workers were hired for it.
TABLE 5
Direct Jobs Created by the Design and Supervision Firm during the 12-Month Implementation of One Package

<table>
<thead>
<tr>
<th>JOB TYPE</th>
<th>PERSON-YEARS</th>
<th>% OF DOMESTIC EMPLOYMENT</th>
<th>PERSON-YEARS FOR WOMEN</th>
<th>QUALIFICATIONS</th>
<th>AVERAGE WAGES (€/MONTH)</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical director</td>
<td>1</td>
<td>100%*</td>
<td>1</td>
<td>Higher education/ work experience</td>
<td>1,000</td>
<td>Benefits as required by law (annual leave, sick leave)</td>
</tr>
<tr>
<td>Engineer</td>
<td>8</td>
<td>0</td>
<td>600</td>
<td>Benefits as required by law (annual leave, sick leave), meals, phone credits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architect</td>
<td>3</td>
<td>3</td>
<td>600</td>
<td>Benefits as required by law (annual leave, sick leave)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior architect</td>
<td>2</td>
<td>1</td>
<td>250–400</td>
<td>Benefits as required by law (annual leave, sick leave), on-the-job training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total 14 5 589

Source: Interviews with staff from the firm.

Note: All jobs are formal for this firm. The data were provided as persons employed. The person-year estimates assume that the firm employed all workers for a full year. The average wage in the last row is the average of the midpoints from the cells above, weighted by the person-years for each cell. * Three foreign workers were hired during the first round, per the specifications in the terms of reference. They were paid a total of approximately €25,000, which covered all expenses, including plane tickets. This suggests a total of less than 30 person-days of work, which implies much less than 0.5 person-years. Subtracting foreign direct workers thus does not change the number of direct jobs after rounding off to the nearest integer.

TABLE 6
Total Direct Jobs by Package

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>PROJECT-YEARS*</th>
<th>TOTAL COST (€)*</th>
<th>ENERGY SAVINGS ACHieved (MWH/YEAR)</th>
<th>DIRECT PERSON-YEARS OF EMPLOYMENT*</th>
<th>PERSON-YEARS PER MILLION EUROS</th>
<th>PERSON-YEARS FOR 1,000 MWH/YEAR SAVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2016</td>
<td>2,337,663</td>
<td>6,220</td>
<td>61</td>
<td>26</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>2017–18</td>
<td>3,339,896</td>
<td>8,282</td>
<td>102</td>
<td>31</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>2019</td>
<td>3,648,617</td>
<td>11,927</td>
<td>61</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>2020–21</td>
<td>4,190,388</td>
<td>11,021</td>
<td>102</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>13,516,564</td>
<td>37,450</td>
<td>326</td>
<td>24</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Interviews with staff from the firm.

Note: * Each package took about one year to complete. The total cost includes design, construction, and supervision. The assumptions used to estimate person-years for packages 2 and 4 are based on the results from tables 4 and 5. For packages 3 and 5, see tables 3 and 5. MWh = megawatt-hour.
Public building staff were provided with O&M training so that they could take over these roles after the project’s implementation was completed. Firms conducting these trainings were also required to provide user manuals and training to the building maintenance staff so that they could perform long-term O&M work in their respective buildings. To date, 223 public building maintenance staff have been trained. Training provision was integrated into the contract and was paid for by KEEREP. However, it is not clear how many of these workers currently do the maintenance work as part of their job duties on these buildings, nor is information available on the time that they allocate to maintaining and operating the energy efficiency and renewable energy equipment installed in those buildings.¹

Finally, unskilled workers and semiskilled workers took roles in construction, wiring, and panel installation. Some had prior relevant experience, whereas others did not.

**Formal and informal jobs:** All jobs were considered formal wherein workers signed a contract and were declared employees of the company by the Tax Administration Authority.

**Wages:** Although public sector workers are typically paid higher wages than private sector workers, this was not the case for the two construction companies that participated in the interviews as part of this case study. Specifically, these companies stated that they recently had to increase wages to overcome labor shortages, primarily due to people leaving the country in search of better jobs as well as COVID-19–induced labor shortages. As such, the wages offered by the construction companies were on par with other similar jobs in different sectors of the economy.

Managers, architects, and engineers received the highest wages, with architects’ and engineers’ wages ranging from €600 to €1,000 per month, and managers receiving as much as €4,000 per month. Experts were offered service contracts and paid per day. The salaries offered for construction workers ranged from €500 to €800 per month depending on their expertise and experience. As noted earlier, those working in façade and window installation were considered more specialized than other construction workers, and accordingly received higher salaries.

**Domestic and foreign jobs:** Nearly all the workers in the assessed companies were from Kosovo. When hiring construction workers, priority was given to those living in proximity to the construction sites. This was convenient and less expensive, and it was a common practice to support the local community. It may have also facilitated community buy-in. Skilled local labor was available for design and construction roles, and the companies did not report any difficulty hiring for these positions. Similarly, the construction and design firms tended to hire skilled managers, architects, and engineers locally, finding sufficient experienced engineers and architects in the area.

One exception, however, was the international experts hired for senior staff roles by the design and supervision company. They did so in response to a specification articulated in the terms of reference that required international hiring during the first phase of the project. The company
paid foreign staff members higher wages than the workers from Kosovo. However, these staff were hired for only a few days each, at a total cost of about €25,000, which included their expenses. In the second phase of the project, the company hired senior experts from Kosovo due to COVID-19 restrictions, without any demonstrable adverse impacts on project implementation.

**Gender:** None of the firms interviewed for this case study reported taking any specific measures or initiatives to hire women. Indeed, all of them reported having offered equal opportunities and having tried to choose the best candidate for the job. Given that the construction work was physically demanding, the majority of the firms noted that it was difficult for women to perform such jobs. Hence, most women hired as part of KEEREP-related projects were employed in skilled jobs, such as those in architecture, engineering, and management. This is clearly shown, for instance, by the gender breakup of the design and supervision firm in table 5: half of the workers at this firm were women, including its director. This was likely also possible because all the positions at the design and supervision firm required higher education or prior work experience in relatively skilled activities, not the capacity to engage in physical labor.

**Benefits and job quality:** The typical working hours of all staff, regardless of their position, were 08:00 hours to 17:00 hours. Construction workers were not paid overtime, although they may have worked longer hours on some summer days. The opposite happened in the winter; they were not expected to work during bad weather conditions but were nevertheless compensated for the time they would have spent working.

Companies were required to have health and safety measures in place for their workers and follow national and local rules on waste treatment procedures. For example, they had to follow specific guidelines for the treatment of hazardous materials such as asbestos and fluorescent lamps, ranging from their packaging and transport, to their storage in a designated landfill. Some companies noted that KEEREP offered relatively high levels of workplace safety for constructor workers through its incorporation of health and safety standards.

**Temporary and long-term positions:** In most cases, the long-term contracts offered by companies were for highly skilled workers, such as architects and engineers. Construction workers, however, could not expect to work on a long-term basis in the absence of other projects of a similar scale.

**“Upskilled” labor force and greater population of experienced energy efficiency workers:** The project increased the number of experienced construction workers in the energy efficiency market. For example, O&M-related training provided for public building staff as well as training for skilled workers in conducting energy audits served to expand these workers’ skill portfolio.

Construction workers also gained relevant work experience using energy efficiency products such as thermodynamic valves and heat pumps, and in working on vast surfaces of over 50,000 square meters. KEEREP also served as a proof of concept and influenced other donors, such as the Millennium Challenge Corporation (MCC), to invest in energy efficiency retrofits in
Kosovo. The energy efficiency experience gained by the workers through their employment in KEEREP-related activities therefore became applicable beyond KEEREP, and some noted that energy efficiency sector skills were now in greater demand in Kosovo.

Indirect Jobs

This case study did not obtain precise data on indirect jobs. Instead, it estimated indirect jobs based on information on the use of different inputs as well as their sources, the number of direct person-years of employment, and information from other sources.

**Domestic and imported materials:** About three-quarters of the products and materials used were imported from European countries. Although some products were available in Kosovo, the construction companies could not use them because they did not have the requisite certifications or insulation standards as per the project’s procurement requirements. For example, certifications were required for thermal insulation and timber frame building materials. Such certifications are typically costly for domestic companies, and, thus, many do not have them. These materials, thus, were often sourced abroad. According to some respondents, the certifications were not necessary and materials without those certifications but of similar quality could be obtained in Kosovo. If so, the inclusion of funds to support certification costs as part of the project could have facilitated market development in Kosovo and further indirect domestic job creation. Aside from product certification, the respondents cited two other main reasons for importing foreign goods: certain products and materials were not available in Kosovo, or they could be found abroad at lower cost and better quality.

That said, some materials, for example, façade insulation inputs, were purchased in Kosovo, as shown in figures 1 and 2, which present the breakup of domestic and foreign materials by type, dollar amount, and country of origin for Packages 2 and 3 (for which respondents provided these detailed input procurement data). In addition, figure 3 shows the overall share of spending on domestic and imported materials for these two packages. This figure shows that, taken together, for each dollar invested in project-related inputs as part of these packages, approximately $25 went to the domestic economy.

**Total indirect jobs:** Indirect domestic jobs were estimated by multiplying the total direct domestic jobs associated with KEEREP (326) by the ratio of indirect to direct domestic jobs reported by UNIDO and GGGI (2015) for the building retrofits sector in Germany. UNIDO and GGGI estimate a ratio of 0.36 indirect domestic jobs per direct domestic job in that context. The data used in this case study suggest that only about a quarter of the amount used for procuring inputs is spent in Kosovo, in comparison with about 96 percent in Germany (UNIDO and GGGI 2015). Hence, 0.36 is multiplied by 0.25/0.96 to account for this difference. This yields a ratio of 0.094, which, when multiplied by 326 (the total number of direct domestic jobs), yields an estimate of 31 indirect domestic person-years of employment.
Assuming that the ratio of jobs per dollar spent is similar domestically and internationally, the total indirect person-years (including both foreign and domestic employment) can be estimated by dividing the number of indirect domestic person-years by the fraction of jobs that are domestic. The foreign indirect jobs can then be calculated by subtracting the domestic indirect jobs from the total indirect jobs. This method produces an estimate of about 92 person-years of foreign indirect employment for a total of 123 indirect person-years of employment (foreign and domestic). It is worth noting, however, that this approach is generally not used to estimate foreign indirect jobs.
FIGURE 2
Total Spending per Country for Kosovo Package 3

Source: Correspondence with the construction firms.

Note: EPS = expanded polystyrene; ETICS = External Thermal Insulation Composite System; EXP = extruded polystyrene insulation; PVC = polyvinyl chloride.
One of the limitations of this approach to estimate indirect domestic jobs is that it requires estimating what fractions of the direct and indirect employment are in each sector of the economy using sectors for which data are available. However, the sectors with available data do not include energy efficiency. The authors of UNIDO and GGGI (2015), thus, had to use their expert judgment to come up with those fractions. Even if the fractions are accurate on average, they may not be accurate for a given project. Additionally, the fractions for Germany may not apply in Kosovo.

Induced Jobs

This case study discusses replication jobs within the induced jobs category. These jobs are created when the demand for a product increases due to the project. Specifically, KEEREPE may have contributed to increased demand for energy efficiency investments in Kosovo more generally. For example, workers in public buildings reported starting to see the benefits of energy efficiency installations and inquired about implementing them in their own homes.
The project manager from one of the construction firms stated that “we received very positive feedback from building users and witnessed a lot of questions and interest about the materials and price of works to do the retrofits in their homes.” Reportedly, this contributed to an increase in the demand for energy efficiency retrofits among smaller firms operating in different municipalities.4

Further, KEEREP served as a proof of concept demonstrating the possible savings from energy efficiency investments, potentially informing efforts by other donors to invest in energy efficiency in Kosovo. For example, the MCC subsequently funded the Pilot Incentives in Energy Efficiency project, which is focused on both the residential and the commercial sectors.5

Additionally, the construction companies as well as the design and supervision company received contracts from the MCC project, given they were already qualified to complete the work and had acquired the necessary health and safety requirements as per the World Bank’s contracting requirements. It is likely that some of the same construction workers, architects, and designers may have been employed for these newer roles.

As described in section 2, KEEREP also contributed to the establishment of homeowners’ associations in multiapartment family buildings and helped them formally organize and coinvest in energy efficiency retrofits. Furthermore, KEEREP paid for energy audits and energy efficiency designs for several such buildings. As a result, the MCC project on energy efficiency could immediately partner with the established homeowners’ associations and the respective municipalities to cofund necessary energy efficiency investments based on the energy audits and designs provided by KEEREP. Furthermore, KEEA, the main implementing agency, also completed its consultancy contract for a pilot to establish homeowners’ associations and prepare energy audits, designs, and financing plans to implement energy efficiency renovations in 19 multiapartment family buildings. Through successful cooperation between KEEA and MCC, these renovations are now expected to be supported and implemented by MCC under the ongoing Millennium Foundation Kosovo Threshold program.6 Although numerical results were not available, this increased interest in energy efficiency renovations is likely to result in an increased demand for other related materials and products as well.7

Endnotes

1. The training covered basic maintenance tasks (e.g., turning the boilers on and off every day during winter). Other equipment (e.g., to monitor energy losses) did not have to be maintained actively; the installation company simply came to repair any equipment that had broken down. No public buildings had a timekeeping system for maintenance staff, who were existing staff tasked with other duties (in addition to any O&M related to this project).
2. Specifically, ETAG 004 is the European Technical Approval Guideline for the approval of external thermal insulation composite systems, and ETAG 007 is the standard for timber frame building kits.
3. The authors used an input-output approach to estimate indirect jobs in the energy efficiency sector in Germany. After rounding off, the number of domestic direct jobs (326) is the same
as the total direct jobs (foreign and domestic), since there was less than 0.5 person-years of direct foreign employment.

4. The construction companies contracted by KEEREP worked on only larger construction projects rather than individual household renovations. Thus, they could not comment on the scope of increased demand in the area.

5. More information on the project can be found at: https://millenniumkosovo.org/energy-efficiency-pilot-program-launched.

6. More information on the program can be found at: https://www.mcc.gov/where-we-work/program/kosovo-threshold-program.

7. MCC’s total planned allocation for the Pilot Incentives for Household Investment in Energy Efficiency activity is US$20.7 million, of which US$4.556 million is allocated for apartment building efficiency retrofits (Millennium Foundation of Kosovo 2021). This most closely corresponds to KEEREP-supported energy efficiency and renewable energy investments covered in this case study. Given this allocated amount, the MCC activity may be expected to generate up to 119 person-years of employment, including both foreign and domestic jobs, and direct and indirect jobs. This calculation assumes that job creation associated with the $16 million of KEEREP financing covered in this case study scales linearly to the $4.556 million allocated under the MCC project.
SIX BARRIERS AND ENABLERS IDENTIFIED
At the project level, firms reported difficulty gaining access to the buildings where the energy efficiency retrofits were implemented. This was largely due to miscommunication. Building maintenance teams did not receive clear instructions indicating when the company would start the retrofits. This led to delays, which impacted the company’s ability to commit to other projects.

COVID-19 has also had a negative impact on the construction sector broadly. Specifically, construction work stagnated for a period, which was followed by an increase in the prices of domestic and foreign energy efficiency materials. Likewise, all firms stated that domestic wages had also increased.1

At the macro level, it must be noted that regulated energy prices at the state level are not yet cost reflective. This has the potential to make energy efficiency improvements appear less attractive as it minimizes the expected future benefits of investing in energy efficiency infrastructure (World Bank 2016a). Indeed, Kosovo has the lowest electricity prices in the Balkans, both for households (€0.06/kilowatt hour [kWh]) and industry (€0.052/kWh) (Balkan Green Energy News 2020). Although tariffs are expected to increase going forward, as outlined in section 2, electricity consumers may not have enough incentive to invest in energy efficiency retrofits unless increases bring tariffs into closer alignment with the underlying costs.

Endnote

1. Although they still completed the work as required by the contract, it did decrease the share of profits received by the companies. The MCC has reported that companies are negotiating the contract price, given the wage changes as well as the recent increase in the prices of energy efficiency–related materials.
SEVEN

CONCLUSION
Summary of Findings

This case study sought to assess the employment impacts associated with energy efficiency and renewable energy investments in buildings overseen by the central government in Kosovo. The data collected in this case study suggest a total of 418 person-years of direct and indirect employment for the parts of KEEREP that were covered. This includes both foreign and domestic jobs. Limiting the numbers to domestic jobs (direct and indirect) suggests a total of 357 person-years of direct and indirect employment. These numbers exclude O&M, due to nonavailability of data on maintenance timekeeping as well as the relatively limited scope of project-related maintenance activities.

The findings of this case study highlight two key implications for future efforts that seek to enhance the uptake and adoption of energy efficiency investments. First, the impacts of energy efficiency investments (both in terms of increased direct employment and potential energy savings) could be magnified if interventions are accompanied by communication and behavior change campaigns that disseminate the benefits of energy efficiency upgrades and create more demand for these services.

Second, project procurement documents should be carefully reviewed to ensure domestic labor and materials are not disincentivized. In the case of KEEREP, personnel specifications reportedly included language that staff had to be international (this was subsequently adjusted due to COVID-19–related lockdowns). Product specifications also reportedly forced contractors to procure some products abroad, because domestic producers did not have specialized international certifications (even though domestic suppliers reportedly had feasible equivalents). An eye to meeting project needs through support for the costs associated with the certification of suitable domestic alternatives may help to amplify domestic employment impacts and foster community buy-in.

Theory of Change

Figure 4 presents a theory of change (TOC) for Subcomponent 1.1 of KEEREP. This TOC delineates the causal pathways between the energy efficiency and renewable energy investments (namely, building retrofits) carried out as part of KEEREP and the impacts on the creation of direct, indirect, and induced jobs. To do so, it draws on the findings of this case study as well as the key objectives of KEEREP as outlined in its Project Appraisal Document (World Bank 2014). The TOC indicates that World Bank financing for Subcomponent 1.1 of KEEREP was focused on supporting two key activities: (1) investments in energy efficiency and renewable energy retrofits in buildings overseen by the central government (including assessment of building-level energy audits, design of retrofit plans, and construction), and (2) basic O&M training for
**FIGURE 4**

Theory of Change for Energy Efficiency and Renewable Energy Investments in Kosovo

**Activities**
- Companies/consortia awarded financing for EE and RE retrofits in central government buildings:
  - Assessment of building-level energy audit reports (prepared under KEEREP Component 1.3 for each building eligible for renovation based on criteria related to ownership/management, structural integrity, prior EE renovations, and plans for closure)
  - Preparation of renovation design plans based on energy audit findings, including building-level energy measures such as building envelope, heating systems, fuel switching, cooling and ventilation, pumps/fans, and lighting
  - Renovation-related construction activities

**Outputs**
- EE and RE retrofits conducted in selected central government buildings
- Reduction in:
  - Energy use
  - Public expenditures in heating/power services
- Increase in:
  - Comfort levels of building users
  - Quality of building services
- Cost savings from EE and RE retrofits (relative to building new energy generation facilities)
- Other individuals and donors invest in EE projects (e.g., MCC Pilot Incentives in EE Project)

**Outcomes**
- Greater demand for workers with EE-sector skills and experiences
- Skilled jobs (i.e., design, engineering)
- Unskilled/semiskilled jobs (e.g., construction, wiring, clerks)
- Skilled/semiskilled/unskilled jobs (i.e., jobs among suppliers of project inputs)
- Semiskilled jobs (operations and maintenance)
- Benefits of KEEREP EE and RE retrofits demonstrated - e.g., through pilot EE investment program for municipalities (KEEREP Component 1.2) — and disseminated — including e.g., through training of firms (KEEREP Component 1.4)

**Long-term outcomes**
- Continued employment opportunities beyond project for KEEREP workers
- Existing need and demand for additional EE investments
- Other individuals and donors invest in EE projects (e.g., MCC Pilot Incentives in EE Project)

**Operations and maintenance training for building staff**
- Overview of basic maintenance tasks
- Overview of basic maintenance schedule

**Skilled jobs** (i.e., design, engineering)

**Unskilled/semiskilled jobs** (e.g., construction, wiring, clerks)

**Skilled/semiskilled/unskilled jobs** (i.e., jobs among suppliers of project inputs)

**Semiskilled jobs** (operations and maintenance)

**Legend**
- Direct Jobs
- Indirect Jobs
- Induced jobs
- WB supported activity
- F = females employed
- Assumptions

**Source:** Authors’ assessment based on the case study findings and World Bank (2014)

**Note:** EE = energy efficiency; KEEREP = Kosovo Energy Efficiency and Renewable Energy Project; MCC = Millennium Challenge Corporation; RE = renewable energy; WB = World Bank.
building staff. Further, among the employment categories listed as part of labor inputs, the TOC highlights those categories where increased opportunities for female workers were observed over the course of data collection conducted as part of this case study. As can be seen in figure 4, female workers were exclusively involved as skilled workers over the course of implementation of project activities.

Note that while Subcomponent 1.1 accounted for approximately 70 percent of the total funding allocated to KEEREP, it was implemented in conjunction with several other complementary interventions. The TOC thus outlines the specific nodes along the causal pathway where the complementary impacts of these related activities are likely to have been the most salient. For example, the cost savings resulting from the energy efficiency and renewable energy retrofits in the central government buildings would have to be demonstrable and widely disseminated for similar projects to be taken up by individuals and other donors. In addition, wider uptake would also require an enabling policy environment conducive to the growth of the energy efficiency and renewable energy sectors. The activities carried out as part of Subcomponents 1.2 and 1.4, and Component 2 sought to simultaneously address precisely these constraints.

Endnote

1. The Project Appraisal Document for KEEREP did not contain a formal TOC for the project.
References


