INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF SDR 34.6 MILLION
(US$50 MILLION EQUIVALENT)

TO THE

UNITED NATIONS OFFICE FOR PROJECT SERVICES

FOR THE BENEFIT OF THE REPUBLIC OF YEMEN

FOR A

YEMEN EMERGENCY ELECTRICITY ACCESS PROJECT

April 2, 2018

Energy and Extractives Global Practice
Middle East and North Africa Region
CURRENCY EQUIVALENTS

Exchange Rate Effective February 28, 2018

Currency Unit =  Yemeni Rials (YER)

YER 250.05 =  US$ 1

US$ 1 =  SDR 0.69161554

GOVERNMENT FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERC</td>
<td>Contingent Emergency Response Component</td>
</tr>
<tr>
<td>E&amp;S</td>
<td>Environmental and Social</td>
</tr>
<tr>
<td>ECOP</td>
<td>Environmental Code of Practice</td>
</tr>
<tr>
<td>EHS</td>
<td>Environmental, Health, and Safety</td>
</tr>
<tr>
<td>ERRY</td>
<td>Enhanced Rural Resilience Program in Yemen</td>
</tr>
<tr>
<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
</tr>
<tr>
<td>ESMF</td>
<td>Environmental and Social Management Framework</td>
</tr>
<tr>
<td>ESMP</td>
<td>Environmental and Social Management Plan</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization (of the UN)</td>
</tr>
<tr>
<td>FCV</td>
<td>Fragility, Conflict, and Violence</td>
</tr>
<tr>
<td>FMFA</td>
<td>Financial Management Framework Agreement</td>
</tr>
<tr>
<td>GBV</td>
<td>Gender-Based Violence</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>GIS</td>
<td>Geospatial Information System</td>
</tr>
<tr>
<td>GRM</td>
<td>Grievance Redress Mechanism</td>
</tr>
<tr>
<td>GRS</td>
<td>Grievance Redress Service</td>
</tr>
<tr>
<td>IDP</td>
<td>Internally Displaced People</td>
</tr>
<tr>
<td>IEG</td>
<td>Independent Evaluation Group</td>
</tr>
<tr>
<td>IRR</td>
<td>Internal Rate of Return</td>
</tr>
<tr>
<td>IUFR</td>
<td>Interim Unaudited Financial Report</td>
</tr>
<tr>
<td>MENA</td>
<td>Middle East and North Africa</td>
</tr>
<tr>
<td>MFI</td>
<td>Microfinance Institution</td>
</tr>
<tr>
<td>NDC</td>
<td>Nationally Determined Contribution</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernmental Organization</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operations and Maintenance</td>
</tr>
<tr>
<td>PAD</td>
<td>Project Appraisal Document</td>
</tr>
<tr>
<td>PDO</td>
<td>Project Development Objective</td>
</tr>
</tbody>
</table>
Regional Vice President: Hafez M. H. Ghanem
Country Director: Asad Alam
Senior Global Practice Director: Riccardo Puliti
Practice Manager: Erik Magnus Fernstrom
Task Team Leader(s): Joern Torsten Huenteler
                     Katharine Baragona
BASIC INFORMATION

Is this a regionally tagged project? | Country(ies) | Financing Instrument  
No | | Investment Project Financing

- ✔ Situations of Urgent Need of Assistance or Capacity Constraints
- ✔ Financial Intermediaries
- [ ] Series of Projects

Approval Date | Closing Date | Environmental Assessment Category
--- | --- | ---
13-Apr-2018 | 30-Jun-2021 | B - Partial Assessment

Bank/IFC Collaboration | Joint Level
Yes | Complementary or Interdependent project requiring active coordination

Proposed Development Objective(s)

Improve access to electricity in rural and peri-urban areas within the Republic of Yemen.

Components

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Cost (US$, millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1: Financing for Off-grid Solar</td>
<td>42.00</td>
</tr>
<tr>
<td>Component 2: Implementation Support and Market Development</td>
<td>8.00</td>
</tr>
<tr>
<td>Component 3: Contingent Emergency Response</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Organizations

Borrower: United Nations Office for Project Services (UNOPS)

Implementing Agency: United Nations Office for Project Services (UNOPS)
**Safeguards Deferral**

Will the review of safeguards be deferred?

[✔] Yes  [ ] No

**PROJECT FINANCING DATA (US$, Millions)**

<table>
<thead>
<tr>
<th>Counterpart Funding</th>
<th>IBRD</th>
<th>IDA Credit</th>
<th>IDA Grant</th>
<th>Trust Funds</th>
<th>Parallel Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>50.00</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Total Financing:</td>
<td>50.00</td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
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<tr>
<td>Financing Gap:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Of Which Bank Financing (IBRD/IDA):</td>
<td></td>
<td></td>
<td>50.00</td>
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</table>

Financing (in US$, millions)

<table>
<thead>
<tr>
<th>Financing Source</th>
<th>Amount</th>
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<tbody>
<tr>
<td>IDA-D3010</td>
<td>50.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>50.00</td>
</tr>
</tbody>
</table>

**Expected Disbursements (in US$, millions)**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
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</thead>
<tbody>
<tr>
<td>Annual</td>
<td>4.00</td>
<td>22.15</td>
<td>16.85</td>
<td>7.00</td>
</tr>
<tr>
<td>Cumulative</td>
<td>4.00</td>
<td>26.15</td>
<td>43.00</td>
<td>50.00</td>
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</tbody>
</table>
INSTITUTIONAL DATA

**Practice Area (Lead)**
Energy & Extractives

**Contributing Practice Areas**

**Climate Change and Disaster Screening**
This operation has been screened for short and long-term climate change and disaster risks

**Gender Tag**

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

   Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

   Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

   Yes

**SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)**

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>1. Political and Governance</td>
<td>High</td>
</tr>
<tr>
<td>2. Macroeconomic</td>
<td>High</td>
</tr>
<tr>
<td>3. Sector Strategies and Policies</td>
<td>High</td>
</tr>
<tr>
<td>4. Technical Design of Project or Program</td>
<td>Substantial</td>
</tr>
<tr>
<td>5. Institutional Capacity for Implementation and Sustainability</td>
<td>Substantial</td>
</tr>
<tr>
<td>6. Fiduciary</td>
<td>High</td>
</tr>
<tr>
<td>7. Environment and Social</td>
<td>Moderate</td>
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<tr>
<td>8. Stakeholders</td>
<td>High</td>
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<tr>
<td>9. Other</td>
<td></td>
</tr>
</tbody>
</table>
10. Overall

<table>
<thead>
<tr>
<th><strong>COMPLIANCE</strong></th>
</tr>
</thead>
</table>

**Policy**

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes      [✓] No

Does the project require any waivers of Bank policies?

[✓] Yes      [ ] No

Have these been approved by Bank management?

[✓] Yes      [ ] No

Is approval for any policy waiver sought from the Board?

[✓] Yes      [ ] No

<table>
<thead>
<tr>
<th>Safeguard Policies Triggered by the Project</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Environmental Assessment OP/BP 4.01</td>
<td>✓</td>
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<tr>
<td>Natural Habitats OP/BP 4.04</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Forests OP/BP 4.36</td>
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<tr>
<td>Pest Management OP 4.09</td>
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<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
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<td>Indigenous Peoples OP/BP 4.10</td>
<td>✓</td>
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<tr>
<td>Involuntary Resettlement OP/BP 4.12</td>
<td>✓</td>
<td></td>
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<tr>
<td>Safety of Dams OP/BP 4.37</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Projects on International Waterways OP/BP 7.50</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
<td>✓</td>
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</table>

**Legal Covenants**

Sections and Description

Financing Agreement Article V contains an effectiveness condition, namely, that the Recipient has prepared and adopted the Project Operational Manual.
Sections and Description
Financing Agreement Schedule 2, Section I, Subsection D contains a dated covenant, namely, that the Recipient shall carry out a review or an assessment to verify or confirm eligibility of the respective MFIs.

Sections and Description
Financing Agreement Schedule 2, Section I, Subsection I contains a dated covenant, namely, that the Recipient shall prepare and adopt an Environmental and Social Management Framework (“ESMF”), as well as any environmental assessment, environmental management plan or similar safeguard instrument required by the ESMF.

Sections and Description
Financing Agreement Schedule 2, Section IV, Subsection B contains disbursement conditions for expenditures under Category (4), for Emergency Expenditures, under Component 3 of the Project.

Conditions

PROJECT TEAM

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Specialization</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joern Torsten Huenteler</td>
<td>Team Leader(ADM Responsible)</td>
<td></td>
<td>GEE05</td>
</tr>
<tr>
<td>Katharine Baragona</td>
<td>Team Leader</td>
<td></td>
<td>GEE05</td>
</tr>
<tr>
<td>Jamal Abdulla Abdulaziz</td>
<td>Procurement Specialist(ADM Responsible)</td>
<td></td>
<td>GGOPM</td>
</tr>
<tr>
<td>Moad M. Alrubaidi</td>
<td>Financial Management Specialist</td>
<td></td>
<td>GGOMN</td>
</tr>
<tr>
<td>Alex Woodhouse Turingan</td>
<td>Team Member</td>
<td></td>
<td>LEGAM</td>
</tr>
<tr>
<td>Amer Abdulwahab Ali Al-Gorbany</td>
<td>Environmental Safeguards Specialist</td>
<td></td>
<td>GEN05</td>
</tr>
<tr>
<td>Andrianirina Michel Eric Ranjeva</td>
<td>Team Member</td>
<td></td>
<td>WFACS</td>
</tr>
<tr>
<td>Edith Ruguru Mwenda</td>
<td>Counsel</td>
<td></td>
<td>LEGAM</td>
</tr>
<tr>
<td>Elisabeth Maier</td>
<td>Team Member</td>
<td></td>
<td>GEE05</td>
</tr>
<tr>
<td>Ghada Ahmed Waheed Ismail</td>
<td>Team Member</td>
<td></td>
<td>GFCMW</td>
</tr>
<tr>
<td>Ibrahim Ismail Mohammed</td>
<td>Social Safeguards Specialist</td>
<td></td>
<td>GSU05</td>
</tr>
<tr>
<td>Name</td>
<td>Title</td>
<td>Organization</td>
<td>Location</td>
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<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td>Basalamah</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenneth J. Dorph</td>
<td>Team Member</td>
<td>GEE07</td>
<td></td>
</tr>
<tr>
<td>Kurt Ambroze Hagemann</td>
<td>Team Member</td>
<td>GSU11</td>
<td></td>
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<tr>
<td>Mark M. Njore</td>
<td>Team Member</td>
<td>GEE05</td>
<td></td>
</tr>
<tr>
<td>Peter McConaghy</td>
<td>Team Member</td>
<td>GFCMW</td>
<td></td>
</tr>
<tr>
<td>Reham Fadl Ahmed Abdulkhalek Al-Aswadi</td>
<td>Team Member</td>
<td>MNCYE</td>
<td></td>
</tr>
<tr>
<td>Samantha M. Constant</td>
<td>Team Member</td>
<td>GSU05</td>
<td></td>
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<tr>
<td>Sami A Sofan</td>
<td>Team Member</td>
<td>GFCMW</td>
<td></td>
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<tr>
<td>Sara Badiei</td>
<td>Team Member</td>
<td>GEE05</td>
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<tr>
<td>Sharad Alan Tandon</td>
<td>Team Member</td>
<td>GPV05</td>
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<tr>
<td>Syed Adeel Abbas</td>
<td>Team Member</td>
<td>GCCSO</td>
<td></td>
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<tr>
<td>Tyeler Marissa Matsuo</td>
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<tr>
<td>Extended Team</td>
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</tr>
<tr>
<td>Name</td>
<td>Title</td>
<td>Organization</td>
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I. STRATEGIC CONTEXT

A. Sectoral and Institutional Context

Electricity Sector

1. The ongoing conflict in the Republic of Yemen has significantly worsened the electricity supply situation from an already low level, as the provision of public electricity service has essentially collapsed. In 2014, before the conflict erupted, only about 66 percent of the population in the Republic of Yemen (henceforth referred to as Yemen) had access to public electricity (another 12 percent had access to private electricity solutions), the lowest level in the region. By end-2017, this number had dropped to below 10 percent due to extensive damage to the national grid and fuel shortages across the country. Six out of ten cities assessed in the second phase of the Yemen Dynamic Damage and Needs Assessment were found to have no access at all to public electricity, including major cities such as Sana’a, Hodeida, and Taiz. Even in cities in which critical power infrastructure remains largely intact, such as Aden, these assets often sit idle due to fuel shortages. Rural and peri-urban areas, which are estimated to account for two-thirds of Yemen’s estimated population of 27 million, had suffered disproportionately from a lack of access to modern energy even before the conflict, with pre-conflict rural electricity access rates of only 53 percent. Pervasive fuel shortages due to the disruption of transport links have only exacerbated the effects of energy poverty on the rural poor.

2. Restoring power supply to productive users is critical to alleviate the dire humanitarian situation in the country, including the cholera epidemic, especially in rural and peri-urban areas which are home to the poorest and most vulnerable parts of the population. Even before the conflict, the lives of many Yemenis, especially in rural and peri-urban areas, were characterized by lack of access to basic infrastructure and service facilities. Impacts of the collapse of public electricity have been devastating: electricity is becoming a binding constraint for critical service facilities that do not have the means to invest in alternative energy sources, including health facilities and vaccine cold chains, water supply and sanitation, food supply, banking services, and more. Even where diesel generators have been adopted for emergency power supply during the conflict, fuel shortages are leading to severe constraints to service delivery, including in the water and health sectors where prolonged power outages are contributing to the spread of the cholera epidemic. Businesses also cite electricity shortages as the second most important constraint after conflict and political instability. The continued lack of access to electricity is likely to contribute to a decrease in productivity, deterioration of the business environment, and reduction in the country’s gross domestic product (GDP).

3. Improving households’ access to modern energy is central to restoring livelihoods and mitigating the impacts of the crisis on the poor and most vulnerable. Particularly in rural and peri-urban areas, the collapse of electricity and fuel supplies has severely affected employment and household

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1 The Yemen Humanitarian Response Situation Report (Save the Children, October 2016) estimated access to grid-based electricity at 10 percent. Phone survey results from November 2017 by the World Food Programme (WFP) indicate that less than 1 percent of households relied on the electricity grid as their main source of electricity.

2 Using fuel sales to electricity plants as an indicator, total power generation in 2015 dropped by 77 percent compared to 2014. Light emissions visible from satellite imagery indicate a decline in electricity consumption by about 75 percent.

3 World Bank population estimates based on extrapolations from 2004 census data.

4 As electricity is required for pumping clean water, many Yemenis have resorted to drinking surface water, which may be contaminated with cholera bacterium.
incomes due to the dependence on agriculture and energy-intensive groundwater extraction for irrigation. Immediate effects of the lack of electricity supply on household budgets also include the increased dependency on scarcely available and expensive liquid fuels. Social impacts include limits to children’s ability to study in the evenings and limited functionality of schools. The collapse of power supply and nighttime lighting has also added to security concerns, especially among women for whom the lack of lighting on the way to shared latrines exacerbates risks to gender-based violence (GBV). Due to the lack of electricity for water pumping, many rural households have been forced to travel long distances to fetch water—a task that falls disproportionately on women and girls. Health effects on households include indoor air pollution from the usage of liquid fuels to power appliances and kerosene for lighting, and reduced access to health services that depend on electricity. Fuel shortages have also caused prices to spike, with the price of cooking gas rising by 66 percent compared to pre-crisis times. In addition, many women have reportedly resorted to cooking with plastic, which releases severely harmful chemicals.

4. **Solar power represents the most immediate opportunity to help alleviate the most immediate impacts of the unfolding developmental crisis.** In one of the few positive stories that emerged from the conflict, the lack of public electricity supply and limited fuel availability for diesel generators—in combination with the rapidly falling cost of solar power globally—has spurred a booming industry for solar systems, serving better-off households, farmers, small and medium enterprises (SMEs), and solar lamps for basic lighting. A market assessment commissioned by the World Bank in 2016 estimated the market penetration of solar for lighting or appliances to be as high as 75 percent of households in selected urban areas, including Sana’a. Estimates suggest that more than US$200 million have been invested per year in the residential off-grid solar sector since the outbreak of the conflict. The solar market in Yemen is operating commercially and is driven by the private sector, with a supply chain that ranges from trading houses that import panels, charge controllers, and batteries, to small-scale retailers that have expanded their business to solar panels (figure 1 provides an illustration of the supply chain). This solar supply chain represents the fastest and most resilient solution for overcoming the severe electricity shortages in the country, providing electricity to households, and restoring service delivery of electricity-dependent services.

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5. Oxfam and Care International. 2016. Conflict and Gender Relations in Yemen: A Field Assessment. IASC Gender Standby Capacity Project (GenCap): Sana’a, Yemen. UNFPA Yemen Factsheet: Protecting Women and Girls (October 2017) indicates that a total of 2.6 million women and girls are currently at risk of GBV.
6. Ibid.
7. World Food Programme (WFP) phone survey results, 2017.
5. However, despite the rapidly falling cost of solar globally, the affordability of solar products remains a barrier for the poor and most vulnerable populations, and the immaturity of the market has resulted in low quality products and after-sales support. Affordability is a major constraint for lower-income households, because almost all systems are paid upfront in cash and debt finance is not readily available to most households (in line with generally low access to formal finance, as detailed below). Further, many solar installations suffer from high failure rates due to improper system design, poor-quality components, and a lack of after-sales service. Broader access to microcredits for solar for those who can afford paying for kerosene or other alternatives, but do not have enough savings to invest in solar, as well as improved technical standards would make the market significantly more inclusive and sustainable.

6. Besides the immediate positive impacts on beneficiaries, restoring and expanding access to electricity through distributed solar would contribute to building more inclusive, bottom-up service delivery in Yemen. Yemen’s authorities have struggled for decades to provide reliable and affordable public services—including publicly provided electricity through the national grid—and recurring conflicts have repeatedly set back whatever small progress was being made. Amid a fragile political and security outlook for the country and the region more broadly, a bottom-up approach to expanding access to electricity that aims to create jobs, strengthen the private sector, provide a more resilient energy infrastructure, and significantly reduce the need for fuel import, refining, and transport, should be promoted. Such an approach could contribute to building more inclusive, bottom-up service delivery in Yemen, and develop an implementation model that could be expanded or adapted to other sectors of the economy.
Microfinance Sector

7. While commercial retail and consumer banking had been limited in Yemen before the crisis, the microfinance sector has been a success story, emerging as the most robust channel for extending financial services to rural and lower-income households. Yemen’s banking sector was highly limited in its interaction with the population: bank deposits barely passed a quarter of GDP, well below the Middle East and North Africa average of three quarters; only 6.4 percent of Yemenis held bank accounts—with a notable gap between women (2 percent) and men (11 percent); and much of the lending was secured by civil servants with assigned salaries (almost a quarter of the population). The microfinance sector had been a success story in this context, with a growing number of profitable entities increasing outreach to a broader population that included rural and lower-income households (while including a higher share of women borrowers—over 40 percent—compared to commercial banks).\(^\text{10}\) Before the crisis, microfinance institutions (MFIs) had a portfolio of over 100,000 borrowers with loans of over US$50 million, and 280,000 savers with deposits of over US$130 million. Cumulatively, by 2013, Yemeni MFIs had extended 624,491 loans worth US$257 million. The rapid growth of the sector after 2010 was partly a result of the enabling regulatory framework, which is considered one of the best in the region, and partly a result of the vacuum left by the banks in rural and small business banking. The MFIs have also increasingly been leaders in mobile money, especially for smaller consumers.

8. While the financial system was severely hit by the crisis, the MFI sector has shown resilience. The outbreak of conflict in 2015 has halted progress on financial system development and severely damaged banks’ profitability. However, MFIs were better shielded from the crisis due to their lower exposure to government bonds, greater reliance on cash, and more diverse portfolio and savings base. Most MFIs suffered losses in 2015, mainly as a result of dramatic declines in credit quality but also due to foreign exchange and other losses. Portfolio at risk (overdue loans) shot up from relatively low rates of under 3 percent up to an unsustainable 20 percent on average, and in some cases as high as 50 percent. Recovery rates on overdue loans are low, typically estimated at less than 10 percent, given that many borrowers have permanently lost their original cash flow source and collaterals are hard to collect. These significant loan losses notwithstanding, the MFIs, especially the larger ones, suffered much less and were largely able to retain both capital and profitability, primarily from operational activity, such as money transfers.

9. The MFIs have been able to sustain their operations and develop new business lines, in particular financing for solar. Outreach has remained relatively stable, with apparently greater confidence in the MFIs, especially the larger ones, than the commercial banks (the number of savers has grown slightly). New lending in solar has been an important field of business for the MFIs since the outbreak of the crisis, with solar loans making up 5–20 percent of total lending among assessed MFIs (US$0.5 million to US$2 million of total solar loan volumes per MFI). Most solar lending has so far been extended to wealthier households, farmers, and SMEs, and mostly limited to urban areas. The geographical footprint and capacity seem to vary significantly between the MFIs, collectively representing a diverse portfolio of strengths and networks across the existing institutions.

B. Higher Level Objectives to which the Project Contributes

10. **The project is both closely aligned with, and contributes to the higher-level objectives of, the World Bank’s strategy for Yemen.** The restoration and expansion of energy infrastructure and related services are of high priority in the World Bank Group’s strategy for Yemen, because it is expected to facilitate the restoration of critical services, such as health, education, water, and sanitation, all of which rely heavily on a reliable power supply. Further, the proposed project will directly contribute to the following pillars of the World Bank Group Middle East and North Africa strategy: Engaging the private sector and MFIs will contribute to pillar (a)—renewing the social contract to generate a new development model that is built on greater citizen trust, more effective protection of the poor and vulnerable, inclusive and accountable service delivery, and a stronger private sector that can create jobs and opportunities; Supporting distributed, renewable energy solutions will contribute to pillar (b)—promoting resiliency of communities; and supporting Yemen’s energy sector in the current emergency conditions will contribute to pillar (c)—accelerating reconstruction and recovery post conflict. By improving households’ livelihoods, including rural and peri-urban areas, which are home to a disproportionate share of Yemen’s poor and vulnerable, the project is closely aligned with the World Bank’s twin goals of eliminating extreme poverty and boosting shared prosperity.

11. **By working through and strengthening the existing, private-sector driven supply chain for solar, the project is maximizing finance for development in Yemen.** The project leverages private financing for solar by providing a platform to extend commercial credit to households to make solar products affordable. Grants will initially be provided to beneficiaries, but will be phased out over time to move toward full commercial financing. Following the approach of Maximizing Finance for Development, the project will increase commercial financing for infrastructure in Yemen, safeguard scarce public resources, and, if conditions on the ground allow, contribute to establishing a self-sustaining solar market beyond the lifetime of the project.

12. **The project will also contribute to meeting Yemen’s targets under its Nationally Determined Contribution (NDC) to the Paris Agreement.** Yemen’s energy sector accounted for 69 percent of its total emissions of 24.2 MtCO₂e in 2000, the year of its latest greenhouse gas (GHG) inventory under the United Nations Framework Convention on Climate Change. In its NDC, Yemen has identified solar for households, public buildings, schools, hospitals, and the agricultural sector, as a key mitigation measure and has proposed an unconditional target of reducing emissions by 6.13 MtCO₂e by 2030. The project is estimated to result in emissions reductions of 430,000 tCO₂ due to the displacement of fossil-fueled electricity. The project’s focus on rural and peri-urban communities is in line with Yemen’s NDC, which has identified the use of renewable energy in rural communities as a measure to reduce vulnerability and facilitate adaptation to climate change.

13. **In line with the recent Energy and Extractives Gender Follow Up Note (2017), which sets gender priorities for the World Bank’s engagement in the energy sector globally, the project addresses two gender gaps prevalent in the energy sector: disproportionate impacts of the lack of access to modern energy and lower access to finance.** The proposed project is further aligned with the Regional Gender

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12 In this document, ‘grants’ refers to both in-kind and cash grants covering part or all of the solar equipment costs.
Action Plan for MENA (FY2018–23) that calls for paying specific attention to the different development needs of women and men as a result of conflict.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

14. The Project Development Objective (PDO) is to improve access to electricity in rural and peri-urban areas within the Republic of Yemen.

B. Project Beneficiaries

15. The project targets two main groups of direct beneficiaries, and will have additional indirect benefits to the solar market and the economy overall. First, rural and peri-urban populations will benefit directly through improved access to modern household energy (small-scale household solar systems) and indirectly through improved access to services. As outlined below, the project is designed to reduce gender gaps related to women’s access to energy and finance, thus benefiting women and girls in particular. Second, critical service providers, including health clinics, schools, rural water corporations, rural electricity service providers, and other providers of critical services, will benefit from improved access to electricity because of grant-financed solar systems. This will strengthen the service delivery capacity of the public sector. In terms of indirect effects, businesses along the solar value chain will benefit from access to higher-quality solar solutions as a result of the market strengthening measures under the project. This is expected to benefit the direct beneficiaries under the project as well as solar users in Yemen in general (households, businesses and the public sector). In addition, with an estimated 20–30 percent of the investment value expected to remain in the local economy, the project will contribute to the creation of jobs and benefit the Yemeni economy.

C. PDO-Level Results Indicators

16. The PDO-level indicators are as follows:

(a) People provided with new or improved electricity service (target: 1,340,000)
   (i) Broken down by the number of female beneficiaries (measured by the core indicator ‘people provided with new or improved electricity service – Female’) (663,300)
   (ii) Broken down by the number of households with new or improved electricity service (measured by the core indicator ‘people provided with access to electricity under the project by household connections (grid or off-grid)’) (200,000)

(b) Critical service facilities provided with new or improved electricity service (target: 1,200)

III. PROJECT DESCRIPTION

17. The three-year, US$50 million equivalent IDA grant will finance distributed solar solutions to provide urgently-needed access to electricity in Yemen. The project is structured in three components:
Financing for Off-grid Solar (Component 1), Project Implementation Support and Market Development (Component 2), and a Contingent Emergency Response Component (Component 3). Component 1 finances off-grid solar solutions for rural and peri-urban households (Subcomponent 1.1) and critical service facilities (Subcomponent 1.2). Component 2 finances project implementation and management support (Subcomponent 2.1), third-party monitoring (Subcomponent 2.2), as well as capacity building and technical assistance to strengthen the delivery capacity of the solar value chain (Subcomponent 2.3). Component 3, which is without financial allocation at the time of approval, is meant to strengthen the country’s response capacity in the event of an emergency.

18. The project’s theory of change, illustrated in figure 2, links the activities with the outputs, outcomes and higher-level objectives of the project. The activities and the related outputs are expected to yield new or improved electricity service for rural and peri-urban households and critical service facilities (PDO-level indicators) and improved access to electricity in rural and peri-urban areas within the Republic of Yemen (PDO). In the case of capacity building and technical assistance, the effect is indirect, as shown in figure 2. Achievement of the PDO in turn is expected to lead to alleviation of direct conflict impacts on households and restoration of critical services, such as health, education, water, and sanitation. Details on each component and subcomponent are provided below.

Figure 2. Project Components and their Contribution to Meeting the PDO (Theory of Change)
19. **The rationale for the intervention is twofold:** (a) responding to the immediate developmental crisis by restoring electricity supply to critical infrastructure (hospitals, schools, water corporations, and electricity corporations); and (b) building a more inclusive and sustainable solar market in Yemen through targeted financing to the private sector to expand its reach to the poor and vulnerable, while improving the quality of off-grid energy access products and services based on international experience.

20. **The project will be implemented by the United Nations Office for Project Services (UNOPS) in collaboration with local entities, including MFIs, solar equipment suppliers and technical service providers** (see figure 3). To ensure implementation readiness, UNOPS has conducted an initial assessment of the local partners’ technical, fiduciary, and safeguards capacity. UNOPS, in consultation with the World Bank, will decide on the appropriate selection procedures and contractual arrangements for the different local partners based on the assessment and in accordance with its own operational guidelines.

![Figure 3. High-level Overview of Project Implementation Arrangement](image)

21. **The project will leverage the existing private sector-driven solar supply chain and is designed to crowd-in rather than replace private finance.** The project will engage the existing private sector supply chain in three ways: (a) by capitalizing on the geographical reach of the private sector supply chain to reach otherwise hard-to-reach rural and peri-urban areas; (b) by engaging MFIs as financial intermediaries, the project will leverage IDA financing to enable private investment by households; and (c) through the market strengthening activities under Component 2, the project will contribute to more sustainable solar market and business development in Yemen. To avoid the crowding out of private finance, grants are limited to product categories that are not yet established in the market (residential solar under Subcomponent 1.1) and clearly delimited critical service facilities that do not have sufficient revenue streams to afford solar solutions (Subcomponent 1.2). If conditions on the ground permit, grants under Subcomponent 1.1 will be phased out over time (detailed in the following paragraphs) to establish a commercial segment for high-quality, small-scale household solar solutions.
A. Project Components

Component 1: Financing for Off-grid Solar (US$42.0 million)

Subcomponent 1.1: Providing Basic Electricity Supply to Households

22. **Under this subcomponent, UNOPS will engage eligible regulated, supervised MFIs**, help them set up financing windows for high-quality, small-scale solar solutions for rural and peri-urban households, and provide grants to beneficiaries to make the systems affordable (see figure 4). The MFIs will initially serve as both distribution channels and financial intermediaries to reach beneficiaries. During implementation, the MFIs’ role in distribution would be gradually phased out, as described below. Participation in the subcomponent will be open to all MFIs that meet eligibility criteria to broadly build capacity among the MFIs and not distort the competitive landscape. The allocation of grants to MFIs will be done in phases to allow for learning and adjustments based on the MFIs’ performance.

23. **Access to grants will be limited to residents of rural and peri-urban districts and small solar products that the non-poor are less likely to use.** The combination of product selection and geographical targeting of rural and peri-urban areas to reach low-income households reflects lessons learned from the World Bank’s output-based aid and financial intermediary projects in off-grid solar. To mitigate the risk that the subsidized products are being systematically resold by beneficiaries, the number of systems available per household will be restricted. Despite these measures, the risk of leakage to non-targeted beneficiaries remains high. The effectiveness of the targeting mechanism will be closely monitored and, if needed, adjusted.

Figure 4: Schematic View of Support to Small-scale Household Solar Systems under Subcomponent 1.1

The grant component will be explicit and transparent, and will be gradually phased out to build to a commercial market segment for small-scale, high-quality household solar products. Initially, beneficiaries will be presented the opportunity to purchase the solar equipment with a one-time offer of

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13 While this document uses the term micro-finance institutions (MFIs) to describe entities eligible to participate in the project under Subcomponent 1.1, UNOPS may engage other entities that extend microcredits and fulfil the eligibility criteria defined in the Operations Manual.

a grant equivalent to a predefined percentage of the market price, and may pay the remainder of the cost in cash or through financing (or a combination). In doing so, the project will completely separate the subsidy from the nominal interest rate. In practice, this means offering solar products to rural households under purely competitive terms, however offering a rebate voucher to bring down the cost of the product. This voucher would be well-marketed and have clear eligibility periods. The terms of financing will be commercial and be proposed by the MFIs as part of their proposals to UNOPS. Notwithstanding the above, the Operations Manual will stipulate that any implied interest rate will be within an acceptable range so as not to disrupt the market. The MFIs, UNOPS, and the World Bank will review the market uptake and other defined indicators to inform a revision of the grant proportion at each cycle, with the goal of eventual removal (that is, diminishing the value of the voucher over time).

25. **A key goal in collaborating with MFIs is to establish solar microfinance structures in rural and peri-urban areas to make the solar market more inclusive, sustainable, and scalable in the long-term (for example, through the eventual expansion of product offerings).** Working with MFIs also allows the project to capitalize on the reach of their agent networks, especially rural and peri-urban areas that are home to two-thirds of Yemenis, but cannot be reached through alternative delivery options.

26. **The specific choice of supported products will be finalized by UNOPS after conducting a rapid market assessment and a series of focus groups** (see section VI-F). The project is likely to support pico solar kits, which can power phone chargers and lamps and have seen spectacular growth in off-grid markets worldwide due to their simplicity and modularity. These products are largely unavailable in the Yemeni market and difficult to afford for low-income households without credit financing. Expanding the subcomponent’s scope to support additional solar products or complementary appliances, such as clean cookstoves or solar fans, will be considered at later stages of the project.

27. **The extent of UNOPS’ involvement in procurement and logistics of solar systems will be decided based on conditions on the ground, with a view to rely as much as possible on the capacity of the private sector supply chain:**

   (a) Initially, given (i) the lack of high-quality products currently available in the local market, (ii) the current difficulties with the processing of commercial imports and associated logistics, and (iii) the opacity of the current solar importing channels, the project will keep the flexibility to involve UNOPS in procurement and in-country logistics of the solar equipment in the initial stages of implementation;

   (b) If and when UNOPS’ assessment of the market concludes that local importers/wholesalers can supply products that meet the required international standards (for example, Lighting Global-certified products) within a reasonable time frame, UNOPS will transition to competitive procurement with delivery in-country; and

   (c) If and when UNOPS’ assessment of the market concludes that local retailers in rural and peri-urban areas have sufficient capacity to respond to demand for high-quality products, the subcomponent will transition to a model under which solar systems can be procured directly by consumers from a list of prequalified suppliers. In this ultimate stage, the MFIs’ role will be to (i) extend financing and (ii) channel grants from UNOPS to eligible beneficiaries, whereas for distribution of systems and logistics, the project will rely on local retailers.
28. **By gradually phasing out the grant component and relying increasingly on the local supply chain, the project aims to demonstrate the commercial viability of high-quality solar products and build the capacity of the local value chain.** If UNOPS’ assessment concludes that grants will continue to be required beyond the closing date of the project, it will engage local entities, such as the Social Fund for Development (SFD), to manage the grant administration process and serve as a platform for donor financing. Details of procurement, logistics, and financial flows during the different stages of implementation outlined in the above paragraph, including specific criteria for the transitions between different stages, will be defined in the Operations Manual.

29. **The project will draw on the World Bank Group’s positive experiences with relying on certified products and vetted suppliers for solar products under the Lighting Africa and Lighting Global programs.** Certification has proven successful as a quality signal in the market and as an incentive for suppliers to accurately report technical specification and provide adequate warranties. The project will aim to replicate this experience in Yemen and rely on Lighting Global-certified products, if a workable model for imports, after-sales service, and warranty claims for these products can be found.

Subcomponent 1.2: Restoring Electricity Supply to Critical Services Facilities

30. **Under Subcomponent 1.2, UNOPS will engage solar suppliers and installers to provide grant-financed solar energy systems to critical service facilities in rural and peri-urban areas.** The scope of the subcomponent includes health clinics, schools, rural water corporations, rural electricity service providers, and other providers of critical services. Implementation will start with health clinics and schools. Recipient facilities will be identified by UNOPS on a need basis in coordination with development partners and local stakeholders. The selection will focus on critical service facilities in which the lack of electricity is the binding constraint to service delivery. Where possible, UNOPS will seek to create synergies with other donors’ ongoing activities in the respective sectors. Additional solutions, including for water corporations and mini-grids operated by rural electricity service providers, will be included at later stages.

Figure 5. Schematic View of Subcomponent 1.2

31. **To ensure readiness for implementation, a short list of predefined solutions and beneficiaries will be developed by UNOPS before effectiveness, including specification of standardized technical specifications and standards.** Some customization of systems may be required, particularly in instances in which facilities may be connected to the grid to ensure the utility of these systems even after power is restored on the public grid. Procurement will also include installation and after-sales services, including warranties, bundled with the supply of the solar system. The project will draw on lessons learned from the World Bank Group’s Sustainable Solar Market Packages and bundle supply, installation, maintenance,
and local training and user manuals for solar energy systems to ensure adequate operations and maintenance (O&M) of the systems. UNOPS will coordinate with local authorities to facilitate handover of O&M responsibilities to local entities after the project closing date.

**Component 2: Implementation Support and Market Development (US$8 million)**

*Subcomponent 2.1: Project Implementation and Management Support*

32. This subcomponent will finance (a) general management support (indirect) costs for UNOPS; (b) direct management and supervision costs required to support the implementation of the project (including the use of remote monitoring technology); (c) independent audits of project activities, if required; and (d) the establishment of a Grievance Redress Mechanism (GRM) in the UNOPS Sana’a Office to document complaints and ensure follow-up.

*Subcomponent 2.2: Third-Party Monitoring*

33. UNOPS will engage a third-party monitoring (TPM) agent to undertake independent performance verification and field monitoring of activities funded under the project.

*Subcomponent 2.3: Market Development*

34. This subcomponent will finance technical assistance, capacity building, and other market strengthening measures to make the solar market in Yemen more inclusive and sustainable, including but not limited to (a) an awareness campaign and consultations (see section VI-F for further elaboration); (b) technical training and capacity building to firms along the solar supply chain (including financial institutions, retailers, installers, and other service providers) to increase their reach and strengthen the job creation aspect of the program; (c) technical assistance to the financial sector to develop de-risking mechanisms for commercial lending for solar (including supporting the further development of the newly established Loan Guarantee Program of SFD), with a view for the International Finance Corporation to come in with financing for risk mitigation to complement the IDA intervention; (d) technical standard definition and dissemination, and the establishment of testing centers in cooperation with local universities to enhance the technical standards in the industry,; and (e) support for the recycling of batteries from the project as well as the market, more generally, to minimize the environmental risks from the disposal of hazardous materials. As with other subcomponents, the activities under this subcomponent will be adjusted based on implementation progress and the needs of the market.
Component 3: Contingent Emergency Response (US$0 million; to be capitalized in case of emergency)

35. The objective of this component is to improve the country’s response capacity in the event of an emergency, following the procedures governed by paragraph 12 of the World Bank Policy on Investment Policy Financing (Rapid Response to Crises and Emergencies). There is a possibility that, during project implementation, a natural disaster, epidemic, or another emergency may occur, which would cause a major adverse economic and/or social impact. In anticipation of such an event, the Contingent Emergency Response Component (CERC) allows UNOPS to receive support by reallocating funds from other project components or serving as a conduit to process additional financing from other funding sources for eligible emergencies to mitigate, respond to, and recover from the potential harmful consequences arising from the emergency. Disbursements under this subcomponent will be subject to the declaration of emergency by the Republic of Yemen, the international community, or the United Nations (UN).

B. Project Cost and Financing

36. The project will be financed by a US$50 million equivalent IDA grant to UNOPS, as recipient and implementing agency. Funds allocation between subcomponents will be flexible to respond to implementation progress and changes in the situation on the ground.

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C. Lessons Learned and Reflected in the Project Design

37. **Project design and implementation arrangements reflect lessons learned from the World Bank’s recent interventions in Yemen’s energy sector.** A recently completed review of the World Bank Group’s past lending activities in Yemen’s energy sector over the last 15 years\(^\text{15}\) concluded that building large-scale energy infrastructure in Yemen through the existing sector institutions is close to impossible. The main public institutions in the energy sector did not have adequate institutional capacity to implement large investments with multiple contracts on time even before the conflict, despite significant donor financing accompanied by technical assistance in the form of engineering consultants hired to support decisions and procurement processes. The current conflict has led to further weakening of the sector institutions, fragmentation of institutional authority, and deteriorated capacity. Therefore, the review concluded that the World Bank should prioritize distributed energy solutions and seek alternative models for procurement and project management when financing energy infrastructure investments in Yemen.

38. **The project is grounded in lessons synthesized by the Independent Evaluation Group (IEG) on energy access and fragility.** Key lessons learned and highlighted by IEG’s 2015 evaluation of the World Bank Group’s assistance for energy access\(^\text{16}\) included the need for appropriately targeted subsidies and for addressing affordability, equity, and inclusion by targeting the poor and those in remote and inaccessible areas. IEG’s 2013 assessment of the World Bank Group’s assistance to low-income fragile and conflict-affected states\(^\text{17}\) concludes that country assistance has lacked the flexibility to respond to conflict risks that have materialized. In response, the design of the project is flexible to account for changes in the delivery capacity of the implementation agencies and security risks due to conflict.

39. **The detailed project design draws on the World Bank Group’s extensive experience with solar off-grid projects and is aligned with the best practice design elements that have emerged over the past decade.** The World Bank has extensive experience financing off-grid solar projects. Around US$1.3 billion in off-grid solar projects are currently at various stages of preparation or implementation. The Lighting Global program, in particular, has offered some key lessons for accelerating the diffusion of quality-certified off-grid solar lighting products through the private sector. Most recent off-grid solar projects share the following characteristics: (a) a focus on bringing down upfront cost while improving access to financing; (b) partnership with private sector supply chains to reach remote areas; (c) collaboration with financial intermediaries, rather than the Government, to channel financing to beneficiaries, including suppliers and consumers; d) a focus on providing long-term sustainable services through high-quality technical standards including strengthened warranties and after-sales services; (e) market development that includes sustainable models for O&M of solar systems; and (f) flexibility in implementation. The proposed design is closely aligned with these emerging best practices. The arrangement with a UN entity as the implementing agency and the (at least initial) large grant component reflect the current situation in Yemen.

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IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

40. **UNOPS is the implementing agency.** The proposed project is an emergency operation processed under OP 2.30 (Development Cooperation and Conflict) and the World Bank Policy on Investment Policy Financing, paragraph 12. UNOPS will be the recipient of IDA funds and the alternative implementation agency on an exceptional basis under the Financial Management Framework Agreement (FMFA) between the World Bank and UN agencies. The financial management arrangements will be governed by the FMFA, which provides for the use of the UN’s Financial Regulations. UNOPS will follow its own procurement procedures as Alternative Procurement Arrangements allowed by the World Bank’s new Procurement Framework Policy, Section III.F.

41. **UNOPS has been selected as the implementing agency and recipient of IDA funds based on** (a) its significant experience in managing complex projects in fragility, conflict, and violence (FCV) environments, including projects involving financial intermediation by MFIs; (b) its experience specifically in solar projects in other FCV contexts; (c) its proven track record in project management, procurement, compliance with World Bank safeguards, and financial management; (d) the ability to quickly scale up its operational presence as proven in other FCV contexts; and (e) its existing operational presence in Yemen.

42. **Activities under the project will be implemented partially through MFIs and grantees/contractors/implementation partners (Subcomponent 1.1) and partially through direct implementation by UNOPS (Subcomponent 1.2).** UNOPS will (a) be responsible for project implementation; (b) monitor the project targets and results in coordination with the local partners; (c) handle relevant procurement, financial management, and disbursement management including the preparation of Withdrawal Applications under the project; (d) enter contractual arrangements with service providers and third-party monitors; and (e) ensure that all reporting requirements for IDA are met according to the Project Financing Agreement. UNOPS will decide on the appropriate procedures for selecting grantees/contractors/implementation partners in accordance with its own operational guidelines. During project implementation, UNOPS may engage additional parties, if deemed necessary.

43. **The MFIs participating in the implementation of Subcomponent 1.1 will be selected based on criteria designed to ensure their capacity to implement as well as compliance with the World Bank Directive on Investment Policy Financing.** The criteria related to the World Bank Directive focus on adherence to prudential regulatory ratios, minimum financial and operational standards, appropriate governance, policies, and risk management functions, are outlined in section VI-C. Additional requirements may be set out by UNOPS in the Operations Manual.
44. **UNOPS will implement the project through the Yemen Country Office in Sana’a and the Operational Hub in Amman.** Project management, technical aspects, procurement, financial management and financial sector aspects, communications, monitoring and evaluation, safeguards, logistics, administration, IT, and security will be handled by the Sana’a Office with close support on a day-to-day basis from Amman. UNOPS global staff will be drawn in on a need basis. Human resources will be handled from Amman. Project oversight will come from Amman and UNOPS headquarters in Copenhagen, Denmark.

45. **The World Bank will provide close implementation support.** Besides day-to-day implementation support provided remotely, the World Bank will conduct quarterly review missions (to be held in Amman or another suitable location) to: (a) review implementation progress and achievement of the PDO and intermediate indicators; (b) provide technical support related to implementation, achievement of results, and capacity building; (c) closely coordinate with UNOPS to ensure that adequate oversight mechanisms are in place; (d) discuss relevant risks and mitigation measures; and (e) monitor the overall project performance through progress reports, financial reports, and field visits, if and when they become possible. Additionally, regular video conferences and travel of the World Bank team to UNOPS’ regional office in Amman will be conducted to coordinate project management.

46. **Geographical coverage.** The project will aim to cover rural and peri-urban areas nationwide. The selection of MFIs for Subcomponent 1.1 will include coverage as criteria and will include incentives for MFIs to expand their customer base and geographical coverage during implementation. A public geospatial information system (GIS) will locate each investment under Subcomponent 1.2 for transparency.

47. **Readiness in-country.** The project will benefit from UNOPS’ expanding presence in Yemen, which was established under the World Bank-financed Integrated Urban Services Emergency Project, which allows the project to draw on on-the-ground resources to inform preparation and will enable immediate deployment once the project is approved.

B. Results Monitoring and Evaluation

48. **UNOPS will be responsible for monitoring in accordance with the Results Framework and ensure that implementation is appropriately responsive to changing circumstances on the ground.** UNOPS will
provide quarterly progress reports to the World Bank, incorporating regular progress reports by the MFIs, following an agreed template that will include: (a) a summary of the progress and the context within which the project is implemented; (b) activities carried out during the reporting period; (c) any challenges encountered and measures taken; (d) changes introduced during implementation, including changes in the budget; (e) achievements and results of the project with reference to identified indicators; and (f) the work plan for the subsequent reporting period. In addition, UNOPS will provide updated GIS maps of the project areas to help monitor progress of activities under Subcomponent 1.2.

49. **The TPM agency** will be engaged as described under Subcomponent 2.2 to undertake independent verification of project activities in accordance with the Terms of Reference (TOR) developed by UNOPS and agreed upon with the World Bank. UNOPS will regularly share the TPM agency reports with the World Bank and will include in the report the actions taken to address any implementation issues identified by the TPM agency.

50. **The World Bank** will monitor and evaluate project performance based on UNOPS’ progress reports, financial reports, reverse missions, and field visits (when they become possible). A midterm review mission will be carried out 18 months after effectiveness. An Implementation Completion and Results Report mission will be carried out at the end of the project.

C. Sustainability

51. **As outlined in paragraph 27 above, if conditions on the ground permit, project activities will gradually transition to supporting sustainable, commercially based market activities under Subcomponent 1.1, and to mainstream quality solar products and after-sales services.** Eventually, this project aims to make the existing private sector-led solar market more sustainable and inclusive, and make project activities self-sustaining after closure of the project, by:

   (a) Increasing access to financing in rural and peri-urban areas, allowing these communities to potentially afford larger or complementary products in the future (for example, solar home systems);

   (b) Establishing the segment of high-quality, small-scale household solar products in the market;

   (c) Demonstrating an alternative model of delivering energy services to critical facilities including health clinics and schools;

   (d) Providing training for solar installers and O&M providers and creating awareness for minimum technical standards;

   (e) Involving local communities to enhance awareness about solar systems, their applications, and quality; and

   (f) Ensuring that, when relevant, solar systems are connected to the public grid to allow for a potential transition to a decentralized electricity service delivery model post conflict.
D. Link to Other World Bank Group Emergency Programs and Role of Partners

52. The project will become an integral part of the World Bank emergency response for Yemen. Restoring electricity supply is critical for alleviating the immediate impacts of the developmental crisis and will increase the effectiveness of ongoing IDA operations in Yemen, as power supply is becoming a binding constraint for critical services such as health facilities, water supply and sanitation and food supply. By restoring service delivery in rural and peri-urban areas, the project complements the Yemen Integrated Urban Services Emergency Project, which targets water, transport, and energy services in urban areas. The project will coordinate closely with the Emergency Crisis Response Project and the Emergency Health and Nutrition Project and seek to create synergies with interventions targeting health and nutrition, urban services, and the cholera response.

53. The project will closely coordinate with other donor-funded programs in supported sectors and work to establish a platform to leverage financing by other donors. To ensure close coordination and avoid replication, UNOPS will conduct monthly coordination meetings with development partners. As seen in table 1, several donors are already engaging in solar in specific sectors. This project will create synergies with these interventions by (a) strengthening the local solar value chains, particularly through the development of quality standards under the technical assistance component; and (b) help mainstream solar delivery models, including harmonization of technical standards, standardized technical packages, and inclusion of after-sales service, for critical service facilities in Yemen.

Table 1. Overview of Selected Recent Donor Engagements in the Solar Sector in Yemen

<table>
<thead>
<tr>
<th>Organization</th>
<th>Sector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO</td>
<td>Health</td>
<td>WHO’s Health Emergencies Program provides support to health facilities, including through provision of fuel.</td>
</tr>
<tr>
<td>EU</td>
<td>Health</td>
<td>The EU Special Measure for Yemen works to restore basic health care facilities through community-based projects and provides equipment for alternative and renewable energy sources, improved water, and medical waste management with an overall budget of US$320 million.</td>
</tr>
<tr>
<td>UNICEF</td>
<td>Health and education</td>
<td>UNICEF has previously electrified some health facilities and water pumping stations using solar power; currently UNICEF has an initiative to electrify 100 schools in Sana’a City through solar.</td>
</tr>
<tr>
<td>UNDP</td>
<td>Schools</td>
<td>Under the joint Enhanced Rural Resilience Program in Yemen (ERRY), UNDP equipped 20 rural schools with solar energy systems.</td>
</tr>
<tr>
<td>FAO</td>
<td>Agriculture</td>
<td>Under the joint ERRY and the Enhancement of Food Security and Resilient Livelihoods Program, FAO provides solar-powered pumps, modern water irrigation systems, and awareness raising and capacity building for solar pumps in rural areas.</td>
</tr>
<tr>
<td>CARE International</td>
<td>Water</td>
<td>CARE International executed more than 50 solar projects for water wells in Hajjah, Lahij, Amran, and Al Hodeidah.</td>
</tr>
<tr>
<td>Yemen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Aid</td>
<td>Water</td>
<td>Installed solar pumps in Al Hodeidah.</td>
</tr>
<tr>
<td>Global Partnership for</td>
<td>Education</td>
<td>Provided 420 schools with solar systems.</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIZ</td>
<td>Market development</td>
<td>Launched the Green Pages initiative with the Musanadah Foundation for Development to promote transparency in solar products.</td>
</tr>
</tbody>
</table>
V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

54. **The overall risk to the achievement of the project’s objective is high.** High risks that may hinder its effective implementation include political and governance risks, macroeconomic risks, sector strategies and policy risks, fiduciary risks, and stakeholders’ risks, as outlined below.

55. **Political and governance risks are rated high.** The ongoing conflict in Yemen can significantly impede the implementation of this project. The deteriorating security situation may prevent the effective implementation and regular supervision of project activities. Intensification of the ongoing conflict may pose challenges to commercial imports and in-country logistics. Additionally, the control of geographical areas of the country by different political or armed factions could lead to the interference and inappropriate targeting and selection of activities. To mitigate these risks, UNOPS as the implementing agency will consult with local entities and stakeholders on the ground to ensure local ownership and buy-in and facilitate implementation. The selection of MFIs and other local partners will consider their geographical reach and logistical abilities. Further, the project is designed to be flexible to allow geographic reallocation and scalability in case of increased security threats in specific project locations. Nevertheless, despite several mitigating measures, the residual political and governance risks remain High.

56. **Macroeconomic risks are rated high.** The economic impact of the crisis has been devastating for Yemen, aggravating an already weak pre-conflict economic performance. In 2015, the economy contracted by about 28 percent of GDP, while inflation estimates have reached about 40 percent. The resulting fiscal pressures led to a sharp reduction of expenditures in 2015 (from about 28 percent of GDP in 2014 to 21 percent). The Government is no longer able to fund the operational costs of the public services, and there is evidence of salaries not being paid to government personnel due to the acute shortage of public resources. However, currency exposure and foreign exchange risk is low, because all solar systems will be procured in U.S. dollars, and the project design ensures that, to the degree possible, expenditures of MFIs and other project partners in local currency are matched with reflows in local currency from beneficiaries.

57. **Sector strategies and policies risks are rated high.** In the current situation, Yemen lacks any long-term energy sector strategies or policies. Sector priorities have shifted from medium- and long-term focus to the short-term restoration of critical services. The project addresses, in part, the current emergency situation by focusing on restoring electricity services to critical public facilities. Given the extensive damage to the public electricity grid, this project also paves the way for building a more decentralized electricity system post-conflict, therefore providing an initial step toward medium- and longer-term recovery. However, the risk that future government policy in the power sector may affect the sustainability of project outcomes is High.

58. **Technical Design risk is rated substantial.** The risk is mitigated by including flexibility in project design that allows the implementing entity, UNOPS, to adapt to evolving risks. The design of individual
components is kept simple, considering the existing capacity constraints of local institutions and private contractors in the country. In addition, there is a risk of mismatch between the supply and demand for the procured systems, for example, if procured systems do not adequately meet the needs of the targeted beneficiaries. This mismatch could occur either due to limited availability of quality systems and local services, or if technical specifications do not meet the needs of different geographies. Technical risks will be managed by UNOPS, which has demonstrated expertise in the areas of procurement, infrastructure development, technical advisory services, and project management in similar contexts. To ensure adequate supply of quality systems, technical assistance will be provided to importers, local suppliers, and financial institutions who will distribute the systems. To mitigate the risk of under-demand, community engagement and focus groups will be introduced, both to target the right geographies and to procure appropriate systems. Feasibility studies will be conducted to refine technical specifications and appropriate product pricing.

59. **Institutional capacity for implementation and sustainability risks are rated substantial.** UNOPS will bring complementary international and local expertise to implement the project. During implementation, there is a risk that an escalation in the conflict may result in further deterioration of the security situation and possible evacuation of staff. This risk will be mitigated by the business continuity plan of UNOPS that will allow the organization to continue project implementation to the extent possible with its local staff on the ground. The MFIs have demonstrated resilience and ability to operate during the ongoing conflict (albeit at varying levels), but credit risk is High under Subcomponent 1.1 and further credit performance shocks due to the conflict may imperil the MFIs’ financial sustainability (see section VI-C). Additionally, there is a risk that local suppliers will be reluctant to source higher quality—but more costly—solar products. Engagement with local suppliers and technical assistance will aim to mitigate this risk.

60. **Fiduciary risks are rated high.** Risk factors related to corruption and fraud are present in various stages of the technical implementation, procurement, and financial management cycles. The project’s governance structure and UNOPS’ project management standards will promote transparency and accountability. UNOPS will be responsible for managing fiduciary risks, establishing a set of financial management procedures based on their policy to address fraud, and providing reasonable assurances that funds are used for the intended purposes. To that end, UNOPS will use a real-time oversight, transparency, and accountability mechanism, a GIS-based expenditure tracking and information dissemination system, and the use of social media. Due diligence on the local project partners and integration of financial management arrangement into agreements with these partners will help mitigate the risk of misuse of funds by partners. Risks related to procurement may include delays in emergency response due to UNOPS’ internal approval requirements. This risk will be mitigated by delegation of authority to the UNOPS Office of the Regional Director as needed, and by invoking emergency procurement procedures within UNOPS. Additional procurement risks include (a) the potential unavailability of local service providers, inability of local bidders to submit a bid, and performance security from reliable local commercial banks and (b) import restrictions into the country, and availability and variety of required goods’ items in the country. To mitigate these procurement-related risks, UNOPS will carry out regular market assessments and assist in facilitating commercial imports of solar equipment if required. The risk of systematic, bulk resale of

18 Many UNOPS processes and services have already been independently certified by outside bodies, including: Quality management - ISO 9001; Project management - APMG, the Project Management Institute; gold level in the Sustainable Procurement Review by the Chartered Institute of Procurement and Supply; ISO 14001 certification of UNOPS environmental management system.
subsidized solar products under Subcomponent 1.1 will be mitigated by restricting the number of systems allocated to households and districts. On-site TPM will be used to ensure that systematic overpricing of products is not occurring (by randomly checking the accuracy of MFIs’ reporting of sales and pricing).

61. **Environmental and Social risks are rated moderate.** The main environmental risk is the improper disposal of equipment, including batteries. An assessment will be conducted on the current battery recycling and disposal options in Yemen to provide mitigation measures for the risk of improper disposal. If the project engages on a significant scale in financing solar solutions for water supply at later stages of implementation of Subcomponent 1.2, an assessment of water resource management practices and water resource sustainability will be conducted to ensure that the proposed design and the Environmental and Social Management Framework (ESMF) maintain the sustainability of water resources for all users. To mitigate social tension due to the possible exclusion of poor and vulnerable households and small retailers, the project is targeting rural and peri-urban areas with particular attention paid to reaching first-time borrowers, and beneficiaries’ eligibility criteria will be transparent and part of the communication campaign. Additional mitigation measures for social risks include conducting focus groups before launching the program, conducting an awareness campaign to ensure transparency and community engagement, promoting transparency using a GIS-based portal mapping all project activities, and implementing the GRM. The climate and disaster risk screening concluded that the exposure of the project is moderate and can be addressed through the selection and technical design of financed interventions.19

62. **Stakeholder risk is rated high.** Since OP 2.30 was triggered for Yemen, formal engagement with both sides of the conflict will be limited. The ability to coordinate with local authorities, civil society, beneficiaries, and other stakeholders is further constrained by logistical and security restrictions. The associated risks cannot be fully mitigated, but the project is benefitting from UNOPS’s expanding presence in Yemen, which allows the project to draw on on-the-ground resources to inform preparation and consult stakeholders.

**VI. APPRAISAL SUMMARY**

**A. Economic and Financial Analysis**

63. **The adoption of quality solar products is estimated to result in a net economic benefit for all groups of beneficiaries.** The economic analysis is based on a cost-benefit framework. The main impact of the project is the increased access to electricity through distributed solar energy systems; a substitute for dirtier and more expensive alternatives. The economic internal rate of return (IRR) for each of the project beneficiaries is conservatively quantified based on avoided costs of fossil-fuel alternatives over the lifetime of each solar system. These avoided costs include both the direct costs—for example of kerosene lamps or diesel generation—as well as the avoided social costs of carbon emissions.

64. **Conservatively estimated economic IRRs range from 10–25 percent for health clinics and schools to 83–98 percent for rural and peri-urban households (see table 2).** Note that the deployment of solar will have benefits beyond fuel savings and GHG emissions, including improved air quality and

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19 Identified risks include (a) extreme temperatures which may have a slightly negative impact on the performance of solar systems and (b) droughts which may impact the livelihood of supported households.
benefits due to the restoration of critical services, which would further increase the IRR but are not captured in this cost-benefit analysis.

65. **The investment case for solar deteriorates with shorter product lifetimes, showing the value of introducing higher-quality products into the market.** Although high-quality, small-scale household solar products have much higher upfront costs, they generate greater benefits due to their longer lifetimes. Even without any capital subsidy, a high-quality solar product (15 W) financed over two years with a lifetime of five years realizes a higher IRR compared to a cheaper low-quality product with a one-year lifetime. Providing a grant only further improves the investment case. Even when considering a scenario in which beneficiaries will have access to subsidized fossil fuel, investments in high-quality solar systems can break even financially in the first year. This illustrates the potential benefits from providing beneficiaries with access to quality products and finance to overcome the barrier of high upfront cost.

### Table 2. Results of Economic and Financial Analysis

<table>
<thead>
<tr>
<th>Project Component</th>
<th>System Size (Wp)</th>
<th>Conventional Cost per kWh (levelized; US$)</th>
<th>Solar Cost per kWh (levelized; US$)</th>
<th>Economic IRR (%)&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Financial IRR (%) &lt;br&gt;Break-even in first year&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential solar (Subcomponent 1.1)</td>
<td>15</td>
<td>2.80</td>
<td>0.95</td>
<td>83/98</td>
<td>Break-even in first year&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Health clinics (Subcomponent 1.2)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3,000</td>
<td>0.34 - 0.56</td>
<td>0.29</td>
<td>10/12–24/25</td>
<td>n.a.</td>
</tr>
<tr>
<td>Schools (Subcomponent 1.2)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1,800</td>
<td>0.34 – 0.56</td>
<td>0.24</td>
<td>16/18–30/32</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Note: 
- a. Without/with accounting for social value of carbon
- b. Ranges come from different alternatives considered (existing diesel engine, subscription service, and so on)
- c. Assuming a 75 percent reduction in upfront cost and 2-year payback term

66. **The direct GHG emissions reductions due to the project are conservatively estimated to be about 430,000 tCO₂.** This estimate accounts for the avoided GHG emissions through the provision of residential solar systems in Subcomponent 1.1 and the provision of solar systems to critical service facilities in Subcomponent 1.2 (see table 3).

### Table 3. Estimated Avoided GHG Emissions from the Project

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Lifetime of Solar System (years)</th>
<th>Emissions Factor of Baseline Fuel</th>
<th>Lifetime GHG Emissions Avoided Per System (tCO₂)</th>
<th>Number of Beneficiaries</th>
<th>Total GHG Emissions Reductions (tCO₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential solar (Subcomponent 1.1)</td>
<td>5</td>
<td>374 kg CO₂ per year&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.9</td>
<td>200,000</td>
<td>374,000</td>
</tr>
<tr>
<td>Health clinics (Subcomponent 1.2)</td>
<td>20</td>
<td>0.65 kg CO₂ per kWh&lt;sup&gt;b&lt;/sup&gt;</td>
<td>49.2&lt;sup&gt;c&lt;/sup&gt;</td>
<td>400</td>
<td>19,680</td>
</tr>
<tr>
<td>Schools (Subcomponent 1.2)</td>
<td>20</td>
<td>0.65 kg CO₂ per kWh&lt;sup&gt;b&lt;/sup&gt;</td>
<td>44.3&lt;sup&gt;d&lt;/sup&gt;</td>
<td>800</td>
<td>35,440</td>
</tr>
</tbody>
</table>
Note: a. For small users (Tier 1 users), a simple default value is used to estimate net yearly emissions, in line with the World Bank’s GHG accounting methodology for energy access investment operations; b. Emissions factor for diesel generation; c. Based on a 2,000 W system; d. Based on an 1,800 W system.

B. Technical

67. **Distributed solar energy systems provided through the private sector represent an environmentally sustainable and technically resilient solution for electricity access for countries that suffer protracted fragility and conflict.** Due to their decentralized nature, off-grid solar is more resilient to situations of fragility and conflict. Small plug-and-play systems, which are modular, portable, and require no installation, are particularly suited for situations of uncertainty and instability. In countries where public utilities and government entities can no longer ensure equitable access of electricity to the population, the private sector can be significantly more resilient and effective, providing solar systems as a product rather than a service. As fuel-independent systems, solar systems circumvent the long and burdensome supply chain to bring fuel for generators, and result in fewer adverse environmental and health impacts. Finally, solar systems are significantly cheaper than fuel-based generators with costs having dropped by over 80 percent over the past 5 years.

68. **Quality systems are not yet widely available in Yemen but the project will work to improve technical standards in the market.** Solar systems sold in Yemen are of poor designs that prioritize more affordable, low quality, and easily available components over higher-quality alternatives. In addition, since middle-to-low income households have severe affordability and access to finance challenges, consumers opt for cheaper, low quality systems that match their ability to pay, but that will break down after a few months or years of operation. Currently, because there is limited incentive for the companies to supply and install high-quality systems, the companies opt for products, and materials that can be imported most quickly. However, with the right incentives in place, they could shift toward higher-quality material which may take longer to receive but will ensure long-term sustainability of the solar systems. Under the Lighting Africa and Lighting Global Programs, the World Bank has had good experiences with relying on certified products and vetted suppliers for solar products. The project would aim to replicate this experience in Yemen and rely on Lighting Global-certified products for Subcomponent 1.1, if a workable model for imports, after-sales service, and warranty claims can be found. Further, under Component 2, the program will fund market strengthening activities to develop minimum quality standards as well as technical training for suppliers and installers.

C. Financial Sector Assessment

69. **The MFI sector has shown resilience amid the crisis, and a remote assessment of nine Yemeni MFIs concluded that several are in stable financial condition, are prudently managed with the capacity to manage credit risk, and can effectively report on project activities.** The evaluation of the financial sector followed the guidelines of the World Bank Policy for Investment Project Financing (see Annex 2). Geographical footprints and capacity were found to vary significantly between the MFIs, so a portfolio approach to MFI selection will be pursued to mitigate risks and draw on the respective strengths of the different institutions. The volume of credit to be extended under this project over three years to achieve the objectives is estimated at about 10 percent of the current total outstanding loan portfolio of the six largest MFIs in Yemen.

70. **The project will require that all participating MFIs maintain compliance with the criteria summarized in table 4.** The minimum financial and operational standards applicable to all participating
MFIs will be evaluated based on pre-2015 performance. Institutions that do not meet the evaluated criteria as per table 4 may be considered for participation subject to a detailed institutional development plan and in conjunction with the detailed assessment procedures as covered in the Operations Manual. Additional requirements may be set out by UNOPS in the Operations Manual. Once qualified, the participating MFIs will be expected to continue meeting the minimum performance criteria throughout project implementation, with compliance reviewed annually.

<table>
<thead>
<tr>
<th>Table 4. Minimum Criteria for Participating MFIs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All participating MFIs</strong></td>
</tr>
</tbody>
</table>
| Meet minimum financial and operational standards:  
  (a) At least five years in operation with at least three years of demonstrated profitability  
  (b) At least two years during which PAR30 (portfolio at risk over 30 days) remained at less than 10.0%  
  (c) At least three years of operating self-sufficiency above 90%  
  (d) At least 1,000 active borrowers  
  (e) Governance: MFI board and management must demonstrate adequate standards of technical capabilities and expertise  
  (f) Credit risk: Adequate limits on loan concentration and related party lending  
  (g) Reporting: Adequate monthly reporting |

| **Additional requirements for MFIs registered as microfinance banks** |
| Maintain compliance with MFI Law No. 15 of 2009, including the following:  
  (a) Capital adequacy: Paid-in capital of at least YER 500 million  
  (b) Governance, credit risk, and reporting requirements as defined in the MFI law |

| **Additional requirements for MFIs registered as commercial banks** |
| Maintain compliance with central bank regulations for commercial banks, including the following:  
  (a) Capital adequacy: Paid-in capital of at least YER 1 billion  
  (b) Reserve requirements: The reserve account must maintain at least twice the paid-in capital  
  (c) Deposit coverage: Total reserves plus paid-in capital must be at least 5 percent of total obligations to depositors  
  (d) Minimum liquidity requirements  
  (e) Governance, credit risk, and reporting requirements as defined by the central bank |

*Note: a. Criteria (a)–(d) will be assessed based on pre-conflict performance.*

71. **The credit risk of beneficiaries under Subcomponent 1.1 will be high in the current crisis situation, but this risk will be reduced by a significant grant component.** Subcomponent 1.1 will be structured to reduce the high credit risk with an explicit subsidy in equipment pricing. Nonetheless, while the overall repayment amount is small, the MFIs will have to develop ways to encourage repayment, including social schemes, savings schemes, and such approaches as incentivizing repayments on the first credit by offering preferential financing of higher-value goods with subsequent credits. The current situation in Yemen does not yet seem to allow for the launch of leasing products, such as *ijarah* or pay-as-you-go solar schemes, but the project will be open to including such schemes developed by the MFIs.

72. **Direct foreign exchange risk will be relatively small.** The MFIs will not be dealing directly with foreign exchange transactions and any lending will be in local currency. However, the lack of foreign currency may constrain the full commercial development of the market for high-quality, small-scale household solar if further Yemeni Rial devaluation continues to affect the affordability of imported goods.
73. **The MFIs will face significant operational risks given the crisis in Yemen.** Although credit risk management is important, a heavier weighting than usual will be given to operational know-how, customer outreach, and demonstrated flexibility (including crisis management) in response to the recent setbacks. Assessment of the MFIs must not only gauge their ability to overcome significant logistical challenges but also their capacity to detect and avoid corruption as well as their ability to monitor and report any indicators defined to measure project success, such as outreach and satisfaction.

D. Financial Management

74. **The project’s financial management arrangements will be governed by the FMFA between the World Bank and the UN, which provides for the use of UNOPS’s Financial Rules and Regulations.** To provide adequate financial management services supporting the proposed project, the UNOPS regional office in Amman, Jordan, will conduct a full risk assessment of the MFI partners in Yemen based on the initial assessment conducted during appraisal. Owing to the parallel Integrated Urban Services Emergency Project, adequate human resources and financial management systems in Yemen will be in place. Implementation arrangements, internal control, and internal oversight functions will be detailed out in the Operations Manual.

75. **The financial management of the project will be led by one international finance specialist supported by one finance officer, one associate, and one assistant.** The design of the staffing structure proposed by UNOPS is based on their assessment of the local implementation partners and their respective financial management roles and responsibilities. The UNOPS Financial Management Unit will be responsible for the daily financial management and disbursement functions of the project. These responsibilities will include: (a) recording all project transactions; (b) ensuring segregation of duties according to UNOPS Financial Rules and Regulations; (c) preparing and submitting detailed financial reports, both internally and to the World Bank, which will track commitments and expenditures by subcomponent, local partners, and governorate; (d) working with technical staff to prepare adequate cash forecasts; (e) preparing Withdrawal Applications; (f) carrying out bank reconciliations; and (g) ensuring adequate internal control functions according to UNOPS regulations and the Operations Manual. The UNOPS regional office in Amman will provide technical support, advisory services, and oversight.

76. **Record-keeping and reporting.** UNOPS will: (a) maintain a financial management system, including records and accounts, that is adequate to reflect the transactions related to the project activities, in accordance with the requirements of their financial regulations; (b) maintain a separate ledger account (Grant Control Account) in their books to record the financial transactions of this project; and (c) prepare, on a quarterly basis, interim unaudited financial reports (IUFRs), in accordance with accounting standards established pursuant to their financial regulations and in the format agreed upon with the World Bank, which are adequate to reflect and track the expenditures related to the IDA grant. The IUFRs will be provided to the World Bank no later than 45 days after the end of each quarterly period.

77. **UNOPS will ensure that the project audit is governed by its financial regulations and the FMFA.** Furthermore, UNOPS will retain, until at least one year after the World Bank has received the final financial report in which the last withdrawal from the Grant Account was made, all records (contracts, orders, invoices, bills, receipts, and other documents) evidencing expenditures in respect of which withdrawals from the Grant Account were made. The Grant Control Account will be subject exclusively to the internal and external audit arrangements applicable to UNOPS as set out in their financial regulations.
78. **To provide reasonable assurance that project funds are spent for the intended purposes, the following arrangements will be in place:** (a) relying on UNOPS' internal control mechanisms and internal oversight functions throughout the financial management and disbursement arrangements, documentation of expenditures, and detailed reporting; (b) contracting technical experts to supervise the implementation of activities and compliance of local entities with fiduciary arrangements as agreed with UNOPS; (d) establishing a real-time oversight, transparency, and accountability mechanism through a GIS-based expenditure tracking and information dissemination system; (e) providing updated GIS maps of the project areas to help monitor progress and enhance project supervision; (f) using social media to analyze community perception of subprojects on a real-time basis, to identify red flags for fraud, corruption, and unequal treatment of communities, and to complement the GRM; and (g) providing financial and progress reports submitted on a semiannual basis.

79. **Flow of funds and disbursement arrangements.** Disbursement from the World Bank to UNOPS is simplified to ensure timely availability of funds to implement the proposed project. Disbursement to UNOPS’ official bank account shall be made based on the IUFRs. Requests for disbursement will cover the projected expenditures and activities for six months. Withdrawal Applications will be submitted to the World Bank every three months to document funds disbursed and to request a new advance to cover an amount representing UNOPS’ good faith projection of the expenditures for the following six months, up to the project’s closing date. Withdrawal Applications will reconcile against previously withdrawn amounts.

80. **UNOPS will receive grant proceeds into a centralized corporate account and will then allocate funds to the project.** It will start implementation by transferring funds to its local accounts in Yemen and/or it will pay from any of its accounts externally depending on the contracts. The local accounts will be maintained by UNOPS’ Yemen Office and will be replenished regularly. To mitigate potential challenges associated with using the local banking system, UNOPS has established an additional payment mechanism whereby it will use cash suppliers to make payments in the country.

81. **Retroactive financing.** Retroactive financing will be considered for eligible expenditures under Disbursement Category 4 (iii) of the Financing Agreement, starting on March 1, 2018 to the date of signature of the Financing Agreement. The eligible amount for retroactive financing would be up to a maximum amount of SDR 69,162 (US$100,000 equivalent).

**E. Procurement**

82. **Because OP 2.30 was triggered for Yemen, UNOPS will follow its own procurement procedures as Alternative Procurement Arrangements allowed by the World Bank’s new Procurement Framework Policy Section III.F.** UNOPS’ procurement procedures were assessed and found acceptable to the World Bank under other agreements. This implementation arrangement is recommended under the Project Procurement Strategy for Development. This procurement arrangement is considered a fit-for-purpose arrangement for several reasons:

(a) The procurement activities proposed under this project are within the mandate of UNOPS, and the same implementation mechanism as applied in other projects, such as Iraq and recently the Yemen Integrated Urban Services Project will be followed;
(b) The implementation arrangement is flexible and may rely on the capacity of local partners including MFIs for activities under a threshold as prescribed by UNOPS;

(c) UNOPS has mechanisms in place that are optimized for procurement in emergency situations;

(d) UNOPS, at the time of project appraisal, is expanding its presence in Yemen and has already started establishing an office in Sana’a, and a second office in Aden will follow soon;

(e) UNOPS’ procurement arrangements provide reasonable assurance that the World Bank’s financing will be used for the intended purpose; and

(f) UNOPS has an extensive pool of framework agreements with prequalified suppliers in place (“Long-Term Agreements”) that can be tapped into for promptly placing purchase orders.

83. **Procurement management.** UNOPS has already started the hiring process of a procurement team that will be based within its Sana’a Office according to the agreement under the Integrated Urban Services Emergency Project. The team will be led by an experienced international procurement specialist who will oversee 3–4 national procurement experts to carry out day-to-day implementation of procurement activities. No additional procurement staff will be required under this project. However, if the need arises during implementation, UNOPS will inform the World Bank. Procurement decision authority is vested with the country-based program manager. The UNOPS Regional Director approves awards of contracts above US$250,000 equivalent. Awards decisions above US$1 million equivalent will be reviewed by the Procurement Committee at UNOPS Headquarters. If purchase orders are placed against the existing Long-Term Agreements with UNOPS’ suppliers, no reviews by the Committee are required.

84. **Prior review threshold.** Because UNOPS is a UN system organization and will follow its own procurement framework, no contract will be subject to prior or post review. Verification of the deliverables and physical completion of contracts will be part of the scope of the TPM.

F. **Social (including Safeguards)**

85. **Social benefits, risks, and impacts.** The project will have broad social benefits for households in rural and peri-urban areas, as improving households’ access to modern energy is central to restoring livelihoods and mitigating the impacts of the crisis on the poor and most vulnerable. Social risks associated with the potential exclusion of poor and vulnerable households, including female-headed households and internally displaced people (IDP), will be mitigated by targeting rural and peri-urban areas with particular attention paid to reaching first-time borrowers and by ensuring that beneficiaries’ eligibility criteria will be transparent and part of the communication campaign. Risks associated with the potential exclusion of small retailers from lists of prequalified suppliers will be mitigated by relying as much as possible on the local supply chain and by targeting SMEs in the market strengthening measures under Subcomponent 2.3.

86. **Citizen engagement will be important for the success of the program.** To ensure two-way communication with beneficiaries during project implementation, the project will: (a) hold interviews and focus group discussion before the rollout of Subcomponent 1.1; (b) finance an outreach campaign to raise

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20 The committee has virtual reviews twice a week. The Regional Director can request an ad hoc meeting in the case of critical, time-sensitive procurement.
awareness; (c) maintain a GIS-based portal mapping all activities supported under Subcomponent 1.2 to promote transparency; (d) explore using UNOPS’ remote monitoring tools for engaging citizens in monitoring and quality assurance; (e) include a TPM component; (f) allocate dedicated staff to the GRM established in Sana’a in accordance with World Bank Group safeguard policies; and (g) consider during the selection of MFIs their portfolio of financing services and ability to partner with community-based organizations for outreach to vulnerable population groups, including women and the youth.

87. **Focus group discussions will inform the implementation of subcomponent 1.1.** UNOPS will partner with local and community-based organizations to develop and conduct qualitative work including interviews with key stakeholders (such as tribal/community leaders) in the target areas and focus group discussions with the communities during the early stages of implementation. The qualitative work will aim to: (a) identify unmet household energy needs in rural and peri-urban areas (including IDP) (for example, for lighting, cooking, charging phones, cooling, and so on); (b) define technical specifications for solar solutions; (c) assess affordability thresholds; and (d) identify financial solutions to overcome affordability barriers.21

88. **The project will implement an awareness-raising campaign to inform communities about supported solar products and their benefits, availability of grants, and financing schemes and eligibility criteria.** The campaign will also include sensitization among men and tribal/community leaders about the role of women in applying for the loan and communicating about the GRM (complaints if there are challenges getting access or systems do not work). Community sensitization will follow an approach that is tailored to the targeted geographic locations as well as the specific and different needs of various groups including women, men (tribal leaders and respected men), youth, displaced populations, and marginalized groups, to enhance their voice in the participatory process.22

89. **GRM.** UNOPS will use the GRM unit in its Sana’a Office already established for the Integrated Urban Services Emergency Project to handle project-related complaints. Separate log sheets will be kept for the two projects to ensure that complaints are routed to the recipients and redressed adequately. Multiple access points (telephone, complaint box, website, email, text message, and so on) will be provided so that beneficiaries will have different ways to voice their concerns. The GRM contact information will be posted in the local language and be communicated through multiple channels to ensure all groups can easily access contact information and relevant mechanisms to provide feedback. The GRM focal point will receive training to ensure that he or she can interface effectively with users of the GRM and treat all complaints equally. The UNOPS Program Manager will have the overall responsibility to address concerns brought to the attention of the focal points. Complaints received by UNOPS will be registered, by gender, age, and location among other indicators, tracked, investigated and promptly resolved. Copies of complaints will be recorded in the activity files and the progress reports, including the number and type of complaints and the results of their resolution.

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21 Additional issues can be to assess different constraints that men and women face in accessing credit to purchase renewable energy devices and technologies, and to gauge the potential for solar cookstoves among displaced populations and explore alternative payment methods.

22 The Yemen Country Engagement Note (Report 106118-YE) has identified the lack of women’s voices in decision making as an important obstacle to gender equality in Yemen. To ensure participation of women in activities, information should be communicated keeping in mind restrictive norms and legal barriers that women may face, be held at times appropriate for women, be easily accessible, and explore provision of child care for female participants, if needed.
90. Gender analysis, actions, and monitoring and evaluation:

(a) **The gender gap that the project is aiming to address is twofold:** (a) Women are disproportionately affected by lack of reliable energy and have little access to formal finance, with far fewer Yemeni women than men holding accounts in banks; and (b) women suffer disproportionately from lack of access to clean and modern energy, including with regard to health outcomes, prospects for income generating activities, and safety.23

(b) **The project design includes four specific actions to close gender gaps:** First, conducting key informant interviews that will engage with male community decision makers as well as gender-disaggregated focus group discussions with communities to better: (i) understand preferred usage of renewable energy sources; (ii) define specific technical specifications of the new solar products before making them available on the market; (iii) identify local solutions to overcome barriers to energy access; and (iv) assess affordability thresholds. The proposed project will do this by conducting consultations that will be organized at a time appropriate for women, in an easily accessible location, and exploring potential child care during consultation sessions. Women interviews will be held by a female consultant, if possible. The project will also continue to use the WFP phone survey to measure the current use of solar energy, disaggregated by gender. Second, the technical assistance support will include technical assistance to support MFIs on institution-building and developing partnership models with local organizations, including women community organizations, to ensure that its reach is inclusive of female borrowers and covers rural and marginalized communities, as well as the displaced. Third, linked to the citizen engagement agenda, awareness-raising campaigns will be targeted for different male and female audiences and sensitive to the local context. Fourth, a representative share of women will be short-listed for jobs at the project team, and the selection panel for new hires will comprise women to ensure participation in the decision-making process.

(c) **Four gender-sensitive indicators will monitor and evaluate implementation progress:** (i) number of focus groups on consumer electricity needs and groups with majority female participation; (ii) beneficiaries reached with financial services—of which female borrowers; (iii) the number of previously unbanked adults reached with transaction accounts—of which female borrowers; and (iv) people provided with new or improved electricity service—female.

G. Environment (including Safeguards)

91. **Environment Category:** According to OP 4.01 on Environmental Assessment, the project is classified as Environmental Category ‘B’. Considering the project’s preparation under emergency procedures as defined by the World Bank Policy on Investment Policy Financing, paragraph 12, the preparation of the ESMF has been deferred to allow sufficient time for the implementing agency to undertake the ESMF, public consultations, and the battery recycling and disposal assessment. A Safeguard Action Plan (SAP; see annex 1) has been prepared, which lays out the time line and preparation for the

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23 Assessment of six MFIs in Yemen shows that the microfinance sector represents a relatively high share of female borrowers which is unlike the case in commercial finance.
relevant safeguards instruments. The project, if successfully implemented, will have significant environment benefits, including GHG reductions (see section VI-A) and improved air quality.

92. **Preparation of the ESMF.** The interventions under the project bear some environmental and health safety risks but no significant and/or irreversible adverse environmental and social issues are expected. The potential impacts are expected to be limited to the disposal of equipment, in particular batteries. These impacts are expected to be local, site-specific, and manageable. The CERC may include additional activities to restore electricity supply to critical facilities, businesses, or households, but will not include any activities that would trigger additional safeguards policies. To ensure proper management of potential environmental impacts that might result from the implementation of the project’s activities, an ESMF will be prepared, consulted on, and disclosed in-country and in the World Bank’s external website. The ESMF will recommend specific mitigation measures for environmental impacts that might result from the project’s activities, including a section on the CERC based on the indicative list of activities expected under the CERC. The ESMF will include a screening checklist against which each subproject will be screened, and accordingly a subsequent environmental and social assessment instrument will be prepared and implemented—if required—before the commencement of any physical activities. The ESMF will include a section on the CERC based on the indicative list of activities related to potential emergencies.

93. **UNOPS safeguard procedures.** UNOPS has environmental, health, and safety (EHS) procedures and practices which include: (a) the Project Health and Safety Plan, which is a management framework to ensure safer construction practices and to prevent dangerous acts that could lead to accidents on site; (b) standard contracts to which the project health and safety plan is attached as an integral part; and (c) training programs for on-site staff on EHS aspects before the commencement of projects. When partnering with MFIs and other local entities, UNOPS will ensure, through preselection screening and capacity building, that these entities have sufficient capacity to manage safeguards requirements and comply with the World Bank safeguards policies. Generally, UNOPS will ensure, under the selection process, limitation of participation in the project to entities that have retained their capacities and functionality despite the current conflict in the country.

94. **Management of project-specific safeguard aspects.** To ensure the proper management of safeguard aspects under the project, the implementing agency, UNOPS, will deploy permanent environmental and social officers at the local and central levels. Reporting on compliance with the ESMF and any subsequent environmental and social instruments will form part of the regular progress reports that will be prepared by UNOPS and shared with the World Bank. The TPM agent will also be reporting on the compliance with safeguards requirements and on the implementation of mitigation measures.

H. Waiver of Specific Operational Policies

95. **Waiver of application of the Anti-Corruption Guidelines to UNOPS and waiver of IDA commitment charge.** The project will follow World Bank operational policies and procedures for Investment Project Financing. To facilitate implementation of the project by UNOPS as recipient and implementing agency of the project, the Board is requested to approve two policy waivers:

   (a) **A waiver of the application of the Anti-Corruption Guidelines.** Due to its own institutional and policy constraints, the Bank’s ACG are not acceptable to UNOPS. In

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24 The following key issues are obstacles for the UN to application of the ACG: (1) the “single audit rule” which prohibits audits
order to ensure appropriate adherence to the principles of the ACG, specifically in terms of the due diligence and monitoring of fraud and corruption, it is proposed to allow UNOPS to use its own procedures for fraud and corruption under alternative arrangements modeled on the integrity provisions of the Fiduciary Principles Accord. The Bank would consequently not have jurisdiction to sanction parties that engage in fraud and corruption in connection with the proposed project, although the Bank would apply its suspension and debarment list to the project for eligibility purposes. The Bank will reserve its right to investigate parties other than UNOPS (e.g., suppliers), but the Bank will not benefit from formal “third party audit rights” embedded in downstream contracts with suppliers and other third parties. This waiver request is the second request of this type for UNOPS, and it is consistent with the waivers previously granted by the IDA Board to other UN agencies (e.g., UNDP, UNICEF, and WHO) under the Emergency Crisis Response Project and the Emergency Health and Nutrition Project.

(b) **A waiver of the application of the IDA Commitment Charge.** In accordance with Section 3.02 of the IDA General Conditions for IDA Financing, dated July 14, 2017, the Board reviews and sets the Commitment Charge on unwithdrawn financing balances on an annual basis. The IDA Policy, *IDA Commitment Charge for FY2018*, issued and effective July 1, 2017, sets the commitment charge for FY18 at zero percent. We are seeking a waiver of the application of the commitment charge to UNOPS for the duration of the project. Given that the current commitment charge is zero percent and the expected timeframe of the project disbursements is three years, the financial impact of this proposed waiver is expected to be negligible. This waiver request is consistent with the waivers previously granted by the IDA Board under the Integrated Urban Services Emergency Project, the Emergency Crisis Response Project, and the Emergency Health and Nutrition Project.

G. World Bank Grievance Redress

96. **Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB’s Grievance Redress Service (GRS).** The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB’s independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank’s attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank’s corporate Grievance Redress Service (GRS), please visit [http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service](http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service). For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

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25 The previous waiver for UNOPS was approved in the context of the Yemen Integrated Urban Services Emergency Project (P164190) in November 2017.
## VII. RESULTS FRAMEWORK AND MONITORING

### Results Framework

**COUNTRY:** Yemen, Republic of

**Yemen Emergency Electricity Access Project**

### Project Development Objectives

Improve access to electricity in rural and peri-urban areas within the Republic of Yemen.

### Project Development Objective Indicators

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Core</th>
<th>Unit of Measure</th>
<th>Baseline</th>
<th>End Target</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Critical service facilities provided with new or improved electricity service</td>
<td></td>
<td>Number</td>
<td>0.00</td>
<td>1200.00</td>
<td>To be reported as part of the quarterly reporting by UNOPS to the World Bank.</td>
<td>Information to be collected by UNOPS during the implementation of Subcomponent 1.2 and verified by TPM.</td>
<td>UNOPS.</td>
</tr>
<tr>
<td>Name: People provided with new or improved electricity service</td>
<td>✓</td>
<td>Number</td>
<td>0.00</td>
<td>1340000.00</td>
<td>MFIs will report to UNOPS on a regular basis. UNOPS will report on a quarterly basis to the World Bank.</td>
<td>Data to be collected by MFIs during implementation.</td>
<td>MFIs are responsible for data collection and reporting to UNOPS. UNOPS is responsible for data collection.</td>
</tr>
</tbody>
</table>

**Description:** This indicator measures the outputs of Subcomponent 1.2. Based on (a) the number of people served by health facilities with restored electricity access under the project and (b) the number of students in schools with restored electricity access under the project.
### Intermediate Results Indicators

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Core</th>
<th>Unit of Measure</th>
<th>Baseline</th>
<th>End Target</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>People provided with new or improved electricity service - Female</td>
<td>✔</td>
<td>Number</td>
<td>0.00</td>
<td>663300.00</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
</tr>
<tr>
<td>People provided with access to electricity under the project by household connections (grid or off-grid).</td>
<td>✔</td>
<td>Number</td>
<td>0.00</td>
<td>200000.00</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
</tr>
</tbody>
</table>

**Description:**

- **Intermediate Results Indicators**

- **Indicator Name**: Beneficiaries reached with financial services
- **Core**: ✔
- **Unit of Measure**: Number
- **Baseline**: 0.00
- **End Target**: 120000.00
- **Frequency**: MFIs will report on a regular basis to UNOPS. UNOPS will report on a quarterly basis to the World Bank.
- **Data Source/Methodology**: MFI's data collection and reporting as part of their core business.
- **Responsibility for Data Collection**: MFIs will collect data and report to UNOPS. UNOPS will aggregate data and report to the World Bank.
<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Core</th>
<th>Unit of Measure</th>
<th>Baseline</th>
<th>End Target</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of previously unbanked adults reached with transaction accounts ✔</td>
<td>✔</td>
<td>Number</td>
<td>0.00</td>
<td>80000.00</td>
<td>Same as main indicator</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
</tr>
<tr>
<td>Number of MFIs with active loan windows for solar</td>
<td></td>
<td>Number</td>
<td>0.00</td>
<td>5.00</td>
<td>Continuously.</td>
<td>UNOPS based on monitoring of MFI participation.</td>
<td>UNOPS.</td>
</tr>
</tbody>
</table>

Description:

Name: Health facilities with improved access to electricity

UNOPS will report on a quarterly basis to the World Bank.

UNOPS based on monitoring of contractors' progress.

UNOPS.

Description: This indicator measures the outputs of Subcomponent 1.2.
<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Core</th>
<th>Unit of Measure</th>
<th>Baseline</th>
<th>End Target</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Schools with improved access to electricity</td>
<td></td>
<td>Number</td>
<td>0.00</td>
<td>800.00</td>
<td>UNOPS will report to the World Bank on a quarterly basis.</td>
<td>UNOPS based on monitoring of contractors' progress.</td>
<td>UNOPS.</td>
</tr>
<tr>
<td><strong>Description:</strong> This indicator measures the outputs of Subcomponent 1.2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name: Number of focus groups on consumer electricity needs</td>
<td></td>
<td>Number</td>
<td>0.00</td>
<td>12.00</td>
<td>UNOPS will report to the World Bank on a quarterly basis.</td>
<td>UNOPS, based on information provided by the contractor on the implementation progress of the assignment.</td>
<td>UNOPS.</td>
</tr>
<tr>
<td>of which, groups with majority female participation</td>
<td></td>
<td>Number</td>
<td>0.00</td>
<td>6.00</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
<td>Same as main indicator.</td>
</tr>
<tr>
<td><strong>Description:</strong> This indicator measures the outputs of a key citizens engagement measure under the project.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name: Qualitative assessment undertaken of how feedback from focus group discussions has impacted technical specifications of household solar products</td>
<td>Yes/No</td>
<td>N</td>
<td>Y</td>
<td></td>
<td>Once during project implementation.</td>
<td>Qualitative assessment completed by UNOPS.</td>
<td>UNOPS.</td>
</tr>
<tr>
<td>Indicator Name</td>
<td>Core</td>
<td>Unit of Measure</td>
<td>Baseline</td>
<td>End Target</td>
<td>Frequency</td>
<td>Data Source/Methodology</td>
<td>Responsibility for Data Collection</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
<td>-----------------</td>
<td>----------</td>
<td>------------</td>
<td>-----------</td>
<td>------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Description: This indicator measures the effectiveness of citizens engagement measures under the project.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Name: Grievances registered related to delivery of project benefits that are actually addressed (%) | Percentage | 0.00 | 95.00 | To be reported as part of the quarterly reporting by UNOPS to the World Bank. | Information to be recorded by UNOPS during the implementation and verified by TPM. | UNOPS. |

| Description: This indicator measures the effectiveness of the project's GRM. |
### Target Values

#### Project Development Objective Indicators

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Baseline</th>
<th>YR1</th>
<th>YR2</th>
<th>YR3</th>
<th>End Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical service facilities provided with new or improved electricity service</td>
<td>0.00</td>
<td>600.00</td>
<td>900.00</td>
<td>1200.00</td>
<td>1200.00</td>
</tr>
<tr>
<td>People provided with new or improved electricity service</td>
<td>0.00</td>
<td>450000.00</td>
<td>900000.00</td>
<td>1340000.00</td>
<td>1340000.00</td>
</tr>
<tr>
<td>People provided with new or improved electricity service - Female</td>
<td>0.00</td>
<td>221000.00</td>
<td>442000.00</td>
<td>663300.00</td>
<td>663300.00</td>
</tr>
<tr>
<td>People provided with access to electricity under the project by household connections (grid or off-grid)</td>
<td>0.00</td>
<td>67000.00</td>
<td>133000.00</td>
<td>200000.00</td>
<td>200000.00</td>
</tr>
</tbody>
</table>

#### Intermediate Results Indicators

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Baseline</th>
<th>YR1</th>
<th>YR2</th>
<th>YR3</th>
<th>End Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficiaries reached with financial services</td>
<td>0.00</td>
<td>40000.00</td>
<td>80000.00</td>
<td>120000.00</td>
<td>120000.00</td>
</tr>
<tr>
<td>of which: female borrowers</td>
<td>0.00</td>
<td>16000.00</td>
<td>32000.00</td>
<td>48000.00</td>
<td>48000.00</td>
</tr>
<tr>
<td>Number of previously unbanked adults reached with transaction accounts</td>
<td>0.00</td>
<td>27000.00</td>
<td>53000.00</td>
<td>80000.00</td>
<td>80000.00</td>
</tr>
<tr>
<td>of which: female borrowers</td>
<td>0.00</td>
<td>8333.00</td>
<td>16666.00</td>
<td>25000.00</td>
<td>25000.00</td>
</tr>
<tr>
<td>Number of MFIs with active loan windows for solar</td>
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<td>4.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Indicator Name</td>
<td>Baseline</td>
<td>YR1</td>
<td>YR2</td>
<td>YR3</td>
<td>End Target</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>Health facilities with improved access to electricity</td>
<td>0.00</td>
<td>150.00</td>
<td>300.00</td>
<td>400.00</td>
<td>400.00</td>
</tr>
<tr>
<td>Schools with improved access to electricity</td>
<td>0.00</td>
<td>400.00</td>
<td>800.00</td>
<td>800.00</td>
<td>800.00</td>
</tr>
<tr>
<td>Number of focus groups on consumer electricity needs</td>
<td>0.00</td>
<td>10.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>of which, groups with majority female participation</td>
<td>0.00</td>
<td>5.00</td>
<td>6.00</td>
<td>6.00</td>
<td>6.00</td>
</tr>
<tr>
<td>Qualitative assessment undertaken of how feedback from focus group discussions has impacted technical specifications of household solar products</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Grievances registered related to delivery of project benefits that are actually addressed (%)</td>
<td>0.00</td>
<td>95.00</td>
<td>95.00</td>
<td>95.00</td>
<td>95.00</td>
</tr>
</tbody>
</table>
ANNEX 1: SAFEGUARDS ACTION PLAN
Yemen Emergency Electricity Access Project

I. Background

1. Paragraph 12 of the World Bank Policy on Investment Policy Financing ‘Preparation of Investment Project Financing – Situations of Urgent Need of Assistance or Capacity Constraints’ requires the preparation of an action plan as part of the project documents addressing the application of E&S policies. The goal of the action plan is to provide guidance on how the project manages safeguards risks during project implementation. The content of the SAP is dictated by the dual objective of ensuring that there is a legally binding road map for safeguards compliance during project implementation and providing clear guidance on the types of actions and instruments required to facilitate speedy implementation of emergency services.

II. Objectives

2. The objective of the SAP is to provide a time-bound plan to ensure that: (a) the project’s activity-related E&S assessment and management instruments and processes will comply with the national legislation of Yemen as well as the World Bank’s operational safeguards policies; and (b) these instruments and processes are duly and diligently implemented in a logical sequence with the environmentally and socially relevant project activities. This means that, as a general principle, E&S assessments and instruments should be completed, disclosed, and consulted on: (a) before project-funded activities with relevant E&S footprints may commence; and (b) in case of more complex or large-scale activities, before designs are finalized and contracts awarded.

3. This SAP is prepared by the task team under the World Bank Policy for Investment Policy Financing, paragraph 12 and complies with triggered World Bank safeguards policies, specifically OP 4.01 on Environmental Assessment, and is subject to public disclosure as part of the Project Appraisal Document (PAD). In addition, it will be disclosed both in-country (in the appropriate communication channels such as on the website of implementing agency and/or as hard copies in a location and format easily accessible to project-affected peoples, at concerned sector ministries, and other public places of project intervention areas) as well as on the World Bank’s external website.

III. Project Scope and Context

4. Scope. The scope of the Yemen Emergency Electricity Access Project (P163777) is described in detail in the PAD in section III. The proposed project will support interventions that aim to restore access to electricity and electricity dependent service facilities through distributed solar energy systems. The project design includes financing under three subcomponents (rural and peri-urban households, critical facilities, and commercial solar lending).

5. Country context. Yemen has been in serious armed conflict for the past 4 years with severe humanitarian and developmental costs.26 By November 2016, UN agencies noted that health facilities reported nearly 7,070 people killed and more than 36,818 injured. Half of the country’s population of 26.8 million resides in areas directly affected by the conflict. More than 3 million Yemenis have been internally

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26 For further details on the country’s context, refer to the Yemen Country Engagement Note 2017–2018 (Report 106118-YE).
displaced. Severe food insecurity affects some 14 million, of which 3.3 million are malnourished, including 1.4 million children—of whom 462,000 are acutely malnourished. Since the start of the conflict, the provision of public services, such as electricity and water, has come to a virtual standstill. Due to the resulting lack of access to reliable water supply and uncollected garbage, Yemen is confronted with a severe outbreak of cholera. WHO has reported over 500,000 cases of cholera and nearly 2,000 deaths across 21 of 23 governorates.

IV. Compliance with World Bank Safeguards Policies

6. Considering the nature and magnitude of potential environmental impacts from relatively small-scale rehabilitation works, the proposed project is classified as Category ‘B’. Activities supported by the project are expected to have certain site-specific adverse E&S impacts. Therefore, the World Bank’s policy on Environmental Assessment (OP/BP 4.01) is triggered for this project. This SAP has been developed specifically for these proposed activities, to ensure due diligence and consistent treatment of E&S issues by the implementing agency, in partnership with the private sector. The purpose of the SAP is also to assist UNOPS in screening all its subprojects for their likely E&S impacts, identifying E&S management requirements, and prioritizing the investments. No physical displacement or potential impact on the livelihood is anticipated because of the nature of the project because it will involve the installation of solar system on rooftops or on the beneficiaries’ property adjacent to the supplied facilities. It is unlikely that additional land outside the beneficiary property will be required for the installation of the solar system during the life-span of the project. Therefore, Involuntary Resettlement (OP 4.12) will not be triggered because the project will exclude any activity that will require land acquisition. Neither subcomponents nor project activities of category ‘A’ will be eligible for funding.

7. As an emergency operation, the requirement to carry out an ESMF to guide the preparation of further safeguards documents—such as an Environmental and Social Impact Assessment (ESIA), site-specific Environmental and Social Management Plans (ESMPs), and/or checklists will be undertaken during project implementation. At the same time, prior-to-activity-level appraisal, UNOPS will agree to apply the following minimum standards during implementation: inclusion of standard environmental codes of practice (ECOPs) in the rehabilitation, improvement, and construction bid documents of all components and subcomponents; review and oversight of any major reconstruction works by specialists; implementation of environmentally and socially sound options for disposal of debris; and provisions for adequate budget and satisfactory institutional arrangements for monitoring effective implementation. It should be mentioned that UNOPS has EHS procedures and practices that include: (a) a Project Health and Safety Plan (PHSP), which is a management framework to ensure safer construction practices and to prevent dangerous acts that could lead to accidents on site; (b) standard contracts to which the PHSP is attached as an integral part; and (c) training programs for on-site staff on EHS aspects before the commencement of projects.

8. For all project activities that may include civil works, a E&S safeguards screening tool, as part of the ESMF, will be developed and applied, along with the specific activity-level instruments that will be necessary to cover both E&S aspects, including an activity-level ESIA, site-specific ESMPs, and checklists. Additional measures will support the implementation, monitoring, and compliance to the ESMF, including (a) deployment of E&S officers at central and sub-sector levels; (b) the regular progress reporting that will include reporting on implementation of E&S requirements and mitigation measures of site-specific ESMPs; (c) TPM that will be reporting on the compliance with safeguards requirements and on the
implementation of E&S mitigation measures; and (d) project supervision missions by the World Bank that will include E&S implementation expertise.

9. **OP 4.01 Environmental Assessment.** The proposed project will support the rehabilitation and restoration of existing infrastructure and services. Measures to manage potential E&S impacts, including those on public and site worker’s health and safety, will be detailed in the ESMF that will be prepared. The safeguards requirement will be prepared according to OP 4.01 requirements, and it is not anticipated that OP 4.04 ‘Natural Habitats’, OP 4.10 ‘Indigenous Peoples’, OP 4.11 ‘Physical Cultural Resources’, OP 4.12 ‘Involuntary Resettlement’, OP 4.37 ‘Safety of Dams’, and OP 7.50 ‘Projects on International Waterways’ will be triggered.

10. **OP 4.12 Involuntary Resettlement.** The project will not involve land acquisition because it supports activities to restore access to electricity and electricity-dependent service facilities through distributed solar energy systems and all activities are planned to take place on existing footprints. The nature of the project activities will include the installation of solar system on rooftops or on the beneficiaries’ property adjacent to the supplied facilities.

11. **OP 4.11 Physical Cultural Resources.** Because the proposed project will not entail new construction and focus only on rehabilitation and improvement of existing services and infrastructure, any damage of physical cultural resources is not expected to take place.

12. **OP 4.37 Safety of Dams.** The proposed project does not include construction or rehabilitation of any dams, or carrying out of activities that may be affected by the operation of an existing dam. Therefore, this operational policy will not be triggered.

13. **OP 7.50 Projects on International Waterways.** The proposed project does not include any activities that will trigger this operational policy.

14. The task team has not identified any meaningful alternatives to the current project design, as the project contents, geographic scope, and activities are predefined by pre-existing infrastructure.

V. **Sequencing and Tentative Implementation Schedule for Safeguards Processing**

15. As a general principle, the implementing agency (UNOPS) will agree to apply the following minimum standards during implementation: (a) the inclusion of standard ECOP in the bid documents for rehabilitation, improvement, and reconstruction activities for all project activities; (b) the review and oversight of any major reconstruction works by specialists; (c) the implementation of environmentally and socially sound options for management and disposal of any hazardous waste (for example, debris or drain spoils, oil-contaminated soils or rubble, and so on); and (d) provisions for adequate and satisfactory budget and institutional arrangements for monitoring effective implementation.

16. The following time-bound deployment of the above described safeguards instruments is anticipated to manage and mitigate the potential adverse impacts of the project:

   (a) **During project preparation.** A conceptual approach and the TOR for an ESMF has been prepared and shared with the implementing agency to swiftly initiate the preparation of this safeguards instrument before the project’s effectiveness.
Immediately after project effectiveness, by June 15, 2018. The ESMF will be prepared and disclosed, and will become the overarching safeguard document governing the approach, processes, and specific instruments for project activities. The ESMF will cover the following topics: (a) scope of project activities; (b) typologies of expected impacts, as well as magnitudes and durations; (c) types of E&S assessment/management instruments including the range of mitigation measures tailored to the identified activity/impact typologies with required measures to protect public and site workers’ health and safety; particularly for the first year works program; (d) methodology for activity-level E&S screening, classification, and allocation of specific E&S instruments; (e) review of relevant institutions, key players, roles and responsibilities, and administrative processes; (f) capacity analysis and training requirements; (g) update of cost estimates for E&S management measures; (h) GRM; (i) consultation; and (j) arrangements for monitoring and evaluation. The ESMF will also contain a positive and negative list of eligible and non-eligible project activities and provisions to exclude Category ‘A’-type subprojects. No project activities that present environmental and/or social risks and impacts can be implemented before the preparation of E&S instruments (for example, site-specific ESMPs) for that activity. The project will not involve land acquisition because it supports activities to restore access to electricity and electricity-dependent service facilities through distributed solar energy systems and all activities are planned to take place on existing footprints. The nature of the project activities will include the installation of solar system on rooftops or on the beneficiaries’ property adjacent to the supplied facilities.

During implementation, from the second quarter onwards. This period will include continuous development of E&S management instruments for the expected interventions mentioned in section III and in more detail in the PAD. For the expected scope of activities, comprehensive ESIAs will most likely not be required because the project will only finance the repair and rehabilitation of structures and installations. The expected typologies of repair and rehabilitation will mostly require simple, checklist-type ESMPs that will become part of the works contracts, define the E&S standards and compliance mechanisms, and serve as a contractual basis for supervision and enforcement of good E&S practice during the works.

Preparation time for safeguards instruments. The preparation of the ESMF is expected to be completed, reviewed, cleared, and disclosed in-country and on the World Bank’s external website by May 31, 2018. The preparation of limited ESMPs, if needed, will require between one and three months, including the World Bank review and approval, disclosure, consultations, and finalization.

Consultations and disclosure. The ESMF (including the translated summary of the ESMF) will be disclosed in-country and on the World Bank’s external website after the World Bank review as final draft versions, for a period of no less than 30 days during which UNOPS will conduct consultations for the affected stakeholders. Public consultations are a significant challenge in FCV contexts such as Yemen. The alternative approach is to consider individual interviews and/or meetings to be carried out in safe places using limited questionnaires. The consultant who will prepare the ESMF should conduct meetings with the implementing agency (UNOPS), key stakeholders, MFI representatives, household representatives, women, and the communities. The objective of the meetings with communities is to identify key issues and determine how concerns of all parties will be addressed. Separate interviews for women should be held by a female consultant, if possible. The ESMF will be disclosed in-country (in the appropriate
communication channels such as on the website of the implementing agency and/or as hard-copies in a location and format easily accessible to public, and other public places of project intervention areas) as well as at the World Bank external website.

19. **Implementation of safeguards instruments.** After finalization of the site-specific ESMPs and checklists, if needed, no further safeguards instruments will be required. No tender package will be issued without an attached ESMP and no contract signed without respective clauses obliging the contractor to the ESMP’s use and implementation.

20. **Implementation monitoring.** The monitoring of safeguards compliance will be carried out during project implementation. UNOPS will deploy a permanent E&S officer at the central level, supported by an international expert, to oversee the overall implementation, monitoring, and reporting of safeguards aspects. UNOPS will prepare and share with the World Bank regular monitoring reports on compliance with the ESMF and subsequent E&S instruments. The project will also engage a TPM agent that will monitor safeguards aspects and report on the compliance with safeguards requirements and on the implementation of E&S mitigation measures.

**VI. Consultation and Disclosure**

21. This SAP is subject to public disclosure as part of the PAD. The SAP will be shared with the relevant implementing agency and concerned governmental and nongovernmental organizations (NGOs) in Yemen. In addition, the SAP will be disclosed both in-country (in the appropriate communication channels and on the UNOPS webpage) as well as on the World Bank’s external website during project preparation.

22. The proposed project will support several feasibility and detailed design studies for future infrastructure investments for which the World Bank safeguard policies relating to consultation and disclosure will apply. During the project’s first year of implementation, the ESMF will be prepared and consulted upon as described above. Before the commencement of any works, checklists or site-specific ESMPs—if needed—will be prepared and consulted upon with the project-affected groups and local NGOs on the project's E&S aspects, considering stakeholders’ views. UNOPS will initiate these consultations as early as possible and will, on time, before consultation, provide relevant material in both form and language that are understandable and accessible to the groups being consulted with. As described above, given the ongoing conflict, consultations will take the form of individual interviews and/or meetings to be carried out in safe places using limited questionnaires.

**VII. Roles and Responsibilities, including Supervision Arrangement for Safeguards Preparation, Implementation, and Monitoring**

23. UNOPS is responsible for the implementation of the above described safeguards instruments and processes, including for compliance with national environmental regulations, as well as the World Bank E&S safeguards policies. UNOPS will be staffed with a qualified permanent E&S officer at the central level, supported by an international expert, to oversee the overall implementation, monitoring and reporting of safeguards aspects. In addition, each subsector/Project Management Unit will have a safeguards focal point for ensuring on-site compliance with E&S mitigation measures and health and safety requirements at the subproject level.
24. UNOPS will be responsible for ensuring the timely commencement of the preparation of ESMF, and site-specific ESMPs and checklists, as needed. The implementing agency will also ensure that no contracts for works that have physical impacts are signed or rehabilitation activities are started without the required safeguards instruments in place.

25. The World Bank task team will review TORs as well as the ESMF and site-specific safeguards instrument to ensure that their scope and quality are satisfactory to the World Bank. In addition, UNOPS will review tender documents and construction contracts regarding due consideration of the safeguards instruments, and the inclusion of effective and enforceable contractual clauses. Finally, the task team will monitor the implementation of the different prepared instruments through regular supervision missions (which will include an environmental and/or social specialist).

VIII. Estimated Costs for Safeguards Preparation and Implementation Process

26. The cost of preparing the required safeguards instruments is estimated to be about US$10,000 for the ESMF; and about US$25,000 for the subsequent safeguards instruments\(^\text{27}\) over the project’s implementation period.

27. The implementation of ESMPs is expected to cost only a small fraction of design and construction, because most mitigation measures will be very generic, off-the-shelf, and implementable without specialized skills, experience, or equipment.

IX. Safeguard Screening and Mitigation

28. The selection, design, contracting, monitoring, and evaluation of the project activities will be consistent with the guidelines, ECOP, and requirements that will be provided in the ESMF.

\(^{27}\) Assuming about 10 ESMPs/checklists, at US$2,500 per document.