

Restoring Service Supply in Yemen's Electricity Sector

**Input to the Yemen Policy Note no. 4. on
Inclusive Service Delivery**



WORLD BANK GROUP

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Acronyms

ACG	Arab Coordination Group
DNA	Damage and Needs Assessment
EU	European Union
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HFO	Heavy Fuel Oil
IsDB	Islamic Development Bank
kW	Kilowatt
kWh	Kilowatthours
MEE	Ministry of Electricity and Energy
MENA	Middle East & North Africa
MW	Megawatt
PCNA	Post-Conflict Needs Assessment
PEC	Public Electricity Corporation
PMU	Project Management Unit
PWP	Public Works Project
REAP	Rural Energy Access Project
SEDF	Small and Micro Enterprises Development Fund
SFD	Social Fund for Development
SMEPS	Small and Micro Enterprise Promotion Service
UN	United Nations

A. Background

1. This note is a part of a series of policy notes prepared by the World Bank in anticipation of a post-conflict transition in Yemen. These notes aimed to identify immediate priorities for stabilization, recovery and restoration of services and infrastructure in the aftermath of Yemen's current conflict. A subset within these notes focused on ways to restore service delivery in an inclusive manner immediately after conflict. As such, these notes examined short-to-medium-term institutional challenges facing the restoration and improvement of service across sectors. They focused on the immediate post-conflict priorities and challenges facing Energy, Water, Telecommunication, Education, Health, and Transport sectors in restoring services while also contributing to higher-level objectives of addressing systemic inequities and reinforcing trust in the state. The notes make practical suggestions to the Government of Yemen and international development partners to provide immediate post-conflict support to ensure empowerment, accountability, and better governance in service delivery.

2. The current paper focuses specifically on how support to Yemen's Electricity services can be mobilized more effectively to restore public services in a more inclusive manner immediately after the conflict ends Yemen

B. Introduction: Situation before the conflict

3. Already before the conflict, much of Yemen's population was deprived of basic electricity services. Even before the conflict, Yemen was considered the least electrified country in the MENA region, with a pre-crisis access rate from all sources of only 55 percent.¹ The country's per capita electricity consumption stood at 243 kWh in 2013, almost one-sixth of the regional average. Installed capacity was about 1,200 MW, giving only about half the population access to (often unreliable) electricity. The remainder of the population lacks any form of electricity access, with severe consequences for socioeconomic development and poverty.

4. There had been little progress in the energy sector over the last decade. The sector made little progress on improving operational efficiency and quality of service or in reducing high electricity losses, while costing the country over 10 percent of its GDP annually through direct and indirect subsidies. No major infrastructure was completed in the electricity sector since the Marib power plant, which was contracted in 2005 and came online in 2009. Electricity supply and demand remains seriously out of balance. Installed generation capacity was about 1,300 MW in 2015, which was 20%

1- World Bank (2012). Interim Strategy Note for the Republic of Yemen. FY20132014-.

short of peak demand. Until 2009, all electricity was generated through the combustion of heavy fuel oil (HFO) and diesel, when the first gas-fired Marib I power plant was commissioned. The rest consists of old and inefficient HFO/diesel fired plants owned by Public Electricity Corporation and small diesel units contracted through short-term rentals with the private suppliers. In 2010, HFO and diesel fired-power plants accounted for about 70 percent of grid-connected generation. In addition, there are millions of small diesel units owned by industry, commercial establishments and households to combat the frequent blackouts of the lack of access to the grid-connected electricity. The key feature of the HFO/diesel dominated power generation systems is the associated high electricity costs and heavy pollution. Despite an average consumer tariff of about US\$8 cent/kWh, which is higher than the consumer prices in most MENA countries, revenues covered only about 25 percent of the economic cost of supply. Even in Sana'a, the service quality was poor with typically 2-3 outages per day for over 4 hours. Most of the grid-connected consumers in other parts of the country suffered from more frequent daily load shedding of longer hours.

C. Conflict related damages and challenges

5. The civil war has significantly worsened the electricity supply situation from an already low level, with severe impact on health, education, water and sanitation, and the private sector, which all rely heavily on a functioning power supply. As documented in the World Bank's Damage and Needs Assessment (DNA Phase I) and the multi-agency DNA (World

Bank, UN, EU and IsDB), the ongoing conflict has significantly damaged Yemen's electricity infrastructure and cut off most of Yemen's population from PEC's services. Public electricity supply has been completely shut down in most populated areas and PEC has become virtually bankrupt. The current supply of public power capacity is averaging 200–250 MW, most of which is supplied to the port cities Aden and Al-Mukalla in the South. The capital Sana'a, which has a demand of around 500 MW, is barely supplied by 40 MW for a few hours a day. The rest of the country, including the port city Al Hodeida, is lacking access to any reliable public energy services. Using fuel sales to electricity plants as an indicator, total power generation in 2015, including from PEC and private generators, dropped by 77 percent compared to 2014.

6. The top-down model of service delivery has been replaced by a combination of locally managed urban public services and a private-sector driven bottom-up model. The almost complete collapse of public electricity supply and limited fuel availability for diesel generators has spawned a booming industry for small to medium-scale solar systems, especially since 2015. A recent market assessment commissioned by the World Bank estimates that over the last five years, around 1 billion USD has been invested into solar PV systems for the residential sector in Yemen. Based on interviews, the report estimates the market penetration of PV systems at around 50% of households in rural areas and 75% in urban areas. The market is entirely driven by the private sector, with a supply chain that ranges from trading houses that import panels, con-

trol units and batteries from the GCC to small-scale electronics retailers that expanded their business to solar panels. In the capital Sana'a alone, over 170 such retailers registered with the Government to enter the solar market over the period 2014 to 2016. While a supply shortage limited growth until the second quarter of 2015, prices have come down significantly since Q3 2015 as supply has caught up with demand.

7. The poor have limited access to solar so far, and there are concerns about the quality of the installed technology. The market assessment found that almost all systems are paid in cash and that debt finance is not readily available to most households. While several financial institutions offer loans for solar systems, these are often mainly targeted at government employees and customers able to provide guarantees. This suggests that access to solar is so far limited for the lower quintiles of the population, especially in rural areas. Furthermore, the market assessment many household solar installations suffer from high failure rates due to improper system design, poor quality components, and a lack of after-sales service. Households that gain access to electricity through solar are thus at a risk of losing it again in case the system fails.

D. Key principles for engagement in-conflict and post-conflict

8. Yemen is trapped in a vicious ‘cycle of conflict’ with chronically weak state institutions directly contributing to the current round of violence. This violence, in turn, has further undermined state institutions thereby portending even more

violence for the future. The continued weakening of national institutions has also diminished chances of sustainable peace as any peace-agreement would be undermined without a strong institutional foundation to safeguard its terms. Therefore, any recovery and reconstruction plan post-conflict would also have to mandatorily focus on reinforcing state institutions—while addressing urgent humanitarian needs—to prevent the slide back into conflict. Experiences from around are replete with instances where the singular focus on post-conflict humanitarian relief—without regard for institutional transformations—have ended up being costly missed opportunities for breaking the cycle of violence.

9. There is thus a clear need for new thinking on Yemen to support more sustainable and inclusive ways of service delivery during conflict and immediate post-conflict periods. In this context, the key challenge for Yemen's development partners is to devise new and innovative ways to support the country, to not only recognize the fundamental causes and effects of conflict and fragility but also, importantly, enhance the resilience and coping capabilities of communities and households. Therefore, these notes on inclusive service delivery—including the current note on electricity services—propose a new approach that focuses on attending to urgent service delivery needs in the most affected parts of Yemen while also incrementally enhancing inclusiveness, resilience and thus, the effectiveness of service delivery institutions.

10. Because the limited functionality of the energy sector has severe consequences for other sectors

and the overall Yemeni economy, restoring electricity supply will be a priority for any in-conflict or post-conflict engagement. Reestablishing access to electricity will be a highly visible contribution to restoring public service delivery and critical for restoring peace and revitalizing economic activity. Moreover, it is likely to contribute to a decrease in productivity, deterioration of the business environment, and reduction in the country's gross domestic product. Assisting Yemen early on in the reconstruction of Yemen's electricity system will lay the foundation for long-term engagement to improve governance and resilience in the energy sector, support to livelihoods' stabilization and recovery, and expand access to sustainable energy.

11. A recent review of the World Bank's interventions² over the last 15 years in the energy sector concluded that alternative models for procurement and/or project implementation may be needed for in-conflict or post-conflict interventions.³ The World Bank's interventions over the last 10 years in the energy sector have been largely unsuccessful, in part due to what turned out to be a mismatch between the Bank's strategy and the governance and institutional capacity in Yemen⁴. The World Bank's strategy in Yemen's electricity sector in the past decade had been to finance large-scale, public-sector owned infrastructure jointly with other donors, including from Gulf States, the European Union and international finance institutions. However, even before the conflict, the main public institutions in the energy sector, specifically the Pub-

lic Electricity Corporation (PEC) and the Ministry of Electricity and Energy (MEE), did not have adequate institutional capacity to implement large investments with multiple contracts in a timely manner even before the conflict: only one new large power plant was built in the last fifteen years. Progress was hindered by:

- a. Limited capacity of sector institutions to prepare financeable projects;
 - b. Inability to make timely procurement decisions;
 - c. Poor execution and supervision of contracts.
12. This was despite significant lending made available and technical assistance to the PMUs in the form of engineering consultants hired to support decisions and the procurement process. The 2015/16 conflict has led to further weakening of the sector institutions, fragmentation of institutional authority and deteriorated capacity.

13. The development of the sector more broadly mirrors the Bank's experience, with only one power plant constructed over the past 10 years.

There are three overarching lessons:

- a. Building bulky, large-scale energy infrastructure in Yemen within the existing institutional framework is close to impossible. The main public institutions in the energy sector, specifically the Public Electricity Corporation (PEC) and the Ministry of Electricity and Power (MoEP), did not have adequate institutional capacity to implement large investments with multiple contracts in

1, 2. The Bank approved three IPFs with a total volume of US\$90mn between 2006 and 2012. Disbursement for all three projects was very slow as decision making in the sector institutions, especially in procurement, took much longer than expected. None of the projects yielded measurable outcomes.

3. Options for Project Management for Emergency Infrastructure Financing, Draft Note.

4. The World Bank, RY Power Sector Project: Implementation Completion Report, Washington DC, 2016

a timely manner even before the conflict: only one new large power plant was built in the last fifteen years. This was despite significant lending made available and technical assistance to the PMUs in the form of engineering consultants hired to support decisions and the procurement process.

b. New, project-specific public sector institutions created for the purpose of infrastructure development were no panacea. Examples of such new public sector institutions in the energy sector include institutional vehicles created for implementation of the Rural Energy Access Project (REAP) and the Mocha Wind Project, which faced the same capacity and procedural constraints as PEC and MoEP.

c. Distributed infrastructure investments worked better, but may be difficult to scale nationwide. The distribution grid component of the Power Sector Project, managed by the regional offices of PEC, was the only component of the project that showed some (limited) results. Community-led ownership and management of energy infrastructure, e.g., as attempted under the REAP, can improve responsiveness to local needs but there is no one-size-fits-all institutional model that works across all communities in Yemen. The learning process that is needed to adapt models to local circumstances may slow down a rollout to a national level.

14. This means that there may be a need to explore alternative models of procurement and financing en-

ergy infrastructure investments. Any alternative institutional options for project management post-conflict should adhere to the following principles:

a. Simplicity. In view of the limited government capacity – and institutions that make very little use of the capacity that does exist – complex institutional arrangements are unlikely to work. If a set of options is pursued in parallel, the portfolio of options has to be assessed in aggregate so as to not overburden the Government.

b. Flexibility. Reengagement should seek to map institutions to solutions, rather than pursuing a one-size-fits all approach. Rigidity should be avoided to ensure the institutional arrangement can be adapted to changing realities on the ground.

c. Service delivery. Emergency reconstruction of infrastructure should focus on critical public services, including health services, water supply, street lighting, electricity and fuel supply and schools.

d. Pro-poor. Emergency reconstruction of infrastructure should prioritize services that target poor urban households and rural communities.

e. Innovation. Post-conflict procurement should make realistic and practical use of the Bank's new procurement framework, specifically donor-led procurement and hands-on extended implementation support (HEIS).

E. Restoring electricity services in-conflict and post-conflict in Yemen

15. Restoring and expanding energy access will require a portfolio of investments embedded in a program of significant energy sector reforms.

Preparing such a portfolio will involve:

- Quantifying the financial resources needed for restoring, expanding and sustaining energy access;
- Identifying business models to build infrastructure and implement and grow energy services, as well as means to support them;
- Developing a strategy to rebuild the investment climate in the upstream oil and gas sector;
- Defining conditions on the ground that need to be present to trigger different forms of engagement;

16. The current status of information on the electricity sector and the sector institutions suggests that in-conflict interventions to restore access to affordable electricity should follow a two-pronged approach.

First, to provide funding and advice to what were the former regional offices of PEC (municipal level) to repair and reconstruct the heavily damaged urban distribution grids. A strong emphasis would be on restoring the quality of public services such as street lighting, water pumping, telecommunications, government services, health, education, etc. *Second*, to expand access to solar energy for the rural and urban population.

Urban grid rehabilitation

17. Many of the major transmission linkages in the country are damaged, suggesting that grid-based electricity supply has to be restored

on a regional level first before moving to the national level. Government reports indicate that all surveyed transmission lines in the country had suffered at least partial damage by October 2015. It is very likely that the situation has only deteriorated since then. Experience from the Power Sector Project suggests that restoring inter-regional transmission will require international contractors as local firms do not have enough capacity. These will be hesitant to return to Yemen even after peace is restored. The only practical approach to restoring grid-based power supply may therefore be to start from municipal ‘island grids’ and then gradually expand the reach of supply through interconnections.

18. The DNA also points to severe damage to the urban distribution grid, which suggests that the distribution grids in all major cities require significant rehabilitation to restore urban power supply.

The DNA only contains information on the status of the distribution substations in Aden, Taiz, and Sana'a, but this information offers insights into the status of the distribution grid overall. In Aden, Taiz, and Sana'a, 25 percent, 50 percent, and 37 percent, respectively, of the surveyed distribution substations are known to have suffered partial or complete damage as of October 2015.

19. Municipal authorities would need material and equipment to rehabilitate the heavily damaged urban distribution networks.

This would allow grid-based electricity supply to be restored within specific parts of the country, as a precursor for a broader effort to restore supply across the transmission grid. The focus should be on standardized grid components and material that

can be procured rapidly. Components to be supplied include but are not limited to (a) mobile, ‘plug and play’ 33/11 kV substations; (b) distributed generation sets, including solar-diesel hybrid systems; (c) overhead line hardware; (d) compact distribution transformers and low-voltage substations; (e) switch-gears, lighting arrestors, and fuses; and (f) aluminum and copper conductors. In general these components are relatively easy to move around, as even the larger components such as substations are available in skid-mounted or containerized designs. However, substations would still require relatively good roads to be supplied to the target destination. Hence the focus in the short-term should be on ports to facilitate rapid delivery of the material to the implementing agencies. Candidate cities include Aden and Al-Mukalla in the South and, if possible, Al-Hodeida. Yemen’s distribution grid is relatively standardized across the country, with most regions relying on 33/11 kV voltage levels.

20. A strong emphasis should be on restoring the electricity supply to critical public services such as street lighting, water pumping, telecommunications, government services, health and education. This would be achieved by prioritizing those districts and parts of the grid that offer the highest dividend in terms of restoring public services, e.g., circuits that connect hospitals or water infrastructure.

21. Strengthening service delivery on a municipal level would contribute to a more decentralized service delivery model and build capacity that is critical for the reconstruction

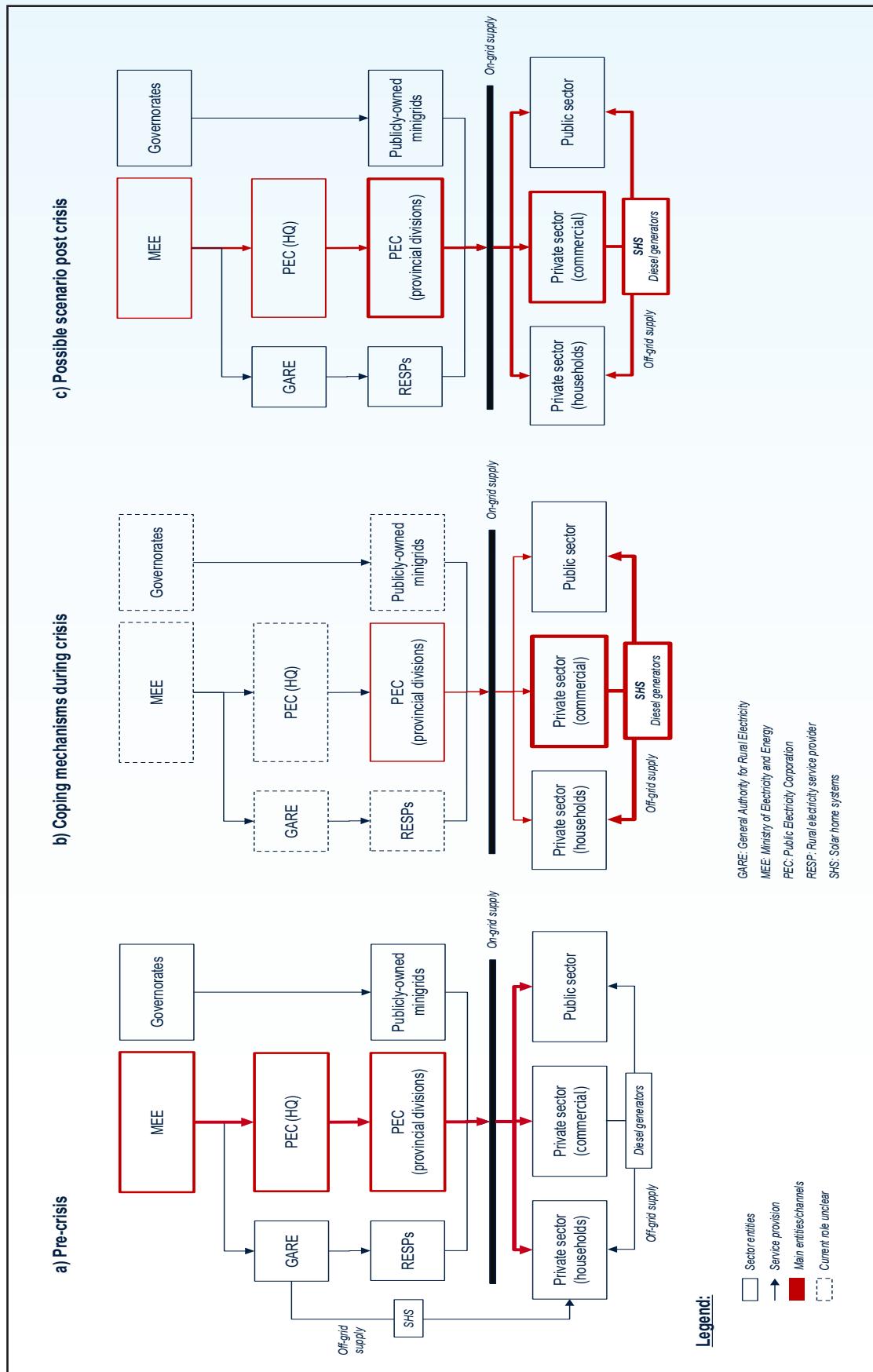
phase. Yemen’s authorities have struggled for decades to expand energy access through the expansion of the national grid, and recurring conflicts have repeatedly set back whatever small progress was being made. A protracted conflict would mean that a centralized, nation-wide electricity grid is a distant prospect and electricity supply would for a foreseeable future be provided through a mix of private sector driven distributed energy, in particular solar and diesel, and smaller ‘island’ grids in urban population centers that are operated by what are now the regional units of the Public Electricity Corporation (PEC). Strengthening the service delivery capacity of these units—both technically and institutionally—will be critical to restore electricity supply over the coming years.

Expanding access to solar power

22. Given the difficulties in developing new generation assets or expanding energy access over last decade, there is an opportunity to take advantage of the emerging solar supply chain to provide decentralized power under a model driven by local citizens and private sector. Distributed solar has been one of the few thriving industries in Yemen during the past two years and is a rare success story for the private sector in the conflict. However, access has been uneven, with most systems being owned by better-off households in urban areas.

23. Expanding and sustaining access to solar power could be part of a “new social compact” in the electricity sector. Stand-alone solar systems and/or solar-powered mini-

Figure 1: Service delivery channels in the Yemen's electricity sector. The proposed project would aim to strengthen the private sector driven, bottom-up service delivery model that has emerged during the conflict (marked in bold/red in figure b).



grids could a more resilient infrastructure and, if powered by renewable energy, replace the infrastructure needed for importing, refining and transporting fuels. They could also reduce costs: While electricity from distributed renewable energy sources would initially be more costly than current (subsidized) grid-electricity tariffs in Yemen, it is more affordable than electricity from the informal system of diesel generators, which is the only real alternative for most people in low-access regions. Experience from the region, including in Iraq and Kurdistan, suggests the willingness to pay is there if the level of service is high.

24. In addition to energy services to households and commercial establishments, there is an urgent need for restoration of energy services for water extraction, preserving food supply chain and provision of medical services. Quick and urgent solutions for decentralized provisions of power supply to these sectors should factor in solutions provided in other conflict countries as well as the complex relationship between incumbent PEC, government and its departments, other factions, regional diversity, role of regional players, civil society institutions and the private sector.

25. Restoring and expanding access to electricity through distributed solar would contribute to building more inclusive, bottom up service delivery driven by the private sector. Expanding distributed energy creates jobs, strengthen the private sector, provide a more resilient energy infrastructure and significantly reduce the need for fuel import, refining and transport. It could also reduce costs: While electricity from distributed renewable energy

sources would initially be more costly than current (subsidized) grid-electricity tariffs in Yemen, it is more affordable than electricity from the informal system of diesel generators, which is the only real alternative for most people in low-access regions. Experience from the region, including in Iraq and Kurdistan, suggests the willingness to pay is there if the level of service is high.

Medium-term, post-conflict

26. Leapfrogging to more resilient, decentralized energy services looks feasible for part of Yemen's electricity consumers, especially in rural areas. This could be predominantly driven by the private sector, but public investments or support would be needed to expand access to public services and less affluent communities.

27. Investments in larger-scale infrastructure may be required in the medium-term to achieve economies of scale in urban areas and enable industrialization.

F. Key considerations

28. The main risks to any intervention relate to (a) the political and security situation, which if it changes significantly may reverse any gains made; (b) the fiduciary and technical capacity of the implementation partners, which may limit the pace at which intervention can be implemented; and (c) the political economy of the sector, as issues such as the non-payment of salaries may limit the pace at which any intervention can be implemented.

29. The institutional arrangements in particular would require careful consideration. The experience from the Bank's recent engagement suggests that better delivery channels will be necessary to improve the perfor-

mance of the energy sector in Yemen. Many recommendations of previous analytical assessments turned out to be out of sync with the GoY's implementation capacity. The lending projects for alternative generation sources – mostly grant-financed – were closed largely undisbursed, despite the country's low generation capacity and the fact that most existing plants run on hugely expensive imported diesel.

30. Alternative institutional options for project preparation, procurement decisions and execution/contract management for reconstruction of infrastructure projects include:

a. *Centrally coordinated project management* by a cross-sectoral PMU, which like the Executive Bureau is integrating functions across line ministries, but whose mandate would include not only planning but also project identification, preparation, appraisal and procurement. Such a 'reconstruction agency' would be a transitional structure with a limited mandate (e.g., three-years).

b. *Donor-led project management*, where Government is involved in prioritization but donors prepare projects, procure on behalf of the Government and execute/manage contracts directly; hand-over could happen either directly after construction or after a certain time of asset operation (illustrations range from the recently approved emergency project of World Bank managed by UNDP or potential management of projects by donors from Gulf countries).

c. *Private sector led project management*, where the Government or donors would specify general project requirements and institutionalize the fund allocation process but would leave project management to the local

private sector. This could work well in sectors that strived despite the conflict, such as solar energy, and where there is a strong business case post-conflict.

d. *Community-led project management*, where the Government or donors would specify general project requirements and institutionalize the fund allocation process but would leave project management to the local communities. The most obvious channel for such an approach would be to expand funding to, and broaden the scope of eligible infrastructure projects of the Social Fund for Development.

e. *Sector-led project management with implementation support*, where the traditional public sector institutions (ministries, SOEs) take responsibility but are supported by internationally funded project management staff that are seconded to the institutions.

31. The advantages and limitations of the different options are summarized in Table 1 next page.

32. **The current status of Yemen's energy sector suggests that a portfolio of options would be most suitable for re-engagement:**

a. Option B could be an alternative for **larger-scale infrastructure post conflict** as the donor-led project management could compensate for the sector institutions' lack of implementation capacity. Procurement of the equipment would be done on behalf of the client, either by the Bank or by one of the member institutions of the Arab Co-ordination Group (ACG). Upon delivery, the local implementation partners would install the

Table 1: Alternative options for infrastructure project management

Option	Advantages	Limitations
A Centrally coordinated project management	<ul style="list-style-type: none"> Could enable high-level coordination to match donor funds and priority needs Could build on experiences/institutional setup of Executive Bureau Could be targeted at the poorest citizens Possibly preferable to some donors 	<ul style="list-style-type: none"> May not be suitable for country with multiple power centers, as likely in post conflict Yemen Possibly difficult to coordinate with / ensure smooth hand-over to line ministries Low responsiveness to local needs Mandate too short for greenfield projects Mandate too short for asset ownership / supervision
B Donor-led project management	<ul style="list-style-type: none"> High capacity to restore infrastructure services rapidly across procurement cycle Suitable for large infrastructure Potentially quick restoration of infrastructure Fits in economic and industrial strategy of some of key donors, may therefore be preferred by donors and lead to greater mobilization of donor resources Could be targeted at the poorest citizens 	<ul style="list-style-type: none"> Political acceptability within Yemen may be low, especially linked to specific donors Donor coordination may be difficult Possibly lower accountability and transparency, depending on donor systems Sustainability of efforts post construction may be difficult to ensure
C Private sector-led project management	<ul style="list-style-type: none"> Resources can be mobilized rapidly High responsiveness to demand Strengthening of private sector, provision of employment and diversification of economy as associated benefits 	<ul style="list-style-type: none"> May not reach those with least ability to pay Lack of local capacity in many fields Risks may for some time remain too large for foreign contractors to commit to projects in Yemen May not be suitable for larger or greenfield infrastructure
D Community-led project management through the Social Fund for Development or a comparable institution	<ul style="list-style-type: none"> High responsiveness to local needs Could build on existing institutional setup of SFD Could be targeted at the poorest citizens 	<ul style="list-style-type: none"> May not be suitable for larger infrastructure Existing institutions such as PWP and SFD may be overloaded if tasked with reconstruction work across all sectors Possible conflicts of interest with formal government institutions, as institutions such as PWP and SFD currently exist outside of the formal government structure Coordination to match donor funds and priority needs possibly more difficult
F Sector-led project management with implementation support	<ul style="list-style-type: none"> Capacity building would happen in critical sector institutions Could be targeted at the poorest citizens 	<ul style="list-style-type: none"> Lack of institutional capacity, especially in the energy sector, make this approach unsuitable for large projects with many contracts May not be suitable for country with multiple power centers

equipment where needed. The local implementation partners would be the respective regional divisions of PEC, where these are still functional, or otherwise the municipal authorities.

b. Option C (private-sector led) would be a suitable **in-conflict or post-conflict interventions** to scale up distributed energy services using solar energy, building on the existing, private-sector driven delivery channels. These could be supported through external funding provided to consumers through one or several financial intermediaries (private sector or NGOs). The financial intermediaries could be selected from the commercial banks and NGOs that already provide financing for solar systems, including the CAC Bank, the Yemen International Bank, the Yemen Commercial Bank, the National Microfinance Foundation, the Alkurami Islamic Micro Finance, Azal Micro Finance and the Small and Micro Enterprises Development Fund (SEDF) (or other relevant international NGOs).

c. Option D (Community-led project management) would be suitable **in-conflict or post-conflict intervention** to scale up distributed energy services if

the program can build on proven, widely adopted institutional model, such as the SFD or the PWP.

d. Option F (Sector-led project management with implementation support) would be suitable for **larger-scale infrastructure post conflict**, however only with extensive implementation support, as the post conflict capacity of PEC and ministry is likely to be further constrained compared to pre conflict.

33. Project identification would have to be consistent with (or done as part of) the government's Post-Conflict Needs Assessment (PCNA).

34. Procurement under any of the institutional options may also have to be consistent with Yemen's legal framework which has, among others, relatively stringent requirements for procurement approval.

35. Ultimately, the choice of institutional arrangement for post-conflict infrastructure investment has to be made by the Government. However, donors can facilitate decision by fleshing out technically sound options.

36. Monitoring and evaluation (M&E) could be arranged through a third party, such as a local or international NGO active in the targeted areas or a private contractor.