



HUMAN
RIGHTS
WATCH

“Cut Off From Life Itself”

Lebanon’s Failure on the Right to Electricity

“Cut Off from Life Itself”

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Summary

Electricity is the vital lifeblood of modern life. It is fundamental to nearly every aspect of living and participating in present-day societies. It allows households to be productive, economically active, able to educate their members, obtain necessary information, maintain health, and recreate. It is essential for lighting, accessing healthcare, medicine and assistive aids, the provision of clean water, refrigeration of food, heating and cooling of homes, transportation, a functioning media, and access to information.

Human Rights Watch concludes that the internationally-protected right to an adequate standard of living includes the right of everyone, without discrimination, to sufficient, reliable, safe, clean, accessible, and affordable electricity. Access to electricity is critical to ensuring other basic rights, including but not limited to the rights to health, housing, water, and education, and should be recognized as a distinct human right. States have a duty to ensure that everyone in their territory or jurisdiction has access to electricity. This means ensuring adequate and sustainable electricity generation and supply and international cooperation to ensure reliable, affordable, and available electricity for the end user.

For almost 30 years, Lebanese authorities have failed to properly manage the state-run electricity company, Électricité du Liban (EDL), resulting in widespread blackouts that are violating the right of Lebanon's population to electricity as well as secondary rights to an adequate standard of living, education, health, free movement, and a healthy environment. The decades of unsustainable policies and fundamental neglect that the authorities adopted in the electricity sector, which were the result of the elite capture of state resources, corruption, and vested interests, caused the sector to completely collapse in the midst of the ongoing economic crisis, leaving the country without power through most of the day.

Based on a representative survey of over 1,200 households, as well as interviews with energy experts and a review of technical literature, this report sheds light on how Lebanon's residents are coping amidst the failure of the state to provide more than one to two hours of electricity per day, the percentage of people's income that is going towards paying for privately-sourced electricity, how this system is exacerbating inequality in the

country, and the impact that the lack of electricity has had on people's ability to realize their most basic rights, pushing them further into poverty. The report then examines the reasons behind the disintegration of the electricity sector and why the sector has been so resistant to reform. Finally, the report offers recommendations for Lebanon and for its international donors on what a rights-respecting, sustainable, and affordable electricity sector could look like.

Since the end of the civil war in 1989, mismanagement, corruption, neglect, and the failure to rebuild the electricity infrastructure have left EDL increasingly unable to generate enough electricity to meet demand. Instead, EDL resorted to rationing electricity, providing residents with 12 to 21 hours of electricity per day until 2021, depending on the region, with more severe rationing in areas further away from the capital, Beirut. Between 2008 and 2018, EDL went from providing around 78 percent of Lebanon's electricity needs to around 55-64 percent.

While electricity blackouts have been a persistent problem for decades, they became a full-blown crisis in the summer of 2021, when the Lebanese state failed to secure the foreign currency necessary to purchase fuel. Since then, EDL has struggled to provide more than 1-3 hours of electricity per day. A lucrative, but very costly and highly polluting, diesel generator market has been filling the supply gap for decades, but it is available only to those who can afford it. Electricity in Lebanon has effectively become a service only the wealthiest can afford, reinforcing the country's deep-seated inequality and further pushing people into poverty during one of the worst economic crises in modern history.

Since October 2019, Lebanon's economy has been in a deep financial crisis that culminated in the country's first sovereign default in March 2020. The economic fallout of the Covid-19 pandemic, political deadlock, and the explosion in the port of Beirut in August 2020 aggravated an already challenging economic recession and accelerated the collapse of the economy.

Inflation soared to 145 percent on average in 2021, placing Lebanon third globally in terms of the highest inflation rates, after Venezuela and Sudan. This in turn hindered the purchasing power and capacity to secure essential needs for households, hitting Lebanon's poorest households particularly hard. In addition, the August 4, 2020, port explosion that left more than 200 dead, 6,000 injured, and 300,000 people homeless

caused extensive damage to infrastructure, including transport, energy, water supply and sanitation, and municipal services totaling US\$390-475 million in losses. According to the World Bank, the explosion caused an estimated \$3.8-4.6 billion in material damage.

The currency has lost more than 95 percent of its pre-crisis value. This rapid devaluation, as well as supply-chain bottlenecks and fuel shortages, have caused food prices to increase dramatically by 483 percent in January 2022 compared to the year before, and remain high at 332 percent as of June 2022. Prices for electricity, water, and gas skyrocketed, increasing by 595 percent.

These compounding crises have destroyed the livelihood of tens of thousands of people who continue to suffer from electricity shortages and worsening economic conditions. Rising unemployment, declining remittances, an insufficient social protection system, and the removal of subsidies for key imports, such as wheat and fuel, have made it harder for many people to meet their basic needs, pushing millions into poverty and exacerbating existing destitution. The United Nations estimates that more than two thirds of the population now live in poverty.

Human Rights Watch partnered with a local firm, the Consultation and Research Institute (CRI), to administer a household survey to a representative sample of 1,209 Lebanese households who had been living in the same home since 2019. The sampling frame excludes Palestinian camps and formal and informal Syrian refugee camps, which receive electricity from private generators provided by UN agencies, and people who were not permanent residents or who were in a secondary home. The survey, which was administered between November 2021 and January 2022, asked households about their levels of access to electricity, payment of electricity bills, willingness to pay, policy preferences, economic standing, and the effects of electricity shortages on the household. We also conducted qualitative research, including interviews with energy specialists, a review of relevant literature, and media articles, into the failures of Lebanon's electricity sector and its impact on health and the environment.

Our results clearly demonstrated the extent to which the electricity crisis was exacerbating inequality, pushing people into poverty, hindering access to basic rights like food, water, and health, and causing extensive air pollution affecting the environment and the population's health.

We found that between November 2021 and January 2022, the average household only received electricity from EDL for about 10 percent of the day, with the median household getting two hours. This level of access extended throughout the country.

Access to a private or commercially operated generator that can fill the gap for state electricity was very dependent on income. Our research showed that low-income households were least able to afford private generators or subscriptions with commercially operated ones. Among the poorest 20 percent of households, one in five did not have access to a generator. This compared to only one out of 50 of the wealthiest 20 percent of households. When those without access to a generator were asked why, the most common answer (75 percent) was that they could not afford it. Many households told Human Rights Watch that they had to stop their generator subscriptions because of the rising cost of diesel as well as general inflation, which was making it exceedingly difficult to make ends meet.

Further, low-income households spent a much larger share of their income on generator bills compared to wealthier ones, straining family budgets and putting them at greater risk of falling behind on other essential expenses. We found that the average household had generator bills that accounted for 44 percent of monthly income. The disparities between income levels are huge. For those in the bottom quintile who accessed a generator, their generator bills consumed 88 percent of their monthly income, on average, compared to 21 percent for the top quintile.

Despite consuming a large share of people's incomes, generators and alternative sources, such as solar panels, did not fully meet the gaps in energy supply. The average Lebanese household estimated that they go about 9 hours per day with no electricity at all from any source. This is down from an estimated 90 minutes per day pre-crisis. Household income also determined the average number of hours per day that the household went without electricity. The poorest quintile of households reported going without electricity for 11 hours per day on average compared with 6 hours on average for the wealthiest quintile of households. Further, families frequently go full days without receiving electricity from any source. About one in 40 households reported 30 or more full days within the three months prior to the survey without any electricity. Going a full day or more without electricity was also correlated with household income. While about half of households in the bottom 20

percent of income reported a 24-hour or longer blackout, only a quarter of the wealthiest households experienced the same.

The disparities in people's ability to access electricity reflects the broader context of longstanding inequalities in income and wealth in Lebanon, which are some of the highest in the Middle East and North Africa region, but also exacerbate this inequality.

The combination of high electricity costs and a dire economy means that households have to make difficult choices about how to make ends meet. In response to our survey, nearly nine out of ten households said the cost of electricity affected their ability to pay for other essential services. Furthermore, this hardship occurred frequently, with two-thirds of households saying that electricity costs affected their ability to pay for essentials several times a month and another 20 percent saying that this happened every other month or so. This experience was so commonly felt throughout Lebanese society that only within the highest income quintile did fewer than half of households say they were not affected several times per month.

Further, electricity is at the heart of a modern, dignified life, so the lack of electricity has a severe impact on the right to an adequate standard of living, the right to education, the right to health, and the right to livelihood. Human Rights Watch concludes that everyone should have the right to affordable, accessible, reliable, and clean electricity as part of the right to an adequate standard of living and that Lebanon should recognize this as a distinct human right. We asked people whether electricity shortages had affected their household's ability to keep food refrigerated or frozen, receive sufficient water, keep their home at a safe temperature, cook or heat food, participate in an education-related or work activity, or access their home. Over 80 percent of households said that at one or more of these seven activities had been affected by lack of energy and a quarter of households said that four or more of these activities were affected. A third of households said that electricity shortages affected their ability to cook and heat food, often daily. More than a third of households with children said they had difficulty paying for school meals, largely because the high cost of electricity consumed most of people's incomes.

In addition to disproportionately failing low-income households from enjoying their right to electricity, the Lebanese electricity system's reliance on plants powered by heavy fuel oil and on diesel generators causes significant air pollution that has taken a huge toll on the

environment and had significant impacts on the health of Lebanon's residents, killing thousands each year according to Greenpeace data. In addition to the health impacts, Greenpeace found that the annual cost to Lebanon of fossil fuel-induced air pollution was \$1.4 billion, or between 1.3 to 4 percent of the country's GDP in 2018, due to lost work and associated healthcare costs.

Despite the failure of EDL to provide continuous electricity supply to Lebanon's residents, Finance Ministry and Energy Ministry figures show that EDL ran a deficit of between \$1.5 to \$2 billion per year over the last 10 years. The World Bank estimates that annual budgetary transfers to EDL averaged 3.8 percent of Lebanon's gross domestic product (GDP) over the last decade, amounting to almost half of the overall fiscal deficit. Between 1992 and 2018, transfers to EDL contributed to over \$40 billion of the country's public debt.

EDL's lack of financial viability is in part due to the high costs of electricity production and low cost-recovery. Lebanon relies on expensive heavy fuel oil and diesel for generation. Further, the power plants have not been maintained properly and are old and inefficient, producing less electricity than their actual capacity.

Yet, cost-recovery in Lebanon is exceedingly low due to artificially low tariffs that have been unchanged since 1994, lack of proper maintenance that result in high technical losses, and high rates of electricity theft and non-payment of bills.

Successive governments have for decades promised to reform the dilapidated electricity sector, but those promises have not materialized. The council of ministers, and particularly the minister of energy and water, exerts almost complete control over the sector with little transparency and accountability, issuing production licenses and permits, making policies regarding the sector, supervising those policies, and providing financial oversight.

Like most other public institutions, the electricity sector has been rife with corruption, negligence, and mismanagement, and is emblematic of the failures of post-war state-building and political professionalism in Lebanon.

The political parties in government have kept EDL weak, appointing boards of directors based on partisan affiliation rather than merit, refusing to appoint members of an independent Electricity Regulatory Authority (ERA) as mandated by law, and creating a

system of diffuse decision-making that is a “perfect mechanism for avoiding accountability,” according to one energy expert. By the government’s own admission, “at the center of the sector’s challenges have been its governance structure...and political interventionism crippling decision-making and progress.”

Instead, politicians and politically connected individuals have used the electricity sector to further their political goals, including by doling out jobs at EDL as a form of clientelism to make huge profits from lucrative contracts, often at the state’s expense, and reap profits from the private generator market.

In July 2020, a Lebanese judicial investigation indicated that since 2005, the government purchased billions of dollars’ worth of tainted, faulty fuel because of an alleged counterfeiting scheme and alleged forged lab quality tests. According to the indictment by Lebanese authorities, Ministry of Energy officials and individuals at testing labs allegedly received bribes to issue false reports indicating that the delivered fuel met international specifications. This tainted fuel contained prohibited chemicals that were damaging Lebanon’s power plants and posed a serious health and environmental risk.

A second high-profile situation that led to a judicial inquiry and other government scrutiny because of alleged mismanagement involved a contract that Lebanon entered into with a Turkish company that was contracted to provide around 370 megawatts (MW) of electricity from two floating barges stationed in the Jiyeh and Zouk ports – or between 20 to 25 percent of Lebanon’s energy capacity. Lebanon’s Central Inspection, the government agency responsible for overseeing public administrations, found that some aspects of the contract were breached, and that some terms appeared to favor Karpowership at the expense of EDL and the Lebanese State.

Experts who spoke with Human Rights Watch criticized the deal for costing the Lebanese state more than \$1.5 billion, excluding the cost of the fuel supplied by the state to run the barges. Experts estimated that for a slightly greater sum of money, Lebanon could have built three new power plants.

Further, because of EDL’s inability to meet the electricity demand in Lebanon, an informal private diesel generator industry valued at around \$3 billion has mushroomed across the country. The large sums of money in the generator market, as well as the vested interests

of the diesel importers, help explain why the electricity sector has been so resistant to reform and why the government has continued to adopt policies that entrench Lebanon's oil dependency. Diesel importers exert great influence on the national level, primarily because of the overlap between the shareholders of these companies and the political establishment.

Dr. Khaled Nakhleh, an advisor to the energy minister, admitted on live television that “the ruining of the electricity sector is related to the big interests in the generator sector given the huge amounts of money that exceed 2 billion dollars ... I don't think that all these works, these huge works, will facilitate [state] electricity coming and this work stopping.”

Within this context, it is therefore unsurprising that the Lebanese state has not invested in renewable sources of energy, despite experts estimating that Lebanon's solar and wind resources could power the country several times over. In 2019, the share of renewables in Lebanon's total electricity generation was just 7.83 percent, of which only 0.73 percent was from solar power and only 1.82 percent was from hydropower.

One of the most basic human rights is the right of everyone to an adequate standard of living, set out in treaties like the International Covenant on Economic Social and Cultural Rights, that are binding in Lebanon. This right includes basic rights such as the right of everyone to adequate, affordable, and accessible water, food, and housing. Human Rights Watch believes that this right should also include, explicitly, a right of everyone to adequate, affordable, and accessible clean electricity. Lebanon should recognize the right to electricity for everyone and require EDL and all state bodies to ensure it.

The Lebanese authorities are responsible for the daily violations of residents' rights to electricity, an adequate standard of living, education, health, and a healthy environment caused by the ongoing electricity crisis. Lebanon has an obligation to take immediate and urgent steps ensure that all residents have a continuous, affordable, and clean supply of electricity.

International financial institutions, including the International Monetary Fund and the World Bank, should urge the Lebanese government to reform the electricity sector in line with their human rights obligations, and ensure that everyone, regardless of socio-economic status, has access to and can afford electricity. The World Bank should refrain

from funding any new energy projects that rely on fossil fuels and instead provide technical and financial support to expand renewable energy infrastructure.

Recommendations

To Parliament

- Enshrine the right to electricity in all relevant national laws and regulations;
- Urgently pass some of the laws that Lebanon agreed to in the staff level agreement with the International Monetary Fund, specifically the capital controls law and the banking secrecy law, which would unlock billions of dollars in aid to Lebanon and set it on the path towards a sustainable recovery, which would encourage investments in essential sectors, including the electricity sector;
- Pass the draft Law on Distributed Renewable Energy Generation, which sets a basis for encouraging distributed renewable energy production by founding the main principles for the realization of projects using net metering in all its forms, and peer-to-peer (distributed) renewable energy (only) trading through direct power purchase agreements and/or renewable energy equipment leasing;
- Pass the draft Law on Energy Efficiency, which would decrease energy consumption by enforcing the use of energy efficiency measures in both the public and private sectors;
- Broaden fiscal space for social protection through reforms to Lebanon's regressive taxation system in order to establish a progressive income tax system and the introduction of a wealth tax;
- Establish a universal social protection system that guarantees lifecycle benefits, such as child grants, unemployment benefits, and old-age pensions.

To the Council of Ministers

- Urgently implement Law 462/2002, which organizes the electricity sector, establishes the Electricity Regulatory Authority, and unbundles electricity activities, and pass any implementation decrees necessary to fulfill the law;
- Urgently pass a decree appointing the members of the Electricity Regulatory Authority (ERA) in a transparent and merit-based selection process, and ensure that the ERA can carry out its work in an independent and autonomous way;
- Immediately increase generation capacity from hydropower, wind, and solar. The faster the transition to renewables, the more money Lebanon will save, the more jobs created, and the more lives saved from air pollution reductions. The World

Bank has repeatedly stated its intention to fund the transition from fossil fuels to renewable energy, and Ministers should demand funds for this purpose from the Bank and other sources.

- Until the ERA is appointed and can organize and oversee public procurement practices, ensure that any new contracts signed related to the energy sector comply with the 2021 Public Procurement Law and international best practices, and that signed contracts are made publicly available;
- Establish an independent complaints mechanism that would allow bidders in the procurement processes to challenge decisions during the bidding process until contract award;
- Launch an audit of EDL's assets and require EDL to publicly disclose its financial and operational information;
- Take the necessary decisions to fulfill Lebanon's Nationally Determined Contribution (NDC) to unconditionally reach 18 percent and conditionally reach 30 percent of its power demand from renewable energy sources by 2030;
- Before raising electricity tariffs, ensure that EDL can provide a steady supply of electricity to households and that a comprehensive social protection system is in place to support the right of the entire population to access essential services, including electricity. Ensure that tariffs are progressive, with lower consumers paying discounted rates. As part of the new tariff structure, include mechanisms that ensure that households do not spend a high share of their incomes on electricity, preventing them from enjoying their right to an adequate standard of living. This share should be established in consultation with experts and civil society organizations;
- Take the necessary steps to ensure that relevant ministries enforce the implementation of regulations for the generator sector. This includes a generator tariff protecting consumers from over-billing, the installation of meters for all generators, and acceptable emission limits for generators.
- Implement the National Anti-Corruption Strategy 2020 – 2025 and ensure that the Ministerial Anti-Corruption Committee and its supporting Technical Committee are sufficiently empowered and have the resources and technical expertise necessary to implement and monitor the strategy;
- Establish a unified, national body for the implementation of social protection policies that include concerned ministries, public administrations, and civil society actors;

- Strengthening governance, anti-corruption, and anti-money laundering/combating the financing of terrorism (AML/CFT) frameworks. Ensure that public and civil society organizations are meaningfully consulted on decisions relating to the electricity sector, and that decisions that impact the population are communicated clearly.

To the Ministry of Energy and Water

- Implement Law 462/2002;
- Update the 2022 Electricity Plan to update the timeframes of necessary actions based on developments over the past year, place a greater primacy on the introduction and reliance on renewable sources of energy, especially solar energy, in order to meet Lebanon’s commitments during COP26, and specify which parts of Law 462 need to be amended while explicitly committing to not weakening the independence and powers that the law gives the ERA;
- Establish an infrastructure planning department within the ministry and develop a planning framework that involves and redefines the roles of all major stakeholders at various stages of the planning process. The planning process needs to be transparent and participatory, and should cover hydrocarbon infrastructure (upstream, midstream, and downstream), power generation (thermal and RE) developments, electricity network investments (transmission and distribution) and off-grid developments and programs;
- Form a renewable energy technical department under the ERA that will advise the ERA on technical issues related to the implementation of renewable technologies;
- Establish a body jointly with the Ministry of Environment that is responsible for setting the environmental, public health, and safety requirements for private generation equipment, including diesel generators and solar panels, and ensure that this body is empowered to monitor the deployment of this private generation equipment, ensure that they comply with required standards, and are able to take action against violators, either through fines or referrals to the judiciary;
- While diesel generator owners are still supplying a large portion of the population with electricity, ensure that they are complying with the tariffs set by the ministry and are not overcharging consumers;
- Adopt a plan to make EDL’s operations more modern and efficient, including by:

- improving EDL’s external and internal governance arrangements such that its board of directors operates independently without undue interference from political elites,
- strengthening EDL’s core business operations, including through strengthening its system planning, integrating information technology systems, and making use of smart meters,
- improving EDL’s administrative performance, including through carrying out a needs assessment to map existing staff capacities against the new needs, identifying reallocations and training requirements, and where necessary hiring new staff with required technical expertise based on clear criteria and without political interference;
- Expand and refurbish the transmission network to better meet increasing demand and ensure reliable supply;
- Set a plan for reducing the distribution network’s technical losses and strengthening EDL’s revenue collection, including through the installation of smart meters;
- Require EDL and any other electricity provider, including generator owners, to provide a written, phone, or personally-delivered notice before a disconnection;
- Issue a set of regulations on disconnections, including prohibiting disconnection of residential services when the customer has an inability to pay and when the impact of disconnection would be especially dangerous to health, such as during extreme weather ;
- Establish simple procedures for socially vulnerable groups, such as people with disabilities, older people and low-income households, to apply and be registered for protection from disconnection;
- Prioritize electricity access for persons with disabilities who require electricity-dependent assistive technology for independent living and for participation in society;
- Ensure that no household is disconnected from electricity supply due to inability to pay;
- Allow budget payment plans to distribute electricity costs throughout the year;
- Establish a re-training program for workers in the generator industry to give them the skills to switch their business models from providing neighborhoods with electricity generated from diesel to electricity generated from renewable sources, such as solar.

To the Ministry of Environment

- Ensure that the air quality monitors are operational and that they adequately monitor particulate matter 2.5, one of the main pollutants of concern;
- Set up effective sources of public information to allow the results of the monitors to be shared publicly and with affected communities, and establish an effective public health advisory system to issue warnings to avoid outdoor activities or to limit vehicular transport on bad air days;
- Establish a body jointly with the Ministry of Energy that is responsible for setting the environmental, public health, and safety requirements for private generation equipment, including diesel generators and solar panels, and ensure that this body is empowered to monitor the deployment of this private generation equipment, ensure that they comply with required standards, and are able to take action against violators, either through fines or referrals to the judiciary.

To the Ministry of Social Affairs

- Establish a universal and inclusive social protection system that guarantees the rights to social security and to an adequate standard of living for everyone in Lebanon. The Ministry should provide basic social security guarantees, such as child, disability, and unemployment benefits as well as old-age pensions to everyone, including those working in the informal sector. Poverty targeted social assistance programs, like the National Poverty Targeted Program, can play a secondary role, as long as benefits that protect everyone from childhood to old age are guaranteed.
- Develop a dedicated social assistance program that helps families and individuals with energy costs, particularly low-income households, older people, and people with disabilities. Such an assistance program should be provided in addition to other social protection programs. While the program could be targeted at those most at risk of not being able to afford electricity, the eligibility criteria should be simple, clear, and not too narrow as to exclude many households in need of support. The eligibility criteria should be created in consultation with civil society organizations.

To the Ministry of State for Administrative Reform

- Ensure that the Civil Service Board, the entity tasked with professionalizing public administrations including through overseeing hiring practices, is empowered and has the resources to carry out its functions, including related to appointments at EDL.

To the Central Bank

- Re-establish the National Energy Efficiency and Renewable Action Plan to provide access to subsidized loans for consumers and businesses who want to invest in renewable and energy efficiency projects.

To Lebanon's Donors

- Ensure that any funds given to the Lebanese state and relevant public institutions are not being squandered but used towards rights-based structural reforms, through a robust monitoring and evaluation mechanism that is transparent and publicly accessible;
- Refrain from funding energy projects that rely on fossil fuels;
- Refrain from exclusively funding narrowly targeted cash transfer programs that exclude most of the people in need, and instead support the creation of a universal social protection system;
- Fund the establishment of a re-training program for workers in the generator industry to give them the skills to switch their business models from providing neighborhoods with electricity generated from diesel to electricity generated from renewable sources, such as solar;
- Support the implementation of the National Anti-Corruption Strategy and the strengthening of the Civil Service Board to strengthen integrity in the public sector.

To the International Monetary Fund

- Continue insisting on the key governance, anti-corruption, and anti-money laundering/combating the financing of terrorism reforms outlined in the staff-level agreement signed with the government of Lebanon in April 2022 as pre-conditions for any bailout package;

- Continue pushing for electricity sector reform as one of the main pillars of any bailout package, but ensure that those reforms comply with human rights standards, including ensuring that everyone – regardless of socio-economic status – has access to and can afford continuous electricity;
- Urge the Lebanese state not to increase tariffs before it can guarantee residents a reliable supply of electricity and before implementing a social protection system that ensures everyone can afford essential services, including electricity;
- Urge the Lebanese state to prioritize the introduction of renewable sources of energy as a way to decrease the costs of purchasing expensive fossil fuels and balance EDL’s budget, as well as enhancing Lebanon’s energy security.

To the World Bank

- Refrain from funding any new energy projects that rely on fossil fuels, and instead prioritize funding utility-scale renewable projects, such as solar and wind farms;
- Refrain from funding narrow poverty targeted safety net programs which are prone to mismanagement and misuse of funds, and instead prioritize advancing universal social protection programs in line with human rights.

To the Committee on Economic, Social and Cultural Rights

- Recognize access to clean and affordable electricity as a distinct human right;
- Draft a General Comment on the right to electricity, emphasizing the social, economic, and gender dimensions associated with electricity access.

Methodology

This report is based on qualitative and quantitative research Human Rights Watch researchers and a local research firm carried out between November 2021 and August 2022. Researchers interviewed 31 residents in Lebanon who have been severely impacted by the electricity shortages, as well as 14 energy experts, researchers, and academics at local and international institutions. Most interviews were conducted remotely, but some were conducted in person in Beirut. Interviews were conducted in Arabic or English without the assistance of an interpreter. For reasons of personal security, Human Rights Watch has withheld the names and locations of some interviewees.

Human Rights Watch informed all interviewees of the nature and purpose of our research, and our intentions to publish a report with the information gathered. We informed each potential interviewee that they were under no obligation to speak with us, that Human Rights Watch does not provide legal or other assistance, and that they could stop speaking with us or decline to answer any question with no adverse consequences. We obtained oral consent for each interview, and interviewees did not receive material compensation for speaking with Human Rights Watch.

Human Rights Watch collected quantitative data by administering a household survey to a representative sample of 1,219 Lebanese households. We partnered with a local research firm, the Consultation and Research Institute (CRI), to develop the research design and survey instrument.

Lebanon does not have an accurate complete sampling frame of households. The last official population census was taken in 1932. Other electoral lists or registration databases (e.g. births, marriages, etc.) include only people who register and not the total resident population and do not maintain current addresses or locations of all residents.¹ Official national surveys published by the Central Administration for Statistics (CAS) are based on household samples. This survey used a similar sampling methodology that has been applied in CAS national surveys and has been approved by UN agencies and other international partners of CRI and the CAS.

¹ For a more detailed description of sampling bases, see complete sampling methodology in Annex X.

Human Rights Watch sought to survey households who had been living in the same home since 2019. The sampling frame therefore is composed of households with only permanent residents who use the home as their permanent dwelling. There are several exclusions: Palestinian camps and formal and informal Syrian refugee camps, which receive electricity from private generators provided by UN agencies, and people who were not permanent residents or who were in a secondary home. We also excluded anyone who moved homes between the summer of 2019 and November 2021 as the survey included questions about the two time periods. We used the summer 2019 as point of comparison throughout the survey, as in the fall of 2019, Lebanon entered what turned into one of the worst economic crises in modern history.

The sample is representative at both the national and the governorate (mohafaza) levels. A probability proportional to size (PPS) methodology was used to determine sample size per governorate. Within each governorate, the sample was distributed by Caza and Circonscription Fonciere (CF), which are both administrative units, also using the PPS method. The distribution was based on population sizes measured in the most recent CAS national survey, the 2018 Labour Force and Household Living Conditions Survey.² Table 1 presents the total sample distribution.

² Lebanese Republic Central Administration of Statistics (CAS), International Labour Organization (ILO), and European Union (EU), “Labour Force and Household Living Conditions Survey 2018-2019,” (Beirut, Lebanon 2020, https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_732567.pdf (accessed January 31, 2023)).

Table 1: Final distribution of the sample, per governorate, Caza and CFs

Governorates	Caza	Total CFs	Empty CFs	Total non-empty CFs	Total Population 2018	Total Population proportion 2018	Sample size	Number of CFs sampled
Beirut	Beirut	13	1	12	341700	100%	95	8
Beirut Total		13	1	12	341700	100%	95	8
Bekaa	Baalbek	99	22	77	214600	40%	51	9
	Hermel	12	4	8	30500	6%	7	1
	Rachiaya	43	15	28	33800	6%	8	1
	West Bekaa	44	8	36	86400	16%	20	4
	Zahle	65	8	57	177400	33%	42	8
Bekaa Total		263	57	206	542700	100%	128	23
Mount Lebanon	Aley	83	16	67	300800	15%	79	14
	Baabda	57	2	55	553800	27%	145	11
	Chouf	109	19	90	277000	14%	73	14
	El Metn	103	4	99	511000	25%	134	20
	Jubail	107	15	92	129500	6%	35	7
	Kasrouane	84	12	72	260500	13%	68	13
Mount Lebanon Total		543	68	475	2032600	100%	534	79
Nabatiye	Bint Jubail	38	3	35	96200	25%	25	5
	Hasbaiya	23	3	20	28700	8%	7	1
	Marjaayoun	34	5	29	74000	20%	20	4
	Nabatiye	52	5	47	180200	48%	45	9
Nabatiye Total		147	16	131	379100	100%	97	19
North	Akkar	168	4	164	324000	34%	71	14
	Batroun	76	6	70	58900	6%	13	2
	Bcharre	24	1	23	22100	2%	5	1
	Koura	43	0	43	84600	9%	18	3
	Minieh-Danieh	63	10	53	140800	15%	31	6
	Tripoli	17	1	16	243800	25%	53	6
	Zgharta	52	5	47	87700	9%	20	4
North Total		443	27	416	961900	100%	211	36
South	Jezzine	80	17	63	32100	5%	8	1
	Saida	79	7	72	296600	51%	71	12
	Sour	75	2	73	255700	44%	61	11
South Total		234	26	208	584400	100%	140	24
Grand Total		1643	195	1448	4842400		1205	189

The sample size was set at 1,200 households which provided a margin of error estimated at ± 2.82 percent for an observed frequency of 50 percent at a level of confidence of 95 percent. Surveyors approached 1,887 households and successfully conducted surveys at 1,219 (of the remainder, 391 refused the survey, in 96 the main respondent was not present, and in 181 there was no one home). Of the 1,219 surveyed households, 1,209 had been living in the house as their primary residence since 2019, which was our target population. The survey results are taken from these 1,209 households.

The survey instrument was developed in collaboration between Human Rights Watch and CRI. It included 56 questions about the household, Électricité du Liban (EDL) electricity access, other sources of electricity, payment of electricity bills, willingness to pay, policy preferences, economic standing, and the effects of electricity shortages on the household.³

The survey was administered between November 2021 and January 2022. Data was gathered using Kobo software on tablets. Surveyors were trained and supervised by senior CRI staff. Informed consent about the purpose, use, and confidentiality of the survey results was obtained from each respondent.

The survey results were analyzed by Human Rights Watch and centered on descriptive statistics. Confidence intervals for each percentage were computed at the 95 percent confidence level.⁴ An anonymized dataset and the analysis code are available in a repository on Human Rights Watch's Github page.⁵

Further details on the sampling methodology are available in Annex X and the survey instrument is available in Annex XI.

Human Rights Watch also reviewed numerous reports written by governmental and non-governmental organizations on the electricity sector in Lebanon. Based on the findings of this report, Human Rights Watch sent written questions to Lebanon's caretaker Prime Minister, Minister of Energy and Water, Minister of Environment, Minister of Health, the

³ See Annex XI for the full survey instrument.

⁴ "‘dplyr’-Like Syntax for Summary Statistics of Survey Data" October 6, 2022. 'srvyr' package used to compute confidence intervals. <https://cran.r-project.org/web/packages/srvyr/srvyr.pdf>.

⁵ Human Rights Watch on Github, 2022, <https://github.com/HumanRightsWatch>

Lebanese Civil Defense General Directorate, the International Monetary Fund, and the World Bank. As of the date of publication, only the Lebanese Civil Defense and the World Bank provided substantive responses. The letters and the responses are in Annex VI and IX, respectively.

Background: A Historic Economic Collapse

Lebanon's electricity crisis dramatically intensified under the broader economic crisis plaguing the country since October 2019, which culminated in the country's first sovereign default in March 2020.⁶

The economic fallout of the Covid-19 pandemic, political deadlock, and the explosion in the port of Beirut in August 2020 aggravated an already challenging economic recession and accelerated the collapse of the economy.⁷ These compounded crises have destroyed the livelihood of tens of thousands of people who continue to suffer from electricity shortages, which worsened as fuel shortages deepened. Rising unemployment, declining remittances, and the removal of subsidies for key imports, such as wheat and fuel, have made it harder for many people to afford food and electricity, pushing millions into poverty and exacerbating existing destitution.⁸ The United Nations estimates that more than two-thirds of the population now live in poverty.⁹

Skyrocketing Inflation

The multi-faceted economic, financial, political, and health crisis precipitated what the World Bank has said could rank among the world's three worst financial crises since the 1850s.¹⁰ Lebanon's GDP fell from around US\$52 billion in 2019 to \$21.8 billion in 2021, a 58.1 percent contraction. Government debt reached 183 percent of GDP in 2021, the fourth highest in the world after Japan, Sudan, and Greece. Inflation soared to 145 percent on average in 2021, placing Lebanon third globally in terms of the highest inflation rates, after Venezuela and Sudan.¹¹ This in turn hindered the purchasing power and capacity to secure essential needs for households, hitting Lebanon's poorest households particularly hard.

⁶ World Bank, *Lebanese Economic Monitor, Spring 2021: Lebanon Sinking (to the Top 3)*, Spring 2021. <https://openknowledge.worldbank.org/bitstream/handle/10986/35626/Lebanon-Economic-Monitor-Lebanon-Sinking-to-the-Top-3.pdf?sequence=1&isAllowed=y> (March 20, 2022).

⁷ Ibid.

⁸ Ibid.

⁹ OCHA, "Lebanon Emergency Response Plan 2021–2022," June 30, 2022, <https://reliefweb.int/report/lebanon/lebanon-emergency-response-plan-2021-2022-monitoring-dashboard-august-2021-may-2022> (accessed March 20, 2022).

¹⁰ World Bank, *Lebanese Economic Monitor, Spring 2021: Lebanon Sinking (to the Top 3)*.

¹¹ "Lebanon's Crisis: Great Denial in the Deliberate Depression," World Bank press release, January 25, 2022, <https://www.worldbank.org/en/news/press-release/2022/01/24/lebanon-s-crisis-great-denial-in-the-deliberate-depression> (accessed January 1, 2023).

Further to this, the August 4, 2020, port explosion that left more than 200 dead, 6,000 injured, and 300,000 people homeless caused extensive damage to infrastructure, including transport, energy, water supply and sanitation, and municipal services totaling \$390 to 475 million in losses.¹² According to the World Bank, the explosion caused an estimated \$3.8 to 4.6 billion in material damage.¹³

The currency has lost more than 95 percent of its pre-crisis value. This rapid devaluation, as well as supply-chain bottlenecks and fuel shortages have caused food prices to increase dramatically by 483 percent in January 2022 compared to the year before, and remaining high at 332 percent as of June 2022. Prices for electricity, water, and gas skyrocketed, increasing by 595 percent as subsidies were removed by the Central Bank and fuel prices went up sharply on the global market due to the war in Ukraine.¹⁴ The price hikes turned utilities essential for business, health, and food into a luxury many can afford only in limited quantities, if at all.

Further complicating the situation in Lebanon is the system of multiple exchange rates that has emerged since the crisis, with the official exchange rate remaining 1,515 Lebanese pounds per US dollar until February 1, 2023, a Central Bank-backed rate for critical imports (Sayrafa rate), and the highly volatile “market rate” which represents the real value of the Lebanese pound per US dollar.¹⁵ When the official exchange rate was adjusted in 2023 to 15,000 Lebanese pounds per US dollar, the Sayrafa rate was 42,000 Lebanese pounds per US dollar and the market rate was 63,000 Lebanese pounds per US dollar.

¹² European Union in Lebanon, World Bank, and United Nations Lebanon, *Beirut Rapid Damage and Needs Assessment*, August 2020, p. 31, <https://documents1.worldbank.org/curated/en/650091598854062180/Beirut-Rapid-Damage-and-Needs-Assessment.pdf> (accessed January 31, 2023).

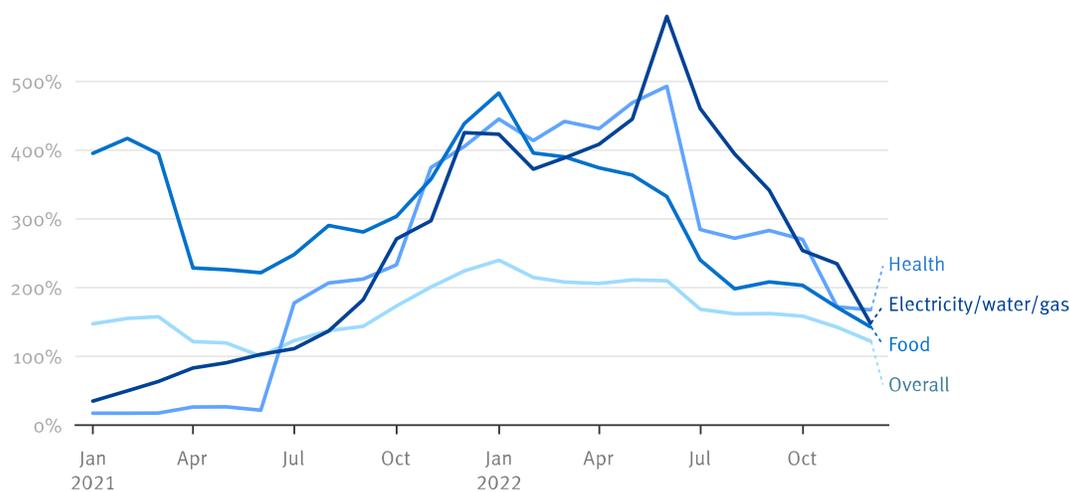
¹³ “Decisive Action and Change Needed to Reform and Rebuild a Better Lebanon,” World Bank press release, August 31, 2020, <https://www.worldbank.org/en/news/press-release/2020/08/30/beirut-explosion-decisive-action-and-change-needed-to-reform-and-rebuild-a-better-lebanon> (accessed January 31, 2023).

¹⁴ Lebanese Republic Central Administration of Statistics, “Consumer Price Index Data,” <http://www.cas.gov.lb/index.php/economic-statistics-en/cpi-en> (accessed October 4, 2022).

¹⁵ World Bank, “Lebanon Report,” April 2021, p. 1, <https://thedocs.worldbank.org/en/doc/a3d1489dafa646ee90f5a19abd950cab-0280012021/original/9-mpo-sm21-lebanon-lbn-kcm.pdf> (accessed January 31, 2023).

Inflation by Sector

Year-over-year change (%)



Source: Human Rights Watch analysis of Lebanon Central Administration of Statistics data.
<http://www.cas.gov.lb/index.php/economic-statistics-en/cpi-en>

According to data by the World Food Programme (WFP), by March 2022, the food Survival Minimum Expenditure Basket (SMEB), which outlines the minimum culturally adjusted items for survival for a household for one month, had increased 1,062 percent since October 2019.¹⁶ Rising inflation and currency depreciation led food imports coming through the Port of Beirut, the country’s main port of entry for food imports, to decline by 13 percent in 2022 compared to 2021, and 27 percent compared to 2020, and 31 percent compared to 2019.¹⁷ This occurred despite Lebanon’s high dependence on food imports, with domestic cereal production covering less than 20 percent of national consumption needs on average.¹⁸

¹⁶ Inter-Agency Coordination Lebanon, “2022 1st Quarter Sector Dashboard, Basic Assistance,” 2022, <https://data.unhcr.org/en/documents/download/93150> (accessed February 3, 2023); World Food Programme, “Projected Increase in Acute Food Insecurity due to War in Ukraine,” April 2022, <https://www.wfp.org/publications/projected-increase-acute-food-insecurity-due-war-ukraine> (accessed January 31, 2023).

¹⁷ World Food Programme, “Food Security and Vulnerability Analysis of Lebanese Residents,” July 2022, p. 25, <https://reliefweb.int/attachments/26079637-59d3-482b-92b8-5265c48c434c/WFP-0000142737.pdf> (accessed February 3, 2023).

¹⁸ Human Rights Watch, “Russia’s Invasion of Ukraine Exacerbates Hunger in Middle East, North Africa,” March 21, 2022, <https://www.hrw.org/news/2022/03/21/russias-invasion-ukraine-exacerbates-hunger-middle-east-north-africa>

Lebanon's electricity sector has long been at the center of the country's fiscal and economic challenges. Over decades, Électricité du Liban (EDL), the country's public electricity utility, has been suffering from a financial deficit and contributed significantly to the high government debt, now making up almost half of the debt. High production costs due to reliance on imported fossil fuels, low tariffs, and corruption means EDL sells electricity at a significant loss. In 2012, the government transferred \$2.2 billion to EDL, equivalent to 5.1 percent of GDP, with the cumulative deficits amounting to around \$40 billion by 2020.

Rising Poverty and Inequality

The United Nations estimated in late 2021 that nearly 3.3 million people have been pushed into income poverty since the crisis began in 2019. Others who were already struggling to afford electricity, food, education, and healthcare saw their situation worsen. An increasing number of adults skipped meals or were unable to afford medicines, and more children had to leave school to go to work to support their families.¹⁹

Adding to these challenges the war in Ukraine further pushed up the prices of fuel and staple foods. Prior to the war, Lebanon received 80 percent of total wheat imports from Ukraine, and 15 percent from Russia, according to Lebanese customs figures.²⁰

For years, Lebanon lacked official data on poverty, in part owing to the lack of census data since 1932, with NGOs, international financial institutions like the IMF and World Bank, and United Nations agencies filling the gap. In March 2022, the government released the first multidimensional poverty index, based on 2018/19 survey data. The index found that in 2019—before the crisis—53.1 percent of the population were living in multidimensional poverty.²¹

¹⁹ UNESCWA, *Multidimensional Poverty in Lebanon (2019-2021)*, September 2021, https://www.unescwa.org/sites/default/files/news/docs/21-00634-_multidimensional_poverty_in_lebanon_-policy_brief_-_en.pdf (accessed January 31, 2023). The study says poverty increased from 25 percent – 74 percent between 2019-2021, which means that taking a total population of 6.7 million (6,760,151) it would be an increase of 3,316,884 people; “Lebanon: UNICEF Survey Highlights Children’s Ever-worsening Situation with Dramatic Deterioration of Living Conditions over Six Months,” UNICEF press release, November 23, 2021, <https://www.unicef.org/lebanon/press-releases/lebanon-unicef-survey-highlights-childrens-ever-worsening-situation-dramatic> (accessed January 31, 2023).

²⁰ Human Rights Watch, “Russia’s Invasion of Ukraine Exacerbates Hunger in Middle East, North Africa.”

²¹ Central Administration of Statistics, “Lebanon - Multidimensional Poverty Index 2019,” March 2022, <http://www.cas.gov.lb/images/PDFs/Poverty/Lebanon%20MPI%202019%20Report%20%20EN.pdf> (accessed February 2, 2023).

More recent survey data by other organizations depicts the rapid deterioration in living standards since then. A study by the United Nations found that in 2021, as many as 82 percent of the population was living in multidimensional poverty, that is nearly 4 million people.²² Survey data further estimate that 74 percent of the population were living below the income poverty line, up from 55 percent in 2020 and 25 percent in 2019.²³

2021 Gallup poll data show that nearly 9 in 10 people find it difficult, with 6 in 10 finding it “very difficult,” to make ends meet with their incomes. This figure has nearly doubled since 2019. More than half of adults say they lack money for food, a nearly fourfold increase since 2018. Three in 10 said they cannot afford shelter. More than 6 in 10 people said they would leave the country if they could.²⁴

Phone surveys conducted from May-July 2021 by the World Food Program with support from the World Bank paint a similar picture. Forty-six percent of households reported challenges in accessing food and other basic needs, up from 40 percent from July-August 2020. Half of the households surveyed reported adults restricting food consumption in favor of children. The share of households having difficulties in accessing health care has increased sharply from 25 percent (July-August 2020) to 48 percent (May-July 2021). The unemployment rate also rose among the respondents, from 30.9 percent in January 2021 to 37.7 percent in May-July 2021. Almost 49.3 percent of respondents considered their families to be either very poor or poor.²⁵

²² UNESCWA’s Multidimensional Poverty Index consists of six dimensions and 20 indicators (Education, Health, Public Utilities, Housing, Assets and property, employment, and income). A household is classified as living in multidimensional poverty if it is deprived in one or more dimensions. See United Nations Economic and Social Commission for Western Asia (UNESCWA), “Multidimensional Poverty in Lebanon (2019-2021) -Painful Reality and Uncertain Prospects,” E/ESCWA/CL3.SEP/2021/POLICY BRIEF.2, September 3, 2021, https://www.unescwa.org/sites/default/files/news/docs/21-00634-_multidimensional_poverty_in_lebanon_-policy_brief_-_en.pdf (accessed February 2, 2023).

²³ *Ibid.*, p. 4. Income poverty, based on the US dollar 14/day poverty line; The World Bank, “Lebanese Economic Monitor, Spring 2021: Lebanon Sinking (to the Top 3),” Spring 2021, <https://documents1.worldbank.org/curated/en/394741622469174252/pdf/Lebanon-Economic-Monitor-Lebanon-Sinking-to-the-Top-3.pdf> (accessed February 2, 2023), p. 13. The study estimates that over half of the population lived below the national poverty line in 2021.

²⁴ Jay Loschky, “Leaving Lebanon: Crisis Has Most People Looking for Exit,” *Gallup*, December 2, 2021, <https://news.gallup.com/poll/357743/leaving-lebanon-crisis-people-looking-exit.aspx> (accessed January 31, 2023).

²⁵ The World Bank, “Lebanese Economic Monitor, Spring 2021: Lebanon Sinking (to the Top 3),” p. 11.

Human Rights Watch’s survey, conducted around December 2021, revealed similar economic conditions. About seven out of ten households said that they had difficulty making ends meet or were always behind on basic expenses.²⁶

This percentage was highest in Beqaa (89 percent of households) and lowest in Mount Lebanon (64 percent).²⁷ Households with an earner who had lost employment since the crisis and who remained unemployed were more likely to have difficulty making ends meet.²⁸

The median household reported a monthly income of \$122.²⁹ The share of those living on very low incomes is high: nationwide, 40 percent of households earned approximately \$100 or less per month and 90 percent of households earned less than \$377 per month.

How would you consider your household’s economic standing?



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

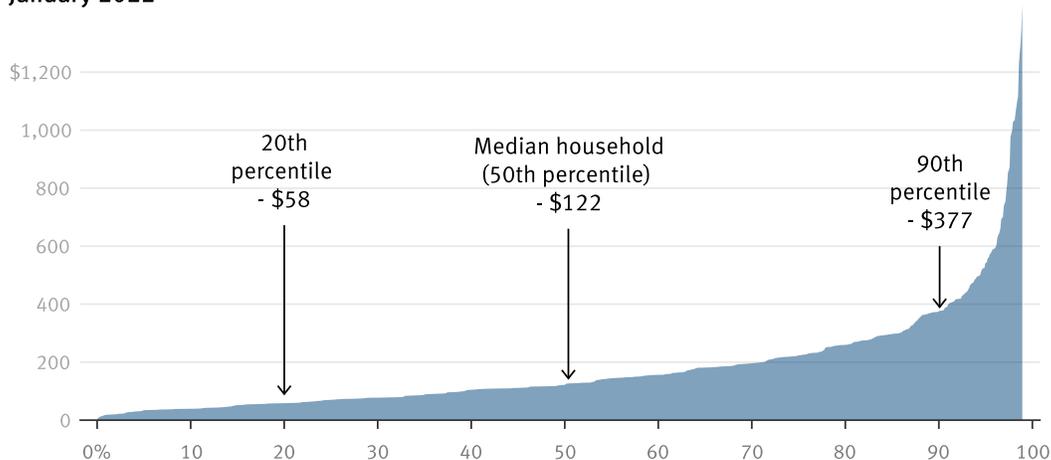
²⁶ Human Rights Watch survey. 95 percent confidence interval: 69 – 74 percent of households nationwide.

²⁷ Human Rights Watch survey. 95 percent confidence interval: Beqaa (82.4 – 93.4 percent of households) and Mount Lebanon (59.5 – 67.6 percent).

²⁸ Human Rights Watch survey. 95 percent confidence interval: 73 – 84.8 percent of households where someone had lost employment, nationwide.

²⁹ Human Rights Watch survey. 95 percent confidence interval for median income nationwide: \$117 to 132. We asked respondents to report any income received in Lebanese pounds, US dollars and “lollars” and used the real exchange rates on the day the interview occurred to convert to US dollars. We did not use the official pegged exchange rate of 1,500 Lebanese pounds per US dollar. The “lollar” is a Lebanese dollar, or a US dollar that is stuck in the Lebanese banking system and can be withdrawn at rates set by the Central Bank, well below their actual value.

Distribution of Households by Monthly Income January 2022



Note: For scale purposes, the top 1% of households are not included, as monthly income is higher than \$1,450. Income conversions used the market rate, not official exchange rate, and were done using the rates on the day of the survey. As of the date of publication, inflation has continued to increase since the survey occurred.

Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1,209 households.

Monthly Household Income Reported November 2021 - January 2022

Mohafazat	Median monthly income (USD)	95% confidence interval
Beirut	\$112	(\$91 - 173)
Beqaa	\$78	(\$78 - 86)
Mount Lebanon	\$157	(\$147 - 182)
North Lebanon	\$110	(\$86 - 130)
South Lebanon	\$120	(\$105 - 147)
Total Lebanon	\$122	(\$105 - 147)

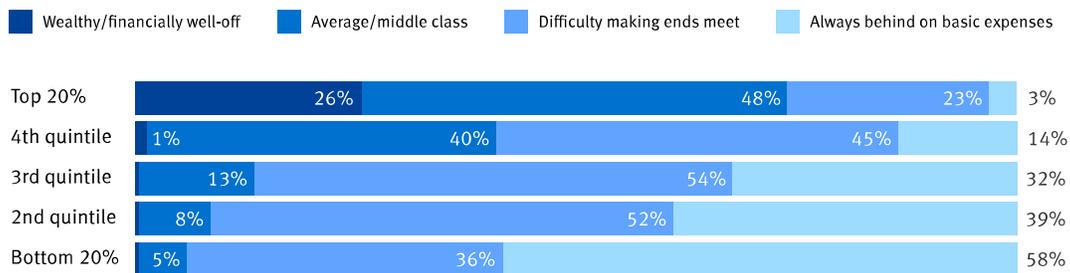
Income conversions used the market rate, not official exchange rate, and were done using the rates on the day of the survey.

Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

Human Rights Watch placed households into income quintiles based on their monthly income responses. In each of the quintiles, except for the wealthiest, a majority of households stated that they had difficulty making ends meet or were always behind on basic expenses.

Financial Difficulties at All Income Levels

Perception of Economic Standing by Quintile



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

About 15 percent of households include someone who lost employment since the 2019 crisis and has yet to find new employment.³⁰

While the crisis has impacted most people, the United Nations special rapporteur on extreme poverty stated in an April 2022 report that women, children, migrant workers, Syrian and Palestinian refugees, and people with disabilities have been particularly affected due to pre-existing systemic exclusion and marginalization.³¹ The poverty experienced by people with disabilities in Lebanon is exacerbated by the lack of comprehensive social protection programs and inadequate health care.³²

In a country where income and wealth inequality are among the highest in the region, academics and UN agencies warned that the economic crisis widened the gap, as middle-

³⁰ Human Rights Watch survey. 95 percent confidence interval for proportion of households who have someone who has lost employment since the 2019 crisis began and remains unemployed: 13 – 17 percent.

³¹ Human Rights Council, “Visit to Lebanon: Report of the Special Rapporteur on Extreme Poverty and Human Rights, Olivier De Schutter,” April 11, 2022, <https://lebanon.un.org/sites/default/files/2022-05/FINAL%20SR%20Report%20on%20his%20Visit%20to%20Lebanon-ENG-Published%20May2022.pdf> (accessed January 31, 2023).

³² Ibid, para 45.

and low-income families saw their savings disappear, with little chance of upward mobility.³³

Before the crisis, the top 10 percent of the population owned 70 percent of the wealth, while the bottom 50 percent owned only 5 percent of the wealth.³⁴ In terms of income inequality, a 2018 study by the World Inequality Lab study placed Lebanon among the countries with the highest levels of income inequality in the world, alongside South Africa and Brazil.³⁵ They found that the country's richest 10 percent earned between 49 and 54 percent of national income, the middle 40 percent earned 34 percent, and the poorest 50 percent of the population earned between 12 and 14 percent.

Seeking an International Monetary Fund Bailout

In May 2020, soon after defaulting on its foreign currency debt, Lebanon signed an official request for a bailout package from the International Monetary Fund (IMF).³⁶ However, Lebanon has not met the pre-conditions specified by the IMF in order to qualify for the funds.

In April 2022, the Lebanese government and the IMF reached a staff-level agreement for about \$3 billion worth of Special Drawing Rights (SDRs) over a 46-month period, contingent on a series of reforms, including bank and debt restructuring strategies, an audit of the Central Bank, a reformed bank secrecy law, passing a 2022 budget, and the unification of the multiple exchange rates.³⁷

³³ Lydia Assouad, *Rethinking the Lebanese Economic Miracle: The Extreme Concentration of Income and Wealth in Lebanon 2005-2014*, World Inequality Lab, February 2021, <https://wid.world/document/rethinking-lebanese-economic-miracle-extreme-concentration-income-wealth-lebanon-2005-2014-wid-world-working-paper-201713/> (accessed January 31, 2023), pp. 14-15; Lydia Assouad, "Lebanon's Political Economy: From Predatory to Self-devouring," Carnegie Middle East Center, January 14, 2021, <https://carnegie-mec.org/2021/01/14/lebanon-s-political-economy-from-predatory-to-self-devouring-pub-83631> (accessed January 31, 2023).

³⁴ UNESCWA, *Wealth Distribution and Poverty Impact of COVID-19 in Lebanon*, July 2020, p. 9, <https://digitallibrary.un.org/record/3876234> (accessed January 31, 2023). Top-decile individuals held on average US\$360,000, compared to the median wealth of \$9,144, or the average wealth among the bottom 50 percent of all adults at \$3,200.

³⁵ Assouad, "Lebanon's Political Economy: From Predatory to Self-Devouring."

³⁶ Luke Shrago, "Lebanese Protest Against Rescue Plan as Government Seeks IMF Help," *France 24*, May 1, 2020, <https://www.france24.com/en/20200501-lebanese-protest-against-rescue-plan-as-government-seeks-imf-help> (accessed January 31, 2023).

³⁷ "IMF Reaches Staff-Level Agreement on Economic Policies with Lebanon for a Four-Year Extended Fund Facility," IMF news release, April 7, 2022. <https://www.imf.org/en/News/Articles/2022/04/07/pr22108-imf-reaches-agreement-on-economic-policies-with-lebanon-for-a-four-year-fund-facility> (accessed January 31, 2023).

Receiving liquidity from the IMF would likely pave the way for funding from the World Bank and other international donors.

However, international and local non-government organizations have raised concern that without addressing the country's deep-seated inequality, an IMF bailout will place an outsize burden on ordinary people and not enough on the wealthiest.³⁸ Such funding will also come in the form of loans, which the heavily indebted country has to pay back eventually. It is essential to build into the recovery plans measures for accountability and enforcing mechanisms to recover any ill-gotten funds and lay the basis for a more equitable society by introducing a rights-based social protection system and more progressive taxation to support wealth and income redistribution so that everyone's right to an adequate standard of living is protected as the economy recovers.

The World Bank has released multiple reports accusing the Lebanese political establishment, which it says "has long captured the state and lived off its economic rents," of orchestrating a "deliberate depression" that is threatening the country's long-term stability and social peace due to their "deliberate policy inaction."³⁹

Both the IMF and the World Bank have underscored the importance of reforming the electricity sector given how much of a drain on Lebanon's public finances the dilapidated electricity sector has been. Finance Ministry and Energy Ministry figures show that EDL lost between \$1.5 to \$2 billion per year over the past 10 years.⁴⁰ The World Bank estimates that

³⁸ Zahra Bazzi and Nizar Hassan, "An IMF Bailout for Lebanon Can Make Things Worse," Brettonwoods Project, October 6, 2020, <https://www.brettonwoodsproject.org/2020/10/an-imf-bailout-for-lebanon-can-make-things-worse/> (accessed January 31, 2023); Stephen McCloskey, "Why an IMF Loan Is Not the Solution to Lebanon's Economic Crisis," Open Democracy, September 29, 2021, <https://www.opendemocracy.net/en/north-africa-west-asia/why-an-imf-loan-is-not-the-solution-to-lebanons-economic-crisis/> (accessed January 31, 2023); Oxfam, *The IMF and Lebanon: The Long Road Ahead*, October 2020, <https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621062/bp-imf-lebanon-economy-crisis-121020-en.pdf> (accessed January 31, 2023); Sami Halabi, "Lebanon: Government Recovery Plan Asks Too Much of Ordinary Lebanese, and Not Enough from Elites," Arab Reform Initiative, June 3, 2020, <https://www.arab-reform.net/publication/lebanon-government-recovery-plan-asks-too-much-of-ordinary-lebanese-and-not-enough-from-elites/> (accessed January 31, 2023).

³⁹ World Bank, "Lebanon's Crisis"; World Bank, *Lebanese Economic Monitor, Spring 2021: Lebanon Sinking (to the Top 3)*, p. xi.

⁴⁰ Republic of Lebanon, Ministry of Finance, "Treasury Transfers to Electricité du Liban: A Monthly Snapshot," July 2019, <http://finance.gov.lb/en-us/Finance/Rep-Pub/DRI-MOF/PFR/EDL/Transfers%20to%20EDL%20-%20A%20Monthly%20Snapshot%20-%20%20July%202019.pdf> (accessed January 31, 2023); Republic of Lebanon, Ministry of Energy and Water, "Updated Policy Paper for the Electricity Sector," p. 8, https://energyandwater.gov.lb/mediafiles/articles/doc-100516-2019_05_21_04_50_46.pdf (accessed January 31, 2023);

annual budgetary transfers to EDL averaged 3.8 percent of Lebanon’s Gross Domestic Product (GDP) over the last decade, amounting to almost half of the overall fiscal deficit.⁴¹ Between 1992 and 2018, transfers to EDL contributed to over \$40 billion of the country’s public debt.⁴²

According to the World Bank, “if unaddressed, the electricity sector will derail recovery programs for the economy.”⁴³ Further, comprehensive reform of Lebanon’s electricity sector is one of the pillars of the IMF program.⁴⁴

While reforming the electricity sector is key to addressing the existing shortfalls, reforms should have the right to electricity at heart, with the objective of ensuring clean and affordable electricity for everyone in the country.

Carol Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, American University of Beirut, October 2021, p. 8, https://www.aub.edu.lb/ifi/Documents/publications/research_reports/2020-2021/20211020_comprehensive_solution_to_the_lebanese_electricity_sector_report_pdf.pdf (accessed January 31, 2023).

⁴¹ The World Bank, *Lebanon Power Sector Emergency Action Plan*, July 2020, p. 16, <https://documents1.worldbank.org/curated/en/500281593636676732/pdf/Lebanon-Power-Sector-Emergency-Action-Plan.pdf> (accessed January 31, 2023).

⁴² Marc Ayoub, Pamela Rizkallah, and Christina Abi Haidar, *Unbundling Lebanon’s Electricity Sector*, American University of Beirut, October 2021, p. 20, https://www.aub.edu.lb/ifi/Documents/publications/research_reports/2020-2021/20211020_unbundling_lebanon_electricity_sector_research_paper_pdf.pdf (accessed January 31, 2023); Bank Audi, “Electricity Sector Reform Notes,” June 27, 2019, p. 1, <https://pwstgo2.blob.core.windows.net/pwfiles/ContentFiles/11206FileItem1.pdf> (accessed January 31, 2023).

⁴³ The World Bank, *Lebanon Public Finance Review: Ponzi Finance?*, July 2022, p. 72, <https://openknowledge.worldbank.org/bitstream/handle/10986/37824/P1733451f74154311fb4a149871a9041d2b545b62921.pdf?sequence=11&isAllowed=y> (accessed January 31, 2023).

⁴⁴ IMF, “IMF Reaches Staff-Level Agreement on Economic Policies with Lebanon for a Four-Year Extended Fund Facility.”

History of the Electricity Sector

The Lebanese authorities have never been able to provide reliable and continuous electricity supply across the entire country. The history of the electricity sector is rife with mismanagement, elite capture, and corruption, which paved the way for the sector's complete collapse during the ongoing economic crisis.

Pre-Civil War

The electricity sector, like other public utilities in Lebanon, emerged in the early 20th century from concessionary agreements that allowed investors to fund infrastructure projects in areas under Ottoman control, through private capital.

Until the establishment of *Électricité du Liban* (EDL) in 1964, private companies generated, transmitted, and distributed electricity. Although these companies expanded the supply of electricity across the country, the proliferation of electricity was uneven, both in terms of geography and class. According to economist and politician Charbel Nahas, the grid only covered cities and some mountainous areas used as summer getaways.⁴⁵ Electricity rates were also very high and made electricity a luxury that most could not afford.⁴⁶ But despite the high prices, power outages occurred regularly, and these companies were often the target of protests and boycotts, with the people demanding that the government step in to ensure that the public's interests were being prioritized over the profits of private companies.⁴⁷

In the early 1950s, the government made the largest electricity company at the time, *Électricité de Beyrouth* (EDB) implement an official electricity-rationing program, setting the stage for electricity rationing to become a fact of life in Lebanon.⁴⁸

⁴⁵ Charbel Nahas, *An Economy and a State for Lebanon*, (Beirut, Lebanon: Riad el-Rayyes Books LTD), p. 114, <https://mmfidawla.com/en/economic-political-vision-pdf/>.

⁴⁶ Ziad Abu-Rish, "On Power Cuts, Protests, and Institutions: A Brief History of Electricity in Beirut (Part One)," *Jadaliyya*, April 22, 2014, <https://www.jadaliyya.com/Details/30564>

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

In early 1953, in an attempt to bolster support, the Lebanese government took provisional control of all of EDB's facilities and subsequently created the Electricity and Public Transportation Authority within the Ministry of Public Works to manage the facilities. This Authority later became the Ministry of Power and Water.⁴⁹

In 1964, the Lebanese government restricted the generation, transmission, and distribution of electricity to a single state-run enterprise, Électricité du Liban (EDL), and started merging the existing concessions into it, though a few small concessions still operate to this day. By 1976, the electric grid had expanded to include most of Lebanese territory.⁵⁰

Before the civil war began in 1975, EDL operated 11 major power plants and generated 1,700 gigawatts (GW) of electricity.⁵¹ Lebanon generated between 40 percent and 75 percent of its energy demands from hydropower.⁵²

During the Civil War

Fighting during Lebanon's 15-year civil war from 1975 until 1990 caused extensive damage to the electricity sector and its infrastructure.⁵³ By 1990, the electrical grid was almost completely destroyed.⁵⁴

⁴⁹ Ibid

⁵⁰ Nahas, *An Economy and a State for Lebanon*, pg 114; Chafic Abi Said, "Electric Energy and Energy Policy in Lebanon," Global Network on Energy for Sustainable Development, March 31, 2005, p. 6; Maya Juliana, Nathalie Bassil, and Sofiene Dellagia, "Lebanon's Electricity from Fuel to Solar Energy Production," Science Direct, April 16, 2020, <https://www.sciencedirect.com/science/article/pii/S2352484720313184> (accessed January 27, 2023).

⁵¹ Farouk Fardoun, Oussama Ibrahim, Rafic Younes, and Hasna Louahlia-Gualous, "Electricity of Lebanon: Problems and Recommendations," Energy Procedia (19), 2012, p. 311, <https://core.ac.uk/download/pdf/82536088.pdf> (accessed January 23, 2023).

⁵² Rani Al Achkar, "Renewable Energy for Advancing Water-Energy Interlinkages For Sustainable Development," Presentation, Lebanese Center For Energy Conservation, June 26, 2019, p. 4, https://www.unescwa.org/sites/default/files/event/materials/4.1_renewable_energy_for_advancing_water_-_energy_interlinkages_in_lebanon_rani_al_achkar_o.pdf (accessed February 1, 2023); Juliana, Bassil, and Dellagi, "Lebanon's Electricity from Fuel to Solar Energy Production."

⁵³ Fardoun, Ibrahim, Younes, and Louahlia-Gualous, "Electricity of Lebanon," p. 311; Julia, Bassil, and Dellagi. "Lebanon's Electricity from Fuel to Solar Energy Production," p. 42.

⁵⁴ Michael F. Davie, "La gestion des espaces urbains en temps de guerre circuits parallèles à Beyrouth," Reconstruire Beyrouth, Les Paris sur le possible, 1991, p. 172, https://www.academia.edu/9606626/La_gestion_des_espaces_urbains_en_temps_de_guerre_circuits_parall%C3%A8les_%C3%A0_Beyrouth (accessed January 27, 2023).

As the state lost its ability to maintain order and provide public services like water and electricity, armed groups took over EDL and power plants, using them as a military and political tool and providing free electricity to areas within their control while cutting off electricity from areas controlled by their rivals.⁵⁵ The state was also unable to compel users to pay for electricity, resulting in widespread non-payment of bills or the collection of bills by the militias.⁵⁶

Further, the internal displacement caused by the war led to families connecting to the grid illegally due to their inability to install meters, which requires an ownership deed to the house. These illegal connections further strained the grid. One academic estimates that by 1985, non-technical losses amounted to 36 percent of consumption.⁵⁷ In the absence of any investment to maintain and expand the grid, the rationing hours increased, and by the end of the war, electricity cuts lasted around 18 hours per day.⁵⁸

This severe rationing led to the emergence of private alternatives. Initially, residents installed their own diesel fueled generators, which households would own and operate. Gradually, the supply and operation, including repair of generators, became commercialized, and in some instances were run by the armed groups themselves, becoming a sizable informal industry that filled the gap left by the state and is still an influential player in the sector to this day (see chapter on private generators).⁵⁹ This informal industry developed outside the laws and other rules governing the operation of EDL, still the only body legally authorized in Lebanon to supply electricity.

⁵⁵ Nahas, *An Economy and a State for Lebanon*, pg 114; Fardoun, Ibrahim, Younes, and Louahlia-Gualous, *Electricity of Lebanon*, p. 37.

⁵⁶ Ibid

⁵⁷ Éric Verdeil, « Electricité et territoires : un regard sur la crise libanaise, » *Revue Tiers Monde* (No.198), 2009/2, <https://www.cairn.info/revue-tiers-monde-2009-2-page-421.htm> (accessed February 2, 2023).

⁵⁸ Fardoun, Ibrahim, Younes, and Louahlia-Gualous, *Electricity of Lebanon*, p. 37.

⁵⁹ Nahas, *An Economy and a State for Lebanon*, pg 114; Fardoun, Ibrahim, Younes, and Louahlia-Gualous, *Electricity of Lebanon*, p. 37.

Post-Civil War

After the civil war, the Lebanese government stated that one of its main priorities was the rehabilitation of infrastructure, including the electricity sector.⁶⁰ The post-conflict reconstruction era did bring in new investments, especially from foreign donors.⁶¹ But despite over two billion dollars poured into the sector in the years after the war, the Lebanese state still proved unable to provide residents with continuous power.⁶²

The 1989 Taif Accords that ended the civil war and resulted in changes to Lebanon's constitution did not guarantee the supply of electricity to the population of Lebanon, nor strengthen the protection of economic and social rights, including the right to an adequate standard of living, or specifically mention a right to electricity.

The inefficiencies of the electricity sector can be attributed to the political system of governance that came to be following the end of the civil war. The 1989 Taif Accords that ended the civil war in effect institutionalized a political system, which had begun under French rule, based on consensual decision-making involving the political elites that represented Lebanon's religious confessional communities. Political positions as well as high-level appointments in public institutions were allocated according to confessional quotas to the main communities in an attempt to prevent any one confession from dominating the decision-making process. This was, however, inherently discriminatory, and what emerged was a political system characterized by gridlock, frequent impasses, inefficient spending, a lack of a coherent vision, and the elite capture of state resources.⁶³ Although the Lebanese constitution states that "the abolition of political confessionalism shall be a basic national goal" it does not state any time frame for this and no such moves to end this system have taken place.

⁶⁰ Eric Verdeil, "Les services urbains à Beyrouth : entre crise infrastructurelle et réformes contestées," *Annales de géographie / Université Saint-Joseph*, Vol. 33-34, January 2013, p. 37, https://www.researchgate.net/publication/281503526_Les_services_urbains_a_Beyrouth_entre_crise_infrastructurelle_et_reformes_contestees (accessed February 2, 2023).

⁶¹ *Ibid.*, p. 38.

⁶² *Ibid.*, p. 48 – 49; Fawwaz Traboulsi, *Social Classes and Political Power in Lebanon*, Heinrich Boll Stiftung, p. 92, https://lb.boell.org/sites/default/files/fawaz_english_draft.pdf (accessed February 3, 2023).

⁶³ Reinoud Leenders, "Chapter 4: The Political Settlement of the Second Republic," in *Spoils of Truce: Corruption and State-building in Postwar Lebanon*, Cornell University Press, 2012, pp. 132-139; Christiana Parreira, "Another Unity Government Won't Solve Lebanon's Crisis," *The Washington Post*, August 20, 2020, <https://www.washingtonpost.com/politics/2020/08/20/another-unity-government-wont-solve-lebanons-crisis/> (accessed February 1, 2023);

To circumvent the continuous gridlock in governance, the country's three top leaders (the Maronite president, the Sunni prime minister, and the Shiite speaker of parliament) played a prominent role in policy-making, bypassing the strict constitutional requirements and instead resorting to ad hoc, informal decision-making methods. Deals among the “troika” usually involved the apportioning of state institutions and resources among the different confessional parties, a process that came to be known as *muhassasa* (apportionment).⁶⁴

This system led to strong ties between politicians and businessmen, and even to politicians directly owning leading private sector businesses.⁶⁵ Lebanon's political elites thus promoted their own private interests, often at the expense of the state's.⁶⁶

Researchers at the Lebanese Center for Policy Studies, a prominent local thinktank, analyzed all 394 infrastructure procurement contracts awarded to the Council for Development and Reconstruction (CDR) between 2008 and 2018, an entity formed post-war that was tasked with managing reconstruction efforts and implementing infrastructure projects, including electricity infrastructure, with foreign funding. They found that politically connected firms captured the majority of CDR project funding, and that these firms were able to secure a “seat at the table” on the board of CDR.⁶⁷

Additionally, researchers at the Policy Initiative found that the CDR contracts designed by politically connected “design consultants”—individuals responsible for specifying the parameters of a project, writing terms of reference, and evaluating bids—were overpriced. They estimated that “contracts have been overpriced by about 34 percent whenever a connected designer-contractor pair was at work.” They found that between 2008 and 2018, this resulted in excessive costs of around US\$160 million.⁶⁸

⁶⁴ Ibid, p. 139-146.

⁶⁵ Traboulsi, “Chapter 6: Economic Power and Political Power,” in *Social Classes and Political Power in Lebanon*, p. 77-99; Mounir Mahmalat and Wassim Maktabi, “How Do Cartels Work? Dealmaking at Lebanon's Council for Development and Reconstruction,” The Policy Initiative, September 1, 2022, <https://www.thepolicyinitiative.org/article/details/194/how-do-cartels-work-dealmaking-at-lebanon%E2%80%99s-council-for-development-and-reconstruction?lang=en&src=init> (accessed February 1, 2023).

⁶⁶ Leenders, “Chapter 5: The Politics of State-Building and Corruption,” in *Spoils of Truce: Corruption and State-building in Postwar Lebanon*, p. 164-222; Mahmalat and Maktabi, “How Do Cartels Work? Dealmaking at Lebanon's Council for Development and Reconstruction.”

⁶⁷ Mounir Mahmalat, Sami Atallah, and Wassim Maktabi, “Public Infrastructure Procurement in Post-conflict Power-sharing Arrangements Evidence from Lebanon's Council for Development and Reconstruction,” The Lebanese Center for Policy Studies, February 2021, <https://www.theigc.org/wp-content/uploads/2021/02/Mahmalat-et-al-2021-Final-Report.pdf> (accessed February 1, 2023).

⁶⁸ Mahmalat and Maktabi, “How Do Cartels Work? Dealmaking at Lebanon's Council for Development and Reconstruction.”

The electricity sector became subject to the same *muhassasa* that plagued other public institutions, and it became another vehicle for politicians to maintain their clientelist patronage networks through doling out public sector jobs to their loyalists and profiting from lucrative business contracts.⁶⁹

Such corruption was facilitated by an “intrinsically diffused governance and decision-making process” within the electricity sector which allowed parties to escape accountability for the sector’s failings, Ali Ahmad, an energy expert with the World Bank, told Human Rights Watch.⁷⁰ Ahmad added that strong cronyism in Lebanon, with the resulting conflicts of interest, also helped fuel the corruption and inefficiencies within the electricity sector. “People [in power] have strong interests in certain contracts through EDL and CDR, which finances political parties,” he said.⁷¹

What resulted was an electricity sector that has been running a deficit since 1992 and relying on advances from the Finance Ministry to cover its costs. Between 1992 and 2020, the cumulative costs of transfers to EDL, including accrued interest rates over that period, add up to \$43 billion, or around 46 percent of Lebanon’s public debt.⁷² Despite massive amounts of money injected into EDL, the Lebanese state is still unable to meet the population’s energy needs, and the sector is characterized by chronic power cuts that violate residents’ rights, damage the environment, and exacerbate inequality and poverty in the country.

⁶⁹ Ali Ahmad, Neil McCulloch, Muzna Al-Masri, and Marc Ayoub, “From Dysfunctional to Functional Corruption: The Politics of Reform in Lebanon’s Electricity Sector,” Anti-Corruption Evidence, Working Paper 30, December 2020, p. 11-12, https://www.aub.edu.lb/ifi/Documents/publications/working_papers/2020-2021/20201218_from_dysfunctional_to_functional_corruption_working_paper.pdf (accessed February 1, 2023); Human Rights Watch interview with high-level EDL representative, Beirut, Lebanon, August 30, 2022.

⁷⁰ Human Rights Watch interview with Ali Ahmad, World Bank energy expert and Research Fellow at Harvard University’s Kennedy School of Government, remote, November 30, 2021; International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, May 2020, p. 34, <https://documents1.worldbank.org/curated/en/353531589865018948/pdf/Distributed-Power-Generation-for-Lebanon-Market-Assessment-and-Policy-Pathways.pdf> (accessed February 1, 2023).

⁷¹ Human Rights Watch interview with Ali Ahmad, World Bank energy expert and Research Fellow at Harvard University’s Kennedy School of Government, remote, November 30, 2021.

⁷² Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon’s Electricity Sector*; Carol Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, pg 15.

An Electricity Sector that Reinforces Inequality

EDL is obligated to provide electricity across all of Lebanon. Nearly every household in the country is connected to the EDL grid.⁷³ However, EDL’s failure to meet the electricity demands of Lebanon’s residents, means the state is violating the population’s right to electricity. While widespread blackouts affect everyone living in Lebanon, only those rich enough to afford generator access can enjoy regular electricity. For much of the population, and especially people with low incomes, electricity provided by the private sector is often out of reach. Electricity in Lebanon has effectively become a service only the wealthiest can afford, reinforcing the country’s deep-seated inequality.

Widespread Blackouts

EDL was struggling to provide sufficient electricity before the crisis that started in the summer of 2021. Respondents to our survey recalled receiving about 12 hours of EDL electricity per day on average before the crisis.⁷⁴ Output has plummeted since then. Between November 2021 and January 2022, the average household only received electricity from EDL for about 10 percent of the day.⁷⁵ This level of access extends throughout the country.

Residents raised concerns about the unpredictability of the hours of electricity supply from EDL, making it very difficult for them to depend on this supply for essential tasks like heating water and doing laundry.⁷⁶ “You have to continuously cope,” an 80-year-old man from Akkar said. “My wife doesn’t have a schedule to do the laundry, it depends on the electricity. We’re living as if we’re stealing our own time.”⁷⁷

⁷³ Over 98 percent of households we contacted in our survey were connected to the EDL grid.

⁷⁴ Human Rights Watch survey. 95 percent confidence interval for pre-crisis hours from EDL: mean household received between 11.8-12.3 hours of EDL electricity.

⁷⁵ Human Rights Watch survey. 95 percent confidence intervals for current hours from EDL: mean household received between 2.6-3 hours of EDL electricity, median household 2-3 hours.

⁷⁶ Human Rights Watch text and voice correspondence (name withheld), Akkar, Lebanon, March 23, 2022; Human Rights Watch interview (name withheld), Beirut, Lebanon, March 23, 2022.

⁷⁷ Human Rights Watch text and voice correspondence (name withheld), Akkar, Lebanon, March 23, 2022.

EDL Failing to Provide Electricity Throughout Lebanon

Reported hours of electricity households received per day from EDL, Nov 2021 - Jan 2022

Mohafaza	Average (mean) hours per day from EDL	95% confidence interval
Beirut	3.0	(2.7 - 3.4)
Beqaa	4.7	(3.7 - 5.7)
Mount Lebanon	2.7	(2.5 - 2.9)
North Lebanon	2.0	(1.8 - 2.1)
South Lebanon	2.6	(2.2 - 3)
Total Lebanon	2.8	(2.6 - 3)

Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1,209 households.

“We cannot rely on state electricity. It has no schedule. We sometimes get one hour. Sometimes half an hour,” said an 87-year-old woman. “The cuts humiliated us.”⁷⁸ Similarly, a 75-year-old woman from Beirut said: “it’s not just that there are less hours. There are no hours practically. And if they give one hour, it’s like a puzzle. There’s no set time, it’s all random.”⁷⁹

Sonia Semaan, a 52-year-old woman who lives in Koura in north Lebanon, said: “We get around a single hour of state electricity per day. On some days, no hours at all. It [the electricity] forgets us.”⁸⁰

Residents also said that they often get EDL electricity after midnight, limiting their ability to utilize it.⁸¹ Further, many households reported having no state electricity for days on

⁷⁸ Human Rights Watch interview (name and location withheld), April 19, 2022.

⁷⁹ Human Rights Watch interview with Samir al Sirwan, Beirut, Lebanon, March 31, 2022.

⁸⁰ Human Rights Watch text and voice correspondence with Sonia Semaan, Koura, Lebanon, March 19, 2022.

⁸¹ Human Rights Watch text correspondence (name withheld), Akkar, Lebanon, March 23, 2022; Human Rights Watch interview (name withheld), Beirut, Lebanon, March 23, 2022.

end.⁸² Sumaya Juneid, a widow who lives in Tripoli, said that she often has no state electricity for 15 to 20 consecutive days.⁸³

Private Generators Mostly Unaffordable

Personal, building, and neighborhood generators are used by those who can afford them to partially supply the energy that EDL fails to deliver. But generator services are often costly and significantly more expensive than the EDL supplied electricity.⁸⁴ Nationwide, one out of ten households does not access a generator to provide power when the EDL grid shuts transmission off.⁸⁵

Our research shows that low-income households are the least able to afford private generators. Among the poorest 20 percent of households, one in five do not have access to a generator. This compares to only one out of 50 of the wealthiest 20 percent of households. When those without access to a generator were asked why, the most common answer (75 percent) was that they could not afford it.

⁸² Human Rights Watch interview with Soumaya Juneid, Tripoli, Lebanon, June 8, 2022; ; Human Rights Watch interview with Wafa Shukr, Zahle, Lebanon, June 9, 2022.

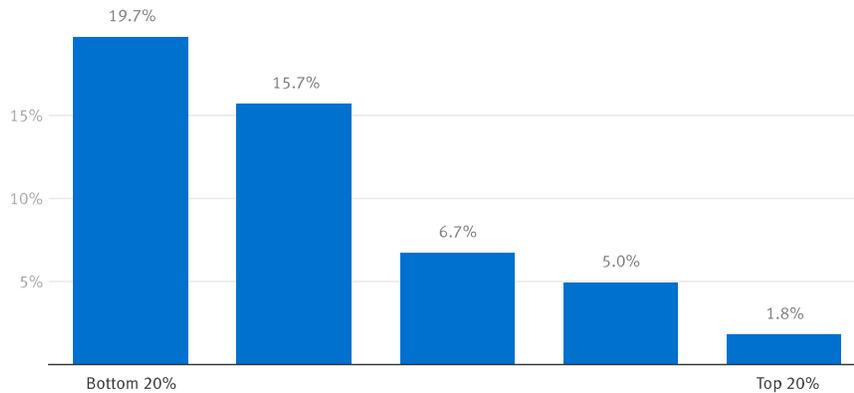
⁸³ Human Rights Watch interview with Soumaya Juneid, Tripoli, Lebanon, June 8, 2022.

⁸⁴ The World Bank, *Lebanon Social Impact Analysis - Electricity and Water Sectors*, Report No. 48993-LB, June 18, 2009 <https://documents1.worldbank.org/curated/en/153931468263692245/pdf/489930ESWoPo891CoDisclosed071171091.pdf> (accessed February 1, 2023).

⁸⁵ Human Rights Watch survey. 95 percent confidence interval for not using a generator in previous month: 9 – 12.5 percent.

Poorer Households Less Likely to Access a Generator

Proportion of households that do not access a neighborhood, building, or personal generator, by income quintile.



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1,209 households.

About a third of households who do not access a generator said that they used an alternative energy source such as an uninterruptible power source (UPS) (7 percent of all households used a UPS) or solar power (1.6 percent of all households use solar power).⁸⁶

An elderly man said that he used to have a generator prior to the crisis but could no longer afford it due to his increased expenses. “How am I supposed to pay 2 million Lebanese pounds (US\$74) [per month] for the generator subscription? All my income would go for the generator. I have reached a point that I have decided that I do not need electricity. I have given up on everything,” he said.⁸⁷

Low-income households in Lebanon spend a much bigger share of their income on generator bills compared to wealthier ones, straining family budgets and putting them at greater risk of falling behind on other essential expenses. To find out just how much low-income households spend on generator-provided electricity, we asked survey respondents to recall both their latest monthly household income as well as their most recent generator

⁸⁶ About 10 percent of all households also use an alternative source of power such as UPS/APS or batteries systems (7.3 percent) or solar (<2 percent). Families without access to a generator are more likely to use an alternative power source than those who access a generator (34 percent versus 8 percent).

⁸⁷ Human Rights Watch text and voice correspondence (name withheld), April 28, 2022.

bills. After converting to US dollars, we computed the proportion of monthly income that generator bills consume.⁸⁸

We found that the average household had generator bills that accounted for 44 percent of monthly income (median = 35 percent).⁸⁹ The disparities between income levels are huge. For those in the bottom quintile who accessed a generator, their generator bills consumed 88 percent of their monthly income, on average, compared to 21 percent for the top quintile.

The disparities in people's ability to access generators reflects the broader context of longstanding inequalities in income and wealth in Lebanon, which are some of the highest in the region. The World Inequality Lab study even placed Lebanon among the countries with the highest levels of income inequality in the world, alongside South Africa and Brazil.⁹⁰

A 69-year-old woman who lives in Baabda in Mount Lebanon with her son said that her son's entire public sector salary is spent on electricity and gas. "He was saving to get married, but now he isn't going to anymore," she said.⁹¹ Similarly, Fadia al Haj, a 61-year-old woman who lives in Mount Lebanon, said that all the income she receives from her retired father's army salary goes towards covering the generator bill.⁹²

⁸⁸ If someone gave amounts for multiple generator types (e.g. for a neighborhood generator and a personal one) we summed the amounts. In computing the means and medians, we removed four outlier cases where the bills were over 3x as large as the income.

⁸⁹ Human Rights Watch survey. 95 percent confidence interval for percentage of income going towards generator bills: mean = 42 – 46.9 percent, median = 32.4 – 36.3).

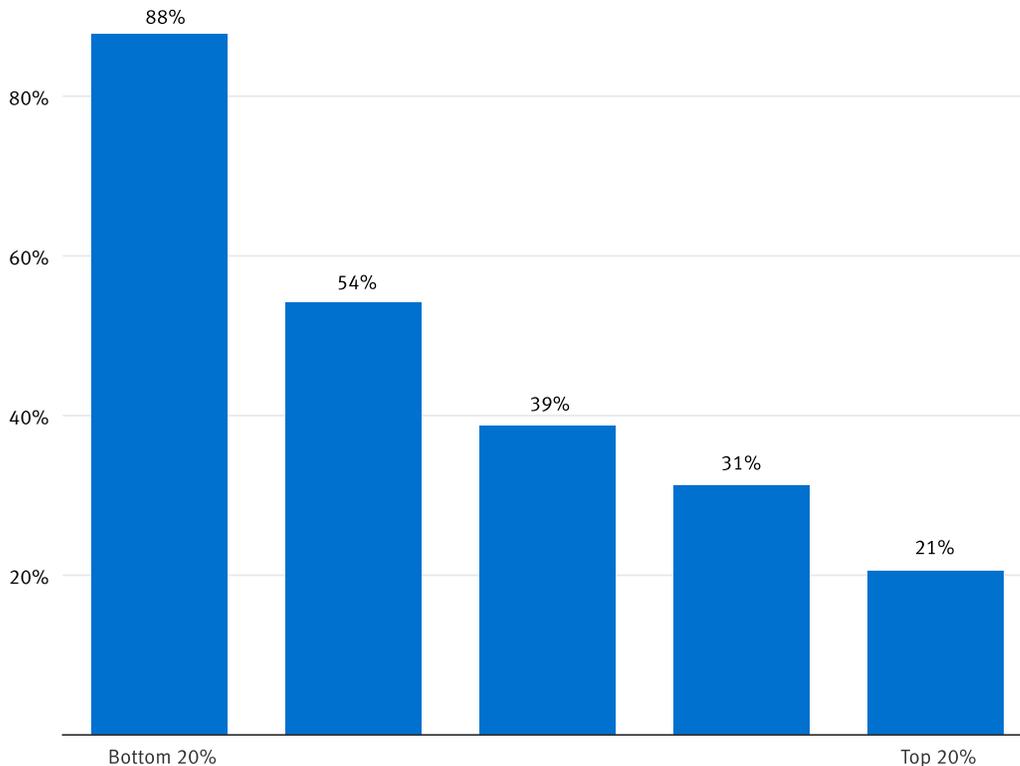
⁹⁰ Assouad, "Lebanon's Political Economy: From Predatory to Self-Devouring."

⁹¹ Human Rights Watch interview (name withheld), Baabda, Lebanon, May 6, 2022.

⁹² Human Rights Watch interview with Fadia al-Haj, Beirut, Lebanon, June 2, 2022.

Proportion of Income Spent on Generators

Monthly generator bill as percentage of monthly income, average (mean) per income quintile



Excludes households that did not provide income data or generator bill data.

Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

Neighborhood generators are the most accessed type of generator with approximately 83 percent of households receiving energy from one.⁹³ Even among the poorest 20 percent of households, three out of four accessed a neighborhood generator. The average family that accesses a neighborhood generator gains about 12 hours of electricity per day from it.⁹⁴ However, only about half of neighborhood generator users reported being satisfied with the hours of electricity supplied as well as the capacity of generators (the average household reported that neighborhood generators supplied electricity current at 7 amperes).

⁹³ Human Rights Watch survey. 95 percent confidence interval for using a neighborhood generator in previous month: 80.9 – 85.1 percent.

⁹⁴ Human Rights Watch survey. 95 percent confidence interval for amount of energy per day from a neighborhood generator: 11.7 – 12.3 hours.

Personal and building generators are typically only accessed by the wealthiest households in Lebanon. Only 3 percent of households in the bottom half of income accessed a personal generator compared with 10 percent of the top quarter of households. Similarly, 5 percent of the wealthiest households access a building generator, compared with less than 2 percent of the poorest half of households.

Building generators are more common in higher-density urban areas. Sixty-one percent of Lebanese homes that access a building generator are in Beirut and 25 percent in Mount Lebanon. A quarter of Beirut residents say they use a building generator.⁹⁵ Building generators provide about 11 hours of additional electricity per day and personal generators approximately 8 hours, both at higher capacity than neighborhood generators.⁹⁶

Despite consuming a large share of people's incomes, generators and alternative sources do not fully fill the gaps in energy supply. The average Lebanese household estimated that they have about 9 hours per day with no electricity at all from any source.⁹⁷ This is an increase from an estimated 90 minutes per day pre-crisis.⁹⁸ The reported electricity shortfalls were highest in Beirut and Mount Lebanon (averaging 11 hours per day) and lowest in South Lebanon (mean of 7 hours per day).

There is a relationship between household income and the average number of hours per day that the household goes without electricity due to people's ability to pay for generators or alternative sources of energy. The poorest quintile of households reported going without electricity for 11 hours per day on average compared with 6 hours on average for the wealthiest quintile. Respondents who said they were "having difficulty making ends meet" or "always behind on basic expenses" reported that they received substantially less electricity than those who believe they are "middle class" or "financially well-off" (10 hours without electricity per day versus 6 hours, on average). People without access to generators reported going 16 hours per day without electricity on average. Households

⁹⁵ Human Rights Watch survey. 95 percent confidence interval for proportion of Beirut residents that use a generator: 16.5 – 34 percent.

⁹⁶ Human Rights Watch survey. 95 percent confidence interval for amount of energy per day from a personal generator: 6.5 – 9.3 hours and building generator: 9.5 – 12.8 hours.

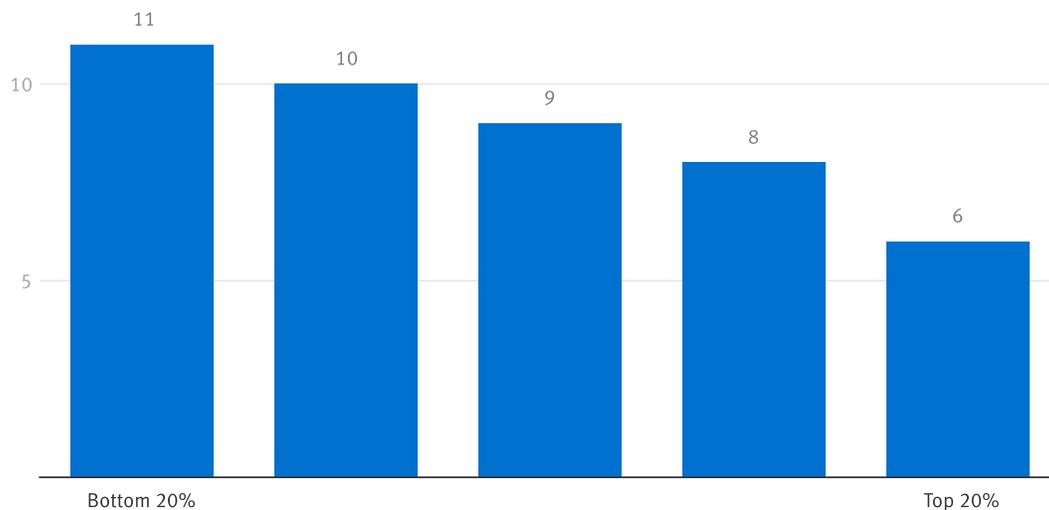
⁹⁷ Human Rights Watch survey. 95 percent confidence interval for mean hours of no energy per day: 8.7 – 9.3 hours.

⁹⁸ Human Rights Watch survey. 95 percent confidence interval for mean hours of no energy per day pre-crisis: 1.3 – 1.7 hours.

with a member who has lost work and remains unemployed since the crisis began also have fewer hours of electricity per day.

Poorer Households Face Longer Outages

Average hours without electricity from any source per day by household income quintile



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

These findings reflect the high costs of generator provided electricity, which increased in 2021 following the dramatic devaluation of the Lebanese Pound, soaring inflation, and the rise of fuel prices, as generator suppliers passed higher costs on to customers.⁹⁹ The lifting of fuel subsidies in August 2021 had a particularly strong impact on fuel costs, and there was no alternative support for the country’s low- and middle-income households.¹⁰⁰

⁹⁹ The World Bank, *Lebanon Public Finance Review: Ponzi Finance?*, p. 92; Omar Habib, “Private Generator Rates in Lebanon up by 200 to 300% This Month,” *Zawya*, September 7, 2021, <https://www.zawya.com/en/economy/private-generator-rates-in-lebanon-up-by-200-to-300-this-month-vg9ydpkg> (accessed February 1, 2023).

¹⁰⁰ “Lebanon Raises Fuel Prices, Source Says Price Set at C. Bank Rate,” *Reuters*, September 22, 2021, <https://www.reuters.com/world/middle-east/lebanon-raises-gasoline-prices-document-2021-09-22/> (accessed February 1, 2023).

Many households told Human Rights Watch that they had to stop their generator subscriptions because of the rising cost of diesel as well as general inflation, which was making it exceedingly difficult to make ends meet.¹⁰¹ A 42-year-old female head of household in Beirut said that she had a generator subscription until recently but was forced to suspend it due to its exorbitant cost. “The cost per month became 2.3 million Lebanese pounds, and I cannot afford this. I am the only person who works in the family ... if I had the means, I would definitely get a generator line back. My children would wish to have electricity again.”¹⁰²

Ihab Abou Fakhr, an Aley resident who is the breadwinner for his wife and kids as well as his mother, said: “I have no capacity to pay millions and millions so we disconnected our own [generator] subscription and kept hers [my mother’s] ... But I have to say this situation took us back to the old days ... These are challenging times.”¹⁰³

Families frequently go full days without receiving electricity from any source. Two out of five respondents reported experiencing at least one 24-hour or longer blackout in the previous three months.¹⁰⁴ Of those households that experienced at least one day-long blackout, the median respondent recounted at least three incidents in the previous 90 days (the mean was seven such blackouts).¹⁰⁵ About one in 40 households reported 30 or more days within the three months prior to the survey without any electricity.

Going a full day or more without electricity was also correlated with household income. While about half of households in the bottom 20 percent of income reported a 24-hour or longer blackout, only a quarter of the wealthiest households experienced the same. Two

¹⁰¹ Human Rights Watch interview (name withheld), Beirut, Lebanon, May 5, 2022; Human Rights Watch interview with Layal Abbas, Tripoli, Lebanon, June 3, 2022; Human Rights Watch interview with Soumaya Juneid, Tripoli, Lebanon, June 8, 2022; Human Rights Watch interview with Ihab Abou Fakhr, Aley, Lebanon, June 8, 2022; Human Rights Watch text and voice correspondence (name withheld), Tripoli, Lebanon, March 22, 2022.; Human Rights Watch text and voice correspondence (name withheld), Saida, Lebanon, March 23, 2022; Human Rights Watch text and voice correspondence with Manal Ahmad al-Khaled, Beddawi, Lebanon, March 24, 2022.

¹⁰² Human Rights Watch interview (name withheld), Beirut, Lebanon, May 5, 2022.

¹⁰³ Human Rights Watch interview with Ihab Abou Fakhr, Aley, Lebanon, June 8, 2022.

¹⁰⁴ Human Rights Watch survey. 95 percent confidence interval for percentage of households experiencing a 24 hour or longer blackout in previous three months: 38.1 – 43.7 percent.

¹⁰⁵ Human Rights Watch survey.

out of three households without access to a generator reported such a blackout compared with only a third of those who can access a generator.

The vast majority of Lebanese households reported facing difficulties paying their electricity bills and nearly everyone said that difficulty had increased since the crisis began.¹⁰⁶ In fact, nearly one in four households had their electricity shut off over the previous two years for failure to pay their electricity bills.¹⁰⁷ Poorer households were more likely to have any kind of shutoff (generator or EDL) for non-payment. Shutoffs due to non-payment were most common in North Lebanon and Mount Lebanon and least common in South Lebanon.

A 51-year-old bakery owner from Zahle said that “prior to the crisis...we never really felt it [impact of electricity bills] ... but the price has been increasing significantly for the past months ... All my income goes to paying the electricity bill.”¹⁰⁸

Our findings establish that low-income households were disproportionately suffering from Lebanon’s electricity crisis, which in turn risked trapping them further in poverty.

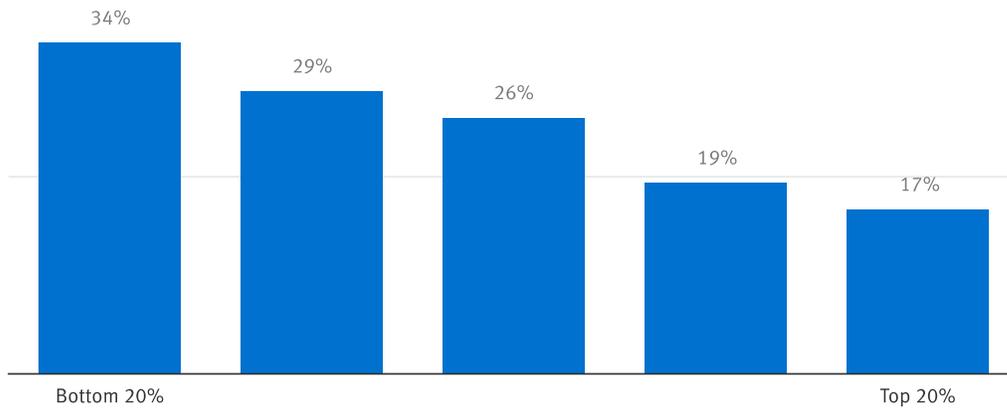
¹⁰⁶ Human Rights Watch survey. 95 percent confidence interval for percentage of households having difficulty paying for electricity: 82.5 – 86.6 percent.

¹⁰⁷ 1.8 percent refer to EDL bills, 19.1 percent refer to generator, 3.4 percent to both bills. Human Rights Watch survey. 95 percent confidence interval for percentage of households having any power shutoff due to failure to pay bill: 21.9 – 26.8 percent.

¹⁰⁸ Human Rights Watch interview (name withheld), Zahle, Lebanon, June 9, 2022.

Poorer Households More Likely to Have Electricity Shut-off for Failure to Pay

Percentage of households that have had their electricity shut-off at least once in the previous 12 months because they were unable to pay their bill, by income quintile



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

Research by the American Council for an Energy-Efficient Economy found that in the US, households with a high electricity burden are more likely to stay trapped in cycles of poverty, reinforcing patterns of inequality, as they are left with limited money to spend on education and job training, healthy foods, or health care.¹⁰⁹ Similarly, a study by researchers at University of North Carolina found that energy-burdened households have a 175-200 percent chance of remaining in poverty for a longer time compared to non-energy-burdened households.¹¹⁰

A 2021 study on the interlinkages between poverty and electricity by the Oxford Poverty and Human Development Initiative found that 99 percent of the people who are deprived in electricity also experience one or more additional deprivations simultaneously, emphasizing the breadth of interlinkages between electricity access and poverty. In turn,

¹⁰⁹ Ariel Drehobl, Lauren Ross, and Roxana Ayala, *How High Are Household Energy Burdens?*, American Council for an Energy-Efficient Economy, September 2020, <https://www.aceee.org/sites/default/files/pdfs/u2006.pdf> (accessed February 1, 2023).

¹¹⁰ Jeremiah Bohr and Anna C. McCreery, "Do Energy Burdens Contribute to Economic Poverty in the United States? A Panel Analysis," *Social Forces*, November 15, 2019, <https://academic.oup.com/sf/article-abstract/99/1/155/5618802?redirectedFrom=fulltext> (accessed February 1, 2023).

the study found that significant improvement in electricity access had some of the fastest reductions in poverty.¹¹¹

Impact on an Adequate Standard of Living

Electricity is at the heart of a modern, dignified life. It is vital for the provision of clean water, heating, air-conditioning, lighting, and transport, and for the operation of important devices such as refrigerators. It also allows households to be productive, economically active, able to educate their members, and to recreate. The international community has long been aware of the close relationship between income levels and access to electricity; the World Bank considers access to energy essential for reducing poverty and shared economic prosperity.¹¹² Similarly, it considers internet access, which is dependent on electricity access, to be a basic necessity for economic and human development.¹¹³ Broadband internet access is a powerful tool for the delivery of economic and social rights such as education and healthcare, offers economic opportunities, and can contribute to government transparency and accountability. Since the beginning of the crisis, Lebanon has suffered from a series of internet shutdowns as the country's telecom sector is unable to secure or afford sufficient fuel for its power stations.¹¹⁴

¹¹¹ The Rockefeller Foundation, *Interlinkages Between Multidimensional Poverty and Electricity*, June 2021, <https://www.rockefellerfoundation.org/wp-content/uploads/2021/06/Interlinkages-Between-Multidimensional-Poverty-and-Electricity-Oxford-Poverty-and-Human-Development-Initiative.pdf> (accessed February 1, 2023).

¹¹² The World Bank, "Energy," n.d., <https://www.worldbank.org/en/topic/energy/overview#1> (accessed February 1, 2023); International Energy Agency, *Energy Poverty: How to Make Modern Energy Access Universal?*, September 10, https://www.undp.org/sites/g/files/zskgke326/files/publications/Energy_Poverty_Excerpt_WEO2010.pdf (accessed February 1, 2023).

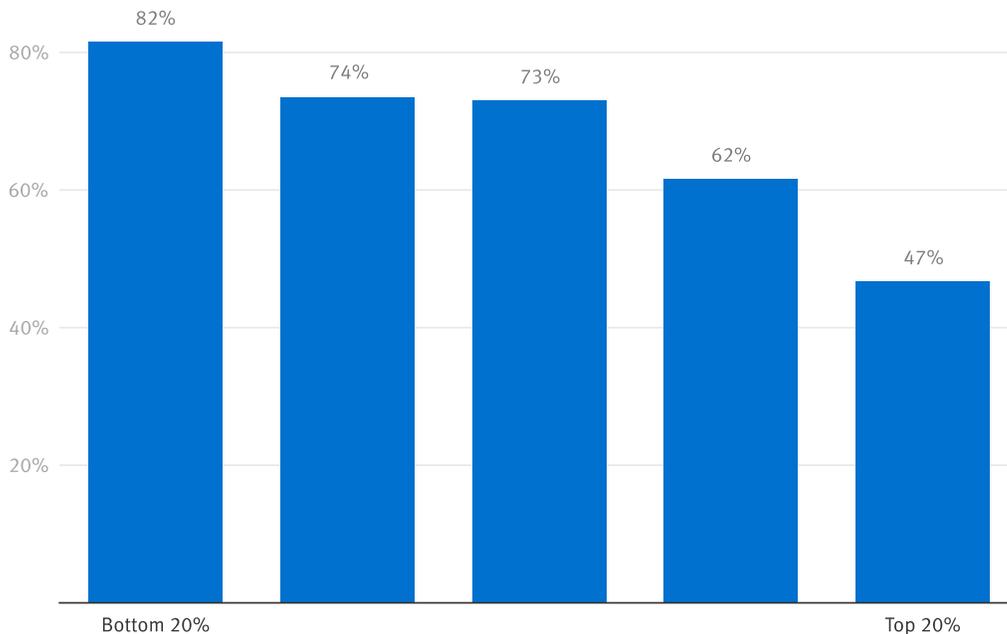
¹¹³ The World Bank, "Connecting for Inclusion: Broadband Access for All," n.d., <https://www.worldbank.org/en/topic/digitaldevelopment/brief/connecting-for-inclusion-broadband-access-for-all> (accessed February 1, 2023).

¹¹⁴ Kareem Chehayeb, "Internet Shutdowns Hit Cash-Strapped Lebanon Due to Stricke," *AP News*, August 31, 2022, <https://apnews.com/article/middle-east-lebanon-economy-beirut-cd32a8a30137167bb17846ece70ae101> (accessed February 1, 2023); Sarah El Deeb, "Lebanon Faces Internet Service Interruption amid Fuel Crisis," *AP News*, January 16, 2022, <https://apnews.com/article/business-middle-east-lebanon-beirut-ba006e73de8116680c438859fe95a560> (accessed February 1, 2023).

The combination of high electricity costs and a dire economy means that households are having to make difficult choices about how to make ends meet. In response to our survey, nearly nine out of ten households said the cost of electricity affected their ability to pay for other essential services.¹¹⁵ Furthermore, this hardship occurred frequently, with two-thirds of households saying that electricity costs affected their ability to pay for essentials several times a month and another 20 percent saying that this happened every other month or so. This experience was so commonly felt throughout Lebanese society that only within the highest income quintile did fewer than half of households say they were not affected several times per month. Households in Beqaa and North Lebanon were more likely to have difficulty paying for essential needs than those in other parts of the country.

Electricity Costs Affect Ability to Afford Essential Needs

Percentage of households saying that the cost of electricity affects their ability to pay for other essential services or goods several times per month, by income quintile



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

¹¹⁵ Human Rights Watch survey. 95 percent confidence interval for the cost of electricity affecting their ability to pay for other essential services: 84.4 – 88.3 percent.

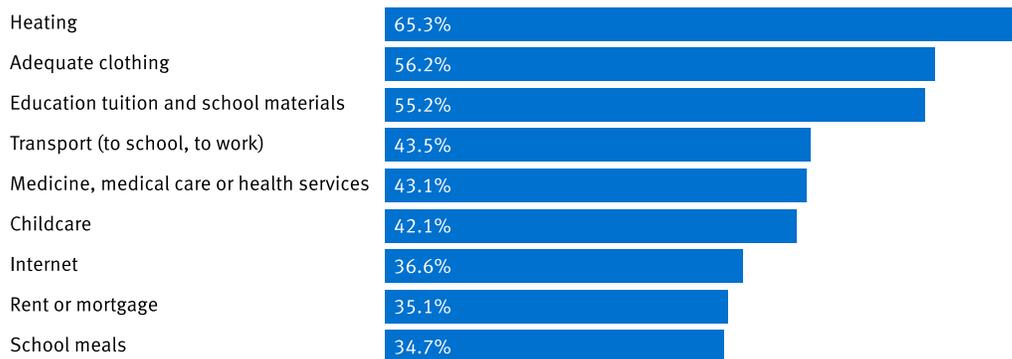
We asked households about what types of things they had been unable to pay for in the previous year. The results reveal the extent of financial struggle within many homes. Nearly two-thirds of households had been unable to pay for heating. A majority of households have struggled to pay for adequate clothing or education needs. More than 43 percent had been unable to pay for medicine or health care.

“All in all, about \$200 goes to electricity per month. And because of that, we have to cut down on other things. For example, I buy less clothes, less things for the house...things like that, things we used to buy a lot before,” said Salwa Nejme, a Baabda resident.¹¹⁶

We also asked people whether electricity shortages had affected their household’s ability to keep food refrigerated or frozen, receive sufficient water, keep their home at a safe temperature, cook or heat food, participate in an education-related or work activity, or access their home via elevators or electric powered gates. Over 80 percent of households said that one or more of these seven activities had been affected by lack of energy and a quarter of households said that four or more of these activities were affected.

Inability to Pay for Essentials in Past 12 Months

Percentage of households that have been unable to pay for the following in the previous year



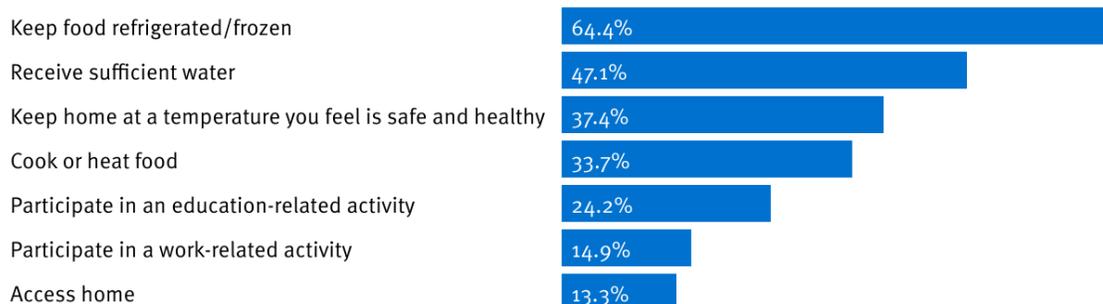
Note: Child care and school meals only include households with children. Rent/mortgage only includes households who pay rent/mortgage.

Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

¹¹⁶ Human Rights Watch interview with Salwa Nejme, Baabda, Lebanon, May 5, 2022.

Electricity Shortages Affecting Rights

Percentage of households saying activity was affected by electricity shortages in previous 12 months



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

“We’re freezing now, but we cannot turn on the heater. We do not have hot water. We cannot put anything in the fridge ... and everything is expensive,” an Akkar resident said. “In order to pay the generator bill, you have to ration everything else.”

“If we didn’t have the generator expense, then we’d manage. But the generator bankrupted us,” a Baabda resident said. “You can let go of everything, but you can’t live without electricity.”¹¹⁷

A Zahle resident compared electricity blackouts to a car that suddenly stops on the highway. “The car is us, and we suddenly stop. We just sit and wait for the electricity to come back on. There is nothing else you can do. There is nothing uglier than this,” he said.¹¹⁸

Food

Food insecurity has reached alarming levels in Lebanon. A UNICEF survey conducted in June 2022 found that as many as 70 percent of households now borrow money to buy food or purchase it on credit. In the three months prior to the survey, 23 percent of children had

¹¹⁷ Human Rights Watch interview (name withheld), Baadba, Lebanon, May 6, 2022.

¹¹⁸ Human Rights Watch interview (name withheld), Zahle, Lebanon, June 9, 2022.

gone to bed hungry. More children are being sent out to work to support their families, and young girls are married off to reduce expenses.¹¹⁹

The high cost of electricity and blackouts are part of the problem. A third of households who responded to our survey said that electricity shortages affected their ability to cook and heat food, with the majority stating that this was a daily concern.¹²⁰ Additionally, two out of three said that shortages affected their ability to keep food refrigerated or frozen.¹²¹ A smaller, though still sizable, proportion of the wealthiest quintile stated this was a problem, suggesting that those with sufficient funds can mitigate this issue.

For households with children, over a third surveyed stated that they were having difficulty paying for school meals. Of that group, 90 percent also stated that their ability to pay for essential goods and services was affected by the cost of electricity.

All the households Human Rights Watch interviewed said that the biggest impact of electricity shortages was on their ability to keep food refrigerated. Several households remarked that the fridge had essentially become a closet.¹²²

A mother in Saida said that she could not put anything in the fridge anymore: “I get the ingredients and cook them the same day ... We only have lunch, we skip breakfast, and for dinner, we have what’s left over. You can’t store food, and food is getting more expensive.”¹²³

Another mother of six in Beirut said, “I do not want a generator anymore ... My priority is to feed my children...we can stay without electricity, but we can’t just skip buying food.”¹²⁴

¹¹⁹ UNICEF, *Deprived Childhoods: Child Poverty in Crisis-Wracked Lebanon*, August 2022, <https://www.unicef.org/lebanon/media/9056/file/Deprived%20Childhood%20EN.pdf> (accessed February 1, 2023).

¹²⁰ Human Rights Watch survey. 95 percent confidence interval for percentage of households that say that electricity shortages affect their ability to cook and heat food: 31 - 36 percent.

¹²¹ Human Rights Watch survey. 95 percent confidence interval for percentage of households that say that electricity shortages affect their ability to keep food refrigerated/frozen: 62 - 67 percent.

¹²² Human Rights Watch interview with Ihab Abou Fakhr, Aley, Lebanon, June 8, 2022; Human Rights Watch interview with Soumaya Juneid, Lebanon, June 8, 2022; Human Rights Watch interview with (name withheld) Sibline, June 3, 2022.

¹²³ Human Rights Watch text voice correspondence (name withheld), Saida, Lebanon, March 23, 2022.

¹²⁴ Human Rights Watch text and voice correspondence (name withheld), Beirut, Lebanon, March 24, 2022.

Many families reported changing the kind of food that they consume. “We no longer get meat, we no longer get chicken,” said Sonia Semaan, a 52-year-old mother of three. “To me, the equation is either meat or an electricity generator ... we have to choose between having food and having a generator, and I personally cannot stay without light. I would go crazy.”¹²⁵

“We have modified our consumption. We don’t consume things like fruits, tomatoes, cucumbers,” said Fadia al Haj, whose entire income is spent on electricity bills.¹²⁶

A mother of four from Tripoli said that when she cancelled her generator subscription, she freed up some income that allowed her to add vegetables back into her family’s diet.¹²⁷

Health Care and Wellbeing

Our survey further finds that expensive and unreliable electricity also has serious negative health impacts. Slightly less than half of all households (43 percent) said that they had been unable to pay for medicine, medical care, or other health services, including mental health, at some time in the previous year. Of that group, nearly everyone (92 percent) also stated that the cost of electricity regularly or sometimes affected their ability to pay for essential services. Ability to pay for medical care is dependent on income as 58 percent of the poorest quintile said they were unable to pay compared with only 15 percent of the wealthiest quintile.

About 19 percent of households in Lebanon have a member who uses medical equipment or assistive devices powered by electricity, such as electric wheelchairs or hearing aids.¹²⁸ Of that group, one out of ten said that electricity shortages affected their ability to use such equipment. When we asked how people coped with shortages affecting their medical equipment, about a third went to the hospital to seek care for the issue and another 43 percent went to a family member or friend’s home in order to cope with the shortage.

A 54-year-old woman told Human Rights Watch that she had a generator subscription in order to power her 87-year-old mother’s oxygen machine, as the state electricity supply is

¹²⁵ Human Rights Watch text and voice correspondence with Sonia Semaan, Koura, Lebanon, April 19 2022.

¹²⁶ Human Rights Watch interview with Fadia al-Haj, Beirut, Lebanon, June 2, 2022.

¹²⁷ Human Rights Watch interview with Layal Abbas, Tripoli, Lebanon, June 3, 2022.

¹²⁸ Human Rights Watch survey. 95 percent confidence interval for percentage of households that have someone who uses medical equipment or assistive devices: 17 – 21.4 percent.

unreliable, which would put her mother’s life at risk. “She needs the oxygen machine depending on her state and if she gets an oxygen attack. When there is no generator, we couldn’t switch it on... This reminds me of awful times.”¹²⁹

Similarly, Manal al-Khaled, a 38-year-old woman who lives in Beddawi in north Lebanon, said that in 2021, her father fell ill and needed oxygen. But they could not get him an oxygen machine to the house because they would not have been able to power it, so they resorted to taking him to a nearby clinic every few hours to give him oxygen. She said that this cost them 25,000 Lebanese pounds (\$1) every time.¹³⁰

About seven percent of households include someone living with a disability.¹³¹ Of this subset, 12 percent had medical equipment or assistive devices affected by shortages. Families including someone with a disability were more likely to say that they had difficulty making ends meet or were always behind on basic expenses (84 percent compared to 70 percent).

Human Rights Watch spoke to four residents who have a disability or who live with a family member who has a disability. All described the devastating impact that the lack of electricity was having on their ability to manage their lives and make ends meet. Lack of electricity in particular jeopardizes the rights of people with disabilities who require electricity to operate assistive technology for independent living, or other equipment powered by electricity, such as elevators.

A 55-year-old woman who lives in Beirut and has paralysis on one side of her body explained to Human Rights Watch how difficult her life has become without electricity, and in particular how it has impacted her ability to move and participate in the community.

How can I describe it to you? When I lose electricity, I become hysterical. Everything instantaneously becomes more difficult, even tasks that do not require electricity. I can only use one hand and I live with chronic pain ... I live on the first floor but I do not go out of the house if there is no

¹²⁹ Human Rights Watch interview (name and location withheld), April 19, 2022.

¹³⁰ Human Rights Watch text and voice correspondence with Manal Ahmad al-Khaled, Beddawi, Lebanon, March 24, 2022.

¹³¹ Human Rights Watch survey. 95 percent confidence interval for percentage of households that include someone living with a disability: 6-9 percent.

electricity. I can't go up and down the stairs ... You are not allowed to be comfortable. You have to be humiliated in your own home.¹³²

A 50-year-old woman who has osteoporosis and who lives in the southern suburbs of Beirut with her brother who has partial body paralysis said that she was living in misery without power. She described how electricity impacted her ability to provide support to her brother to access basic necessities. "I could not see in front of my eyes to help my brother get to the bathroom. Sometimes we wouldn't even reach the bathroom on time. I reached a state of complete depression." She added that the generator bill was impacting her ability to buy medicine for herself and for her brother.

For example, this month, I didn't buy my osteoporosis medication because the generator bill was 1.4 million Lebanese pounds (\$52). I have to get food for my brother too, and I have to get his medications...this is all draining us psychologically. He's tired. He reached a point where he started crying because of the electricity cuts. The darkness, it weighs on your heart. I would cry too because I'm angry. I'm angry at the situation. At the same time, I'm helpless.¹³³

According to the UN Flagship Report on Disability and Development from 2018, people with disabilities in general face more challenges in accessing energy compared to the rest of the population. They also struggle to pay electricity bills that tend to be higher compared to the bills for the rest of the population while at the same time also having fewer financial resources.¹³⁴

Samir al-Sirwan, a 75-year-old retiree, lives with his 37-year-old daughter who has a hearing disability and anxiety. He said, "For my daughter, the TV is like medicine for her. She has deep anxiety, and her inability to watch TV makes that worse. We had to increase her medicine dosage ... Add to that, our own mood affects her ... I tell my wife that we have

¹³² Human Rights Watch text and voice correspondence (name withheld), Beirut, Lebanon, April 20, 2022.

¹³³ Human Rights Watch interview and text and voice correspondence (name withheld), Beirut, Lebanon, May 6, 2022.

¹³⁴ UNDESA, *Disability and Development Report: Realizing the Sustainable Development Goals by, for and with Persons with Disabilities*, 2018, p. 9 and p. 139, <https://social.un.org/publications/UN-Flagship-Report-Disability-Final.pdf> (accessed February 2, 2023).

to smile more for her, but it's all acting. There's nothing to smile for ... To me, the priority isn't electricity or food; it's medicine for my daughter."¹³⁵

Ghada Ghoros, who lives in Nabaa, said her son, who has a physical disability, fell at night and broke his arm because he could not see well in the dark. "Summarize our situation and say that we are a family dying of hunger and looking to leave the country," she said.¹³⁶ Residents also described to Human Rights Watch the impact that the lack of electricity was having on their mental health. "When there is no electricity, it is like you are living in a cemetery," a Baabda resident said.¹³⁷ "Even during the day, the house is in darkness. And it dims your heart."

"When the power cuts, it is as if you are being cut off from life itself," another resident remarked.¹³⁸

"The blackouts make us constantly anxious, constantly in anger. We yell ... in reality, this electricity situation, it's like a disease for us. For both the young and the old alike," said Soumaya Juneid, a mother of six in Tripoli.¹³⁹

A 42-year-old housewife who has an 18-month-old daughter said, "My girl cries at night because of the darkness. I end up sometimes taking her out in the street where there's more light and she calms down ... my god, it's like death. It's worsening day after day."¹⁴⁰

Heating and Cooling Homes

Extreme temperatures are a serious health hazard. Extreme heat, for example, can cause heat rash, cramps, heat exhaustion, or heat stroke, which can be fatal or have lifelong consequences. Older people, people with disabilities, pregnant people, and children are at increased risk of adverse health impacts from heat, in some cases with fatal

¹³⁵ Human Rights Watch interview with Samir al Sirwan, Beirut, Lebanon, March 31, 2022.

¹³⁶ Human Rights Watch text and voice correspondence with Ghada Ghoros, Nabaa, Lebanon, March 9, 2022.

¹³⁷ Human Rights Watch interview (name withheld), Baabda, Lebanon, May 6, 2022.

¹³⁸ Human Rights Watch interview with Layal Abbas, Tripoli, Lebanon, June 3, 2022.

¹³⁹ Human Rights Watch interview with Soumaya Juneid, Tripoli, Lebanon, June 8, 2022.

¹⁴⁰ Human Rights Watch interview with Hasna al-Yousef, Lebanon, May 5, 2022.

consequences.¹⁴¹ The lack of affordable and reliable electricity in Lebanon affects people’s ability to protect themselves from unsafe temperatures.

Our survey found that nearly two-thirds of households were unable to pay for heating at some point over the previous year. Additionally, about four of ten respondents said that electricity shortages affected their household’s ability to keep their home at a safe and healthy temperature, with the vast majority (over 80 percent) of them stating that this is a nearly daily issue.¹⁴² The proportion of households saying this is lowest among households with lower income, suggesting that many of these do not have air conditioning or heating units that would be affected by energy shortages.

“Sometimes visitors tell me that the house is cold and it’s bad for my daughter. But what can I do? ... I feel like I have a mental health condition because of [the lack of] electricity, because of the economic situation. My husband and I fight more often,” said Hasna Al Youssef, a mother of four.¹⁴³

Salwa Nejme, whose young grandchild lives in her house, said her grandchild has bronchitis, and the cold worsens it. However, when she switched on electric heaters, her bill surged to 5 million Lebanese pounds (\$186), which she had trouble affording.¹⁴⁴

A retired teacher in Beirut also said she can only afford to turn on the small electric heater when there is state electricity, which she gets for less than four hours per day. “We wear thick clothes, we use blankets, we stay in bed to avoid the cold,” she said.¹⁴⁵

Water

Most households rely on electric water pumps to receive water in their homes. In response to our survey, nearly half of households said that electricity shortages affected their ability

¹⁴¹ “Protecting People from Extreme Heat,” Human Rights Watch press release, July 21, 2022, <https://www.hrw.org/news/2022/07/21/protecting-people-extreme-heat>

¹⁴² Human Rights Watch survey. 95 percent confidence interval for percentage of households that say that electricity shortages affect their ability to keep home at safe temperature: 34.7 – 40.1 percent.

¹⁴³ Human Rights Watch interview with Hasna al-Youssef, remote, May 5, 2022.

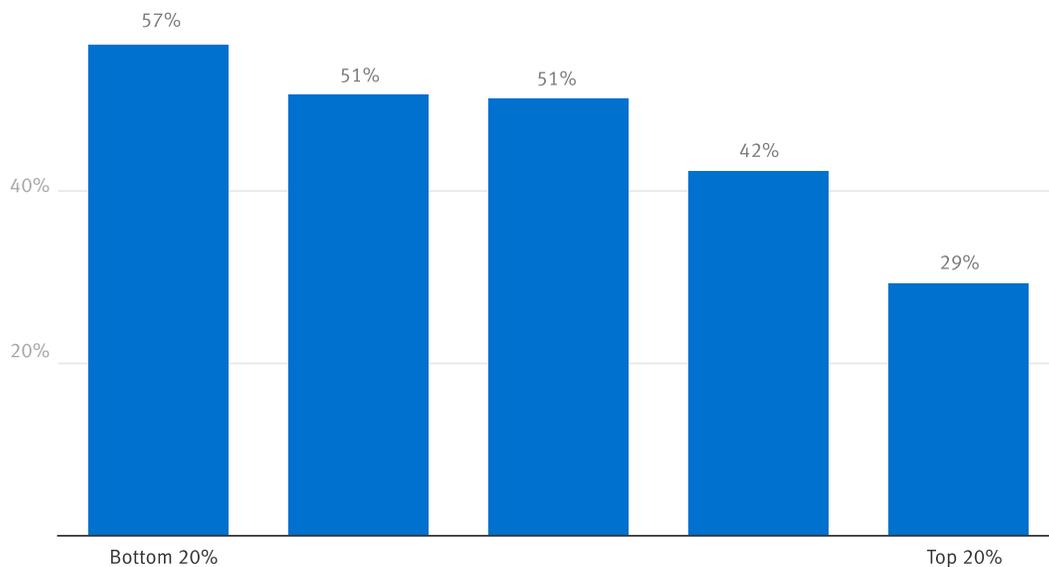
¹⁴⁴ Human Rights Watch interview with Salwa Nejme, Baabda, Lebanon, May 5, 2022.

¹⁴⁵ Human Rights Watch interview (name withheld), Beirut, Lebanon, May 23, 2022.

to receive water.¹⁴⁶ Among this group, the problem was frequent with 85 percent saying that this happened either weekly or almost every day. Low income households saw their water access particularly affected, which suggests that wealthier households are better able to cope with shortages.

“We can’t even pump water without electricity,” a 75-year-old man from Beirut told Human Rights Watch.¹⁴⁷ “As a family, we have to schedule our showers. We wait for the electricity to come on...then we make sure to use the water equally, my wife, my daughter, and I.”

Electricity Shortages and Income Affect Ability to Receive Water Percentage of households saying that in the last 12 months, electricity shortages affected the household’s ability to receive sufficient water service and/or drinking water, by income quintile



Source: Human Rights Watch survey, November 2021 - January 2022, sample size: n = 1209 households.

¹⁴⁶ Human Rights Watch survey. 95 percent confidence interval for percentage of households that say that electricity shortages affect their ability to receive water service and/or drinking water: 44 - 50 percent.

¹⁴⁷ Human Rights Watch interview with Samir al Sirwan, Beirut, Lebanon, March 31, 2022.

A woman who lives with her two siblings in Sibling and who cannot afford a generator told Human Rights Watch that she relies on her brother to switch on his generator for about half an hour so that she can power the water pumps.¹⁴⁸

A mother of four who recently canceled her generator subscription also said that when there is no state electricity she does not receive any water, so she has to go to a nearby pond to gather water.¹⁴⁹ An unemployed mother of five similarly said that the water pump doesn't work without electricity, so she has to fill gallons of water from a nearby tank and carry it home.¹⁵⁰

Mobility

About 13 percent of all households said that energy shortages affected their ability to enter their home because they rely on elevators, lifts, or electronic locks.¹⁵¹ This was more common among wealthier families as about 20 percent of the wealthiest income quintile experienced this compared with 5 percent of the lowest quintile.

However, lack of access to electricity also impacted the ability of people with disabilities to move. A 50-year-old woman who has osteoporosis and who lives with her brother who has a disability on the 5th floor of an apartment building in the southern suburbs of Beirut said that an elevator is a “must.”¹⁵² “[My brother] can't get down the stairs from the 5th floor,” she said. “When the generator owner was rationing [electricity], I would avoid going out of the house. I have osteoporosis and it's in the last two segments of my spine. It hurts a lot and I can't climb stairs easily. A few times, I had to leave when there was no electricity to cash my salary...”¹⁵³

A 55-year-old woman in Beirut who also has partial paralysis similarly said that although she lives on the first floor, she cannot go out of the house without electricity. “I can't go visit anyone who has no elevator, whether because it's not in the building or there's no

¹⁴⁸ Human Rights Watch interview with (name withheld) Sibling, Lebanon, June 3, 2022.

¹⁴⁹ Human Rights Watch interview with Hasna al-Yousef, remote, May 5, 2022.

¹⁵⁰ Human Rights Watch text and voice correspondence with Ghada Ghoros, Nabaa, Lebanon, March 9, 2022.

¹⁵¹ Human Rights Watch survey. 95 percent confidence interval for percentage of households that say that electricity shortages affect their ability to access their home: 11.5 – 15.3 percent.

¹⁵² Human Rights Watch interview and text and voice correspondence (name withheld), Beirut, Lebanon, May 6, 2022.

¹⁵³ Ibid.

electricity to power it,” she said. “I certainly do not feel free to go out as I please and whenever I want. And I’m the kind who always used to go out, a globetrotter as they say.”¹⁵⁴

Impact on Access to Education

Since October 2019, schools in Lebanon have largely been closed following protests against government corruption, the Beirut port explosion, the Covid-19 pandemic, and teachers’ strikes as the economic crisis devalued their salaries.¹⁵⁵ As a result, children’s education has depended largely on remote learning since 2019. However, lack of electricity at home hampered children’s ability to study, complete assignments, and/or participate in online learning.¹⁵⁶ Lack of regular, affordable electricity also limited teachers’ ability to provide remote lessons. In June 2020, Sara, a 14-year-old schoolgirl from Saida, said that after schools were closed due to Covid-19 earlier that year, “My English teacher cancelled class almost every time because she didn’t have electricity.”¹⁵⁷ Schools are also affected by the lack of electricity, and some children were sent back home even after in-person classes resumed, because their classrooms could not turn on their lights, according to news reports.¹⁵⁸

When we asked about education and electricity, only half of households said the question was applicable, suggesting half of households do not have a member in school, university, or other educational activity. Of those who answered, about 50 percent said that shortages affected their ability to participate in a class or seminar. Nearly 80 percent of the households who had education activities affected by electricity shortages included

¹⁵⁴ Human Rights Watch text and voice correspondence (name withheld), Beirut, Lebanon, April 20, 2022.

¹⁵⁵ “Lebanon: Credible Plans Needed on Education Crisis,” Human Rights Watch press release, May 6, 2022, <https://www.hrw.org/news/2022/05/06/lebanon-credible-plans-needed-education-crisis>

¹⁵⁶ UNDESA, *Electricity and Education: The Benefits, Barriers, and Recommendations for Achieving the Electrification of Primary and Secondary Schools*, December 2014, <https://sustainabledevelopment.un.org/content/documents/1608Electricity%20and%20Education.pdf> (accessed February 2, 2023).

¹⁵⁷ Human Rights Watch, “*Years Don’t Wait for Them*”: *Increased Inequalities in Children’s Right to Education Due to the Covid-19 Pandemic*, May 17, 2021, https://www.hrw.org/report/2021/05/17/years-dont-wait-them/increased-inequalities-childrens-right-education-due-covid#_ftn165

¹⁵⁸ The National, “Back to School in Lebanon: ‘No Electricity and No Fuel - How Will Our Children Learn?’” September 15, 2021, <https://www.thenationalnews.com/mena/2021/09/15/back-to-school-in-lebanon-no-electricity-and-no-fuel-how-will-our-children-learn/> (accessed February 2, 2023).

children under the age of 18. The remainder likely include university students or other adult learners.

“My daughter studies with the phone flashlight. Without good lighting, it’s a disaster, she is behind on all her lessons,” a 37-year-old mother of four said. “It seems like a war on all fronts – electricity, education, our kids’ future.”¹⁵⁹

A 38-year-old woman from Beddawi in north Lebanon said that the lack of electricity was having a big impact on her nephew’s schooling. “For some time, he was studying online, but he wouldn’t be able to complete his homework on time because of the lack of electricity,” she said. The boy, age 8, “understands what’s happening” to Lebanon, his aunt said. When he is able to get online, he “addresses the president and demands solutions to the country’s problems.”¹⁶⁰

Impact on Livelihoods

Job opportunities and productivity can also be affected by electricity. Across Lebanon, 15 percent of all households said their ability to participate in a work-related call or meeting was affected, but this figure includes the half of respondents who said this question was inapplicable, suggesting they do not have members who work from home or otherwise do not have employment.¹⁶¹ Among only those households who said this question was applicable, 29 percent had their work affected by shortages. For these homes, 30 percent said these electricity shortages affected their employment status or ability to make income.¹⁶² Out of all Lebanese households, about 4 percent of households have had their employment status or ability to make income affected by home electricity shortages. Households that were most affected were concentrated in the middle-income quintiles.

A 59-year-old Beirut resident who lives with her seamstress sister said that the lack of electricity was impacting her sister’s livelihood. “The rationing affects my sister’s ability to

¹⁵⁹ Human Rights Watch text and voice correspondence (name and location withheld), March 21, 2022.

¹⁶⁰ Human Rights Watch text and voice correspondence with Manal Ahmad al-Khaled, Beddawi, Lebanon, March 24, 2022.

¹⁶¹ Human Rights Watch survey. 95 percent confidence interval for percentage of households that say that electricity shortages affect their ability to participate in work-related calls or meetings: 13 - 17 percent.

¹⁶² Human Rights Watch survey. 95 percent confidence interval: 22.6 – 36.1 percent.

work, to turn on the sewing machine. Where there's a generator cut, she does other things for work that don't require electricity, like manual sewing."¹⁶³

A Beddawi resident who used to work at a gym but is currently unemployed also said that the lack of electricity at her workplace led to the gym decreasing her shifts. She quit her job given the rising transportation costs that made commuting to work for a meagre salary not worthwhile.¹⁶⁴

Environmental and Health Impacts

The electricity system in Lebanon, with its reliance on heavy fuel oil-powered plants and diesel generators, generates significant air pollution that has taken a huge toll on the environment and had significant impacts on people's health, possibly killing thousands each year in Lebanon according to a Greenpeace estimate.¹⁶⁵

The World Health Organization (WHO) has identified air pollution as the "single biggest environmental threat to human health," with estimates of over seven million people dying prematurely from it annually worldwide, including 4.2 million from outdoor (or ambient) air pollution.¹⁶⁶

The burning of heavy fuel oil and diesel releases significant pollutants including particulate matter (PM_{2.5}), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and heavy metals, each of which can have significant impacts on human health depending on levels of exposure.¹⁶⁷

¹⁶³ Human Rights Watch interview with Noha George, Beirut, Lebanon, June 2, 2022.

¹⁶⁴ Human Rights Watch text and voice correspondence with Manal Ahmad al-Khaled, Beddawi, Lebanon, March 24, 2022.

¹⁶⁵ Aidan Farrow, Kathryn A Miller, and Lauri Myllyvirta, *Toxic Air: The Price of Fossil Fuels*, Greenpeace MENA, June 2020, p. 12, <https://storage.googleapis.com/planet4-mena-stateless/2020/06/d2f9f552-gp-mena-air-pollution-report-eng-june-2020-.pdf> (accessed February 2, 2023); See also IRENA, *Renewable Energy Outlook: Lebanon*, June 2020, p. 13, https://irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jun/IRENA_Outlook_Lebanon_2020.pdf (accessed February 2, 2023); The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 35;

¹⁶⁶ World Health Organization, "Air Pollution," n.d., https://www.who.int/health-topics/air-pollution#tab=tab_1 (accessed February 2, 2023); C40 Knowledge, "WHO Air Quality Guidelines," n.d., https://www.c40knowledgehub.org/s/article/WHO-Air-Quality-Guidelines?language=en_US (accessed February 2, 2023).

¹⁶⁷ Di Wu et al, "Primary Particulate Matter Emitted from Heavy Fuel and Diesel Oil Combustion in a Typical Container Ship: Characteristics and Toxicity," *Environmental Science & Technology* (52), 2018, https://aos.fudan.edu.cn/_upload/article/files/de/00/acof97ef4cd487f80d097be45bb9/c92a39fa-7984-4d8a-bo8b-4cd77a16735a.pdf (accessed February 2, 2023).

The impact of PM_{2.5} on human health is well documented, due to both short and long-term exposure. The PM_{2.5} particles can reach deep into the lower respiratory tract, leading to a serious increase in potential for respiratory and cardiovascular problems, and can easily enter the bloodstream and penetrate the lungs. It is responsible for the most deaths worldwide of any pollutant.¹⁶⁸

Air pollution affects everyone but there is a disproportionate impact on older people, children, and those with preexisting respiratory or cardiovascular conditions. Air pollution has particularly adverse effects on children in part because their bodies and brains are still developing, and they breathe more rapidly than adults. Globally, almost 1 in 10 deaths of children under age 5 is due to air pollution. In 2016, 600,000 children died from the effects of air pollution, according to the WHO.¹⁶⁹

Julien Jreissati, the Greenpeace Middle East and North Africa (MENA) Program Manager, told Human Rights Watch that the Lebanese government has cut the environment ministry's budget amidst the economic crisis, leading the ministry to suspend its air pollution monitors. "All the air quality monitors of the Ministry of Environment are now offline, and they have been for a few years ... so we don't have any information on the air that we are breathing."¹⁷⁰ Effective monitoring of air quality is necessary to assess and mitigate risks to human health from dangerous levels of air pollution.

However, in 2020, before the start of the electricity crisis, Greenpeace used global datasets describing concentrations of PM_{2.5}, ozone, and NO₂ to conduct health impact and economic cost assessments of MENA countries' reliance on fossil fuels.¹⁷¹ They found that the average number of premature deaths in Lebanon as a result of air pollution due to fossil fuel burning was 2,700 in 2018, the highest rate in the MENA region.¹⁷² Air pollution is associated with increased incidence of diseases including ischaemic heart disease

¹⁶⁸ "Air Pollution: The Silent Killer Called PM_{2.5}," *McGill Newsroom*, March 11, 2021, <https://www.mcgill.ca/newsroom/channels/news/air-pollution-silent-killer-called-pm25-329428#:~:text=Small%20but%20deadly,inside%20a%20red%20blood%20cell> (accessed February 2, 2023).

¹⁶⁹ "More Than 90% of the World's Children Breathe Toxic Air Every Day," WHO news release, October 29, 2018, <https://www.who.int/news/item/29-10-2018-more-than-90-of-the-worlds-children-breathe-toxic-air-every-day> (accessed February 2, 2023).

¹⁷⁰ Human Rights Watch interview with Julien Jreissati, Greenpeace MENA Program Manager, remote, August 29, 2022.

¹⁷¹ For more details on Greenpeace's methodology, see Farrow, Miller, and Myllyvirta, *Toxic Air: The Price of Fossil Fuels*, p. 23-24.

¹⁷² *Ibid.*, p. 12.

(IHD), chronic obstructive pulmonary disease (COPD), lung cancer, lower respiratory infections, premature birth (preterm birth), type II diabetes, stroke, and asthma.¹⁷³

Dr. Alan Shihadeh, dean of the Faculty of Engineering and Architecture at the American University of Beirut, estimated that even far away from pollution sources like power plants, Beirut's background air exceeds by over 100 percent the World Health Organization's recommended maximum for airborne particle pollutants.¹⁷⁴

Cities in the vicinity of Lebanon's inefficient, outdated, and heavily polluting fuel-powered plants have very high levels of air pollution. A 2018 Greenpeace study found that Jounieh, a coastal city in Lebanon, has some of the most polluted air in the world due in part to the presence of the Zouk power plant on its coast that emits very high levels of nitrogen dioxide.¹⁷⁵ The addition of a power barge connected to the Zouk power plant worsened the levels of air pollution in the area.¹⁷⁶

The reliance on private diesel generators during hours when the Lebanese state is rationing electricity from EDL has had a particularly devastating and lethal impact on the health of residents. Even before the electricity crisis began in the summer of 2021, EDL rationed electricity, resulting in power cuts lasting between three and 12 hours, depending on the region. Residents and businesses relied on private generators to fill this gap (see

¹⁷³ Farrow, Miller, and Myllyvirta, *Toxic Air: The Price of Fossil Fuels*, p. 4

¹⁷⁴ Safa Jafari Safa, "AUB Research Guides Policy on Diesel Generator and Vehicle Air Pollution," American University of Beirut, April 13, 2018, <https://www.aub.edu.lb/articles/Pages/air-pollution.aspx> (accessed February 2, 2023); American University of Beirut, *Effect of Distributed Electric Power Generation on Household Exposure to Airborne Carcinogens in Beirut*, January 2013, p. 5, https://scholarworks.aub.edu.lb/bitstream/handle/10938/21130/20130207ifi_rsr_cc_effect_Diesel.pdf?sequence=1&isAllo wed=y (accessed February 2, 2023).

¹⁷⁵ Dania Cherry, "Greenpeace's Reaction on Newly Endorsed Electricity Plan," Greenpeace, April 8, 2019, <https://www.greenpeace.org/mena/en/greenpeaces-reaction-on-newly-endorsed-electricity-plan/> (accessed February 2, 2023); "Air Pollution in Jounieh in Lebanon," Image, Greenpeace, October 22, 2018, <https://media.greenpeace.org/archive/Air-Pollution-in-Jounieh-in-Lebanon-27MZIFJ8JSBOT.html> (accessed February 2, 2023); Edmond Sassine, "EDL Responds to Greenpeace Report on Pollution in Jounieh," *LBCI*, November 2, 2018, <https://www.lbcgroup.tv/news/d/breaking-news/408866/edl-responds-to-greenpeace-report-on-pollution-in/en> (accessed February 2, 2023); "Abi Khalil on Greenpeace Report over Pollution in Jounieh: Zouk Factory Emissions Now within EU Standards, Other Sources of Pollution," *MTV*, November 4, 2018, <https://www.mtv.com.lb/news/articles/864391/abi-khalil-on-greenpeace-report-over-pollution-in-jounieh-zouk-factory-emissions-now-within-eu-standards,-other-sources-of-pollution> (accessed February 2, 2023); Georgi Azar, "Jounieh a Regional Hotspot for Pollution, Says Greenpeace," *An Nahar*, October 31, 2018, <http://www.businessnews.com.lb/cms/Story/StoryDetails/6779/Jounieh-a-regional-hotspot-for-pollution,-says-Greenpeace> (accessed February 2, 2023).

¹⁷⁶ Leila Molana-Allen, "Lebanon's Power Barges Pay a Heavy Environmental Price," *France 24*, August 27, 2018, <https://www.france24.com/en/20180823-lebanon-heavy-price-fuel-burning-barges-solve-energy-crisis> (accessed February 2, 2023).

chapter on private generators). Since the onset of the crisis in 2021, electricity blackouts last up to 22 hours per day, with a marked increase in the proliferation and hours of operation of diesel generators increasing levels of air pollution, particularly in densely packed urban areas.

Ali Ahmad, an energy expert with the World Bank, estimated that in 2018—before the electricity crisis—diesel generators contributed to around 39 percent of Lebanon’s total electricity greenhouse gases inventory.¹⁷⁷

Most private generators in Lebanon are typically rated below 500 kVA and are therefore exempt from pollutant emission regulations. Their stack exhaust heights are also unregulated, and generators can be found at any height, including on ground-level. These generators are typically installed inside or directly adjacent to residential buildings, often in dense, urban areas where air circulates poorly and pollutants can accumulate and interact with pollutants from other sources, such as car exhaust.¹⁷⁸

A study conducted by the American University of Beirut in 2013 measured the level of airborne carcinogens when diesel generators were operating and when they were off on the balconies of 20 residences located in the densely populated Hamra neighborhood of Beirut. In 2013, Beirut suffered from three-hour daily power cuts. The study found that the use of diesel generators in Hamra accounted for 38 percent of the daily carcinogen exposure, despite only operating for three hours per day, and represented an increased exposure of around 60 percent over the background levels had no generators been present.¹⁷⁹

Abdul Kader Baayoun, a researcher at the American University of Beirut (AUB) who studied the impact of generators on air pollution in Beirut found that “the only city that was found to regularly use diesel generators as in Beirut was Delhi, India. While Delhi emitted 3.4

¹⁷⁷ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 58.

¹⁷⁸ American University of Beirut, *Effect of Distributed Electric Power Generation on Household Exposure to Airborne Carcinogens in Beirut*, p. 5.

¹⁷⁹ *Ibid.*, p. 4.

times more pollutants; when normalized per capita, in 2018, Beirut’s emissions were 5.6 times more than Delhi.”¹⁸⁰

Amid the economic crisis, the reliance on private generators has drastically increased, as the state provision had dropped to less than two hours of electricity per day. Dr. Najat Aoun Saliba, a chemistry professor at AUB and a current parliamentarian, estimated that the increasing hours of operation of diesel generators have led to an eight-fold increase in air pollution and a 300 percent increase in airborne carcinogens.¹⁸¹ Saliba stated that this will result in “severe repercussions on the health situation” and will lead to an increase in cancer and other diseases.¹⁸²

A mother of four from Tripoli said she thinks her husband’s asthma and her daughter’s allergies have been exacerbated due to the generator fumes. “My husband, he has asthma, he used to use the inhaler every now and then. But since the generators spread, he now needs the inhaler morning and evening,” she said. “Same thing for my daughter. She has allergies in her eyes. It would flare up every week or so, but now it’s every day and I do think it’s because of the generator pollution.”¹⁸³

In addition to the health impacts, Greenpeace found that the annual cost to Lebanon of fossil fuel induced air pollution was US\$1.4 billion, or between 1.3 and 4 percent of the country’s GDP in 2018, due to lost work and associated healthcare costs.¹⁸⁴

“In a country that is on the brink of an economic collapse, this cost puts additional pressure on the finances of Lebanese citizens and their government and reveals an entirely new aspect of our economic crisis. Our general budget makes no mention of this issue,

¹⁸⁰ Safa Jafari Safa, “AUB Research Guides Policy on Diesel Generator and Vehicle Air Pollution.”

¹⁸¹ Sunniva Rose and Mahmoud Rida, “Lebanon: Electricity Shortages Linked to Surge in Respiratory Illnesses,” *The National News*, August 17, 2021, <https://www.thenationalnews.com/mena/2021/08/17/lebanon-electricity-shortages-linked-to-surge-in-respiratory-illnesses/> (accessed February 2, 2023); Raheel Dandash, “The Generators Invasion: We Do Not Have a Choice... We Will Have Cancer” (in Arabic), *Al-Khabar*, October 30, 2021, <https://al-akhbar.com/Community/321849/%D8%A7%D8%AC%D8%AA%D9%8A%D8%A7%D8%AD-%D8%A7%D9%84%D9%85%D9%88%D9%84-%D8%AF%D8%A7%D8%AA-%D9%84%D8%A7-%D8%AE%D9%8A%D8%A7%D8%B1-%D8%A3%D9%85%D8%A7%D9%85%D9%86%D8%A7-%D8%B3%D9%86-%D8%B5%D8%A7%D8%A8-%D8%A8%D8%A7%D9%84%D8%B3%D8%B1%D8%B7%D8%A7%D9%86> (accessed February 2, 2023).

¹⁸² Ibid.

¹⁸³ Human Rights Watch interview with Loyal Abbas, Tripoli, Lebanon, June 3, 2022

¹⁸⁴ Farrow, Miller, and Myllyvirta, *Toxic Air: The Price of Fossil Fuels*, p. 14.

despite the fact that it requires prompt and immediate measures by the government,”
Jreissati said.¹⁸⁵

Safety Risks

The proliferation of unregulated diesel generators in densely packed urban areas poses a serious physical safety risk to residents due to faulty or overloaded generators catching fire and/or exploding. Lebanon’s Civil Defense, a public entity that carries out patient transportation, search and rescue activities, and fire-fighting response, told Human Rights Watch that in 2021 they responded to 221 cases of generators catching fire or exploding.¹⁸⁶ A monthly breakdown of those cases showed that these incidents almost doubled during the summer of 2021, when the electricity crisis began and generators had to be operated for long hours to compensate for the lack of state electricity.¹⁸⁷

Many of these incidents resulted in serious injuries. For example, on July 20, 2021, a generator at a hotel in Beirut caught fire, and the fire spread to the diesel storage room as well as to the food storage room at the hotel. The Civil Defense was able to put out the fire, but it reported that it provided first aid to twelve people, including three children.¹⁸⁸ In another example, seven people were injured after a generator exploded inside a doctor’s clinic in the southern city of Tyre.¹⁸⁹

¹⁸⁵ Dania Cherry, “Greenpeace: Lebanon’s Death Rate and Economic Cost due to Air Pollution among the Highest in the MENA Region,” Greenpeace press release, June 24, 2020, <https://www.greenpeace.org/mena/en/app/> (accessed February 2, 2023).

¹⁸⁶ Response Letter from Lebanese Civil Defense to Human Rights Watch, June 13, 2022. See Annex VI.

¹⁸⁷ Ibid.

¹⁸⁸ “12 People Injured in Lebanon in a Fire Caused by a Generator and a Fuel Tank in a Hotel in Beirut” (in Arabic), *Youm7*, June 20, 2021, <https://www.youm7.com/story/2021/6/20/%D8%A5%D8%B5%D8%A7%D8%A8%D8%A9-12-%D8%B4%D8%AE%D8%B5%D8%A7-%D9%81%D9%89-%D9%84%D8%A8%D9%86%D8%A7%D9%86-%D8%A5%D8%AB%D8%B1-%D8%AD%D8%B1%D9%8A%D9%82-%D8%A8%D9%85%D9%88%D9%84%D8%AF-%D9%83%D9%87%D8%B1%D8%A8%D8%A7%D8%A1-%D9%88%D8%AE%D8%B2%D8%A7%D9%86/5361824> (accessed February 2, 2023).

¹⁸⁹ “Seven People, including a Dentist and Nurse, Were Injured after a Generator Exploded Inside a Doctor’s Clinic in the Southern City of Sur, the NNA Reports. Civil Defense Intervened to Put out the Fire,” *L’Orient Today*, September 13, 2021, <https://today.lorientjour.com/article/1274633/seven-people-including-a-dentist-and-a-nurse-were-injured-after-a-generator-exploded-inside-a-doctors-clinic-in-the-southern-city-of-sur-the-nna-repor.html> (accessed February 2, 2023).

Électricité du Liban (EDL)

The inability of the state electricity company, Électricité du Liban (EDL), to provide a continuous and reliable supply of electricity to Lebanon's population is in large part due to its weak governance structure, interference and mismanagement into EDL's affairs by the political elites, and widespread corruption that has allowed politicians and politically-connected individuals to make huge profits from lucrative contracts, often at the expense of the state. The huge benefits that the political class gain from the sector help explain why promises of reform have not materialized.

Regulatory Framework

Électricité du Liban (EDL) was established by Decree No. 16878 on July 10, 1964, as a state-run institution with the exclusive mandate to generate, transmit, and distribute electricity across Lebanon.¹⁹⁰

The decree consolidated every component of the country's electricity sector under EDL. Beyond individuals looking to generate electricity on a limited scale for their own needs, article 4 of the decree barred any other entity from generating electricity.¹⁹¹

Existing concessionary agreements for electricity generation were set to be terminated upon their expiry.¹⁹² One exception, Électricité de Zahlé (EDZ), continued to operate following the concession's expiration in 2018 as per Special Law No. 107 in 2018,¹⁹³ renewed by Law No. 198 in 2020 which permitted EDL to contract EDZ to generate and supply electricity within the geographical area of Zahle until the end of 2022.¹⁹⁴ In November 2022, the contract's expiry date was moved to March 8, 2023 in line with the

¹⁹⁰ Decree No. 16878, July 7, 1964, <http://www.legallaw.ul.edu.lb/LawView.aspx?opt=view&LawID=244911>; Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 8.

¹⁹¹ Decree No. 16878, July 7, 1964, art. 4.

¹⁹² Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 10.

¹⁹³ Special Law No. 107 of 2018,

<http://www.legallaw.ul.edu.lb/LawArticles.aspx?LawArticleID=1096074&LawID=278984&language=ar>

¹⁹⁴ Law No. 198 of 2020, <http://www.legallaw.ul.edu.lb/Law.aspx?lawId=286753>; Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 10.

recommendation of the Legislation and Consultations Committee at the Ministry of Justice.¹⁹⁵

In 1974, Decree No. 7580 introduced a set of technical guidelines and a framework for governance of the electricity infrastructure.¹⁹⁶ It required the supply of electricity to all Lebanese territory at all times, requiring EDL to produce energy itself or purchase it from other local utilities or concessions operating thermal or hydro power plants.¹⁹⁷

In 2002, parliament passed Law No. 462 on the restructuring and reform of the electricity sector.¹⁹⁸ The law's main aim was to “unbundle” the generation, transmission, and distribution of electricity, all of which were monopolized by EDL, and open up the electricity sector to private sector participation in distribution and generation, while ensuring independent oversight by an independent and autonomous new body, called the Electricity Regulatory Authority (ERA), under the policy guidance of the Ministry of Energy and Water (hereafter referred to as the Ministry of Energy).

The ERA is supposed to consist of five members and has the responsibility of putting in place a general plan for the sector, regulating and setting tariffs, issuing licenses and authorizations for private sector involvement, and ensuring transparency and competition in the sector.¹⁹⁹ However, the members of the ERA have yet to be appointed due to a reluctance from the executive to relinquish its dominance over the sector, and therefore the law was not implemented.²⁰⁰

¹⁹⁵ Lucy Barsakhian, “Extension of the Operational Contract for ‘Zahle Electricity’ until March... In Violation of the Law?” (in Arabic), *Nida Al-Watan*, November 29, 2022, <https://www.nidaalwatan.com/article/127100-%D8%AA%D9%85%D8%AF%D9%8A%D8%AF-%D8%A7%D9%84%D8%B9%D9%82%D8%AF-%D8%A7%D9%84%D8%AA%D8%B4%D8%BA%D9%8A%D9%84%D9%8A-%D9%84%D9%83%D9%87%D8%B1%D8%A8%D8%A7%D8%A1-%D8%B2%D8%AD%D9%84%D8%8A%D9%84%D9%8A-%D9%84%D9%83%D9%87%D8%B1%D8%A8%D8%B4%D9%83%D9%84-%D9%85%D8%AE%D8%A7%D9%84%D9%81-%D9%84%D9%84%D9%82%D8%A7%D9%86%D9%88%D9%86> (accessed February 2, 2023).

¹⁹⁶ Decree No. 7580, April 5, 1974, <http://www.legallaw.ul.edu.lb/Law.aspx?lawId=184465>.

¹⁹⁷ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 11.

¹⁹⁸ *Ibid.*, p. p. 20.

¹⁹⁹ Lebanese Republic Ministry of Energy and Water, *Setting Lebanon's Electricity Sector on a Sustainable Growth Path*, Policy Statement, March 2022, p. 6, https://energyandwater.gov.lb/mediafiles/articles/doc-100778-2022_03_31_10_22_46.pdf (accessed February 2, 2023); Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 25.

²⁰⁰ *Ibid.*; “Summary: Lebanon's Electricity Report,” *Kulna Irada*, July 29, 2020, <https://kulluna-irada.org/release-77> (accessed February 2, 2023).

In the absence of the ERA, in 2006, parliament exceptionally granted the Council of Ministers the power to issue permits and licenses for electricity generation upon the proposal of the minister of energy for a maximum period of one year.²⁰¹ In 2014, parliament passed another law, stipulating that for a period of two years, the Council of Ministers has the power to issue licenses and permits for electricity generation upon the recommendation of both the ministers of energy and finance.²⁰² This law was extended again in 2015 for an additional two years and in 2019 for an additional three years (which expired in April 2022).²⁰³

Structure of EDL

Although Decree No. 16878 states that EDL should have administrative and financial autonomy, several government entities have oversight over it. EDL falls under the authority of the Ministry of Energy and Water (MoEW), which is responsible for the overall strategic planning and policy development of the sector. The Ministry of Finance has financial oversight over EDL.²⁰⁴

EDL is managed by a Board of Directors appointed by the Council of Ministers, including a chairperson and a director general, who can be one and the same. The institution's organizational structure is set by Decree No. 13537/1998 and consists of ten major directorates, 36 departments, and 83 chambers or sections.²⁰⁵

The Ministry of Energy exercises a power of trusteeship over public water and electricity utilities, including EDL, in line with:²⁰⁶

²⁰¹ Marc Ayoub, Pamela Rizkallah, and Christina Abi Haidar, *Unbundling Lebanon's Electricity Sector*, American University of Beirut, October 2021, pg. 20, https://www.aub.edu.lb/ifi/Documents/publications/research_reports/2020-2021/20211020_unbundling_lebanon_electricity_sector_research_paper_pdf.pdf (accessed January 31, 2023), p. 9.

²⁰² Ibid.

²⁰³ Extension to Law 432 of 2002, <http://www.legallaw.ul.edu.lb/Law.aspx?lawId=257509> (accessed February 9, 2023); Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 26-27. Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 26-27.

²⁰⁴ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 8.

²⁰⁵ Decree No. 13537, November 19, 1998, <http://www.legallaw.ul.edu.lb/LawView.aspx?opt=view&LawID=199694>

²⁰⁶ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 111; "Former Director General of 'Electricity of Lebanon': It Is the Authority of the Board of Directors of the Corporation to Draw up an Electricity Plan," *Elnashra*, April 5, 2019, <https://www.elnashra.com/news/show/1299995> (accessed February 2, 2023).

- Decree No. 4517 from 1972 relating to the governance of public institutions; ²⁰⁷
- Law No. 20 from 1966 that established the Ministry of Water and Electricity Resources and according to which the ministry exercises a power of “administrative trusteeship” over independent institutions operating in the fields of water, electricity, and ports as well as a “power of oversight” over concessions; ²⁰⁸
- Law No. 247 from 2000 based on which the Ministry of Energy and Water replaced what was known as the Ministry of Water and Electricity Resources. ²⁰⁹

EDL owns and runs seven heavy fuel and diesel oil generation plants as well as five hydropower plants, with a total installed capacity of around 2,000 megawatts (MW), most of which are generated by imported heavy fuel oil. ²¹⁰ In addition, EDL contracted a Turkish company in 2013 to provide around 370 MW of emergency power from floating barges. This contract was extended in 2017 and expired in September 2021. ²¹¹

EDL is also responsible for the transmission network in Lebanon. Although the national grid was rehabilitated after the Lebanese Civil War, it was developed on a “rigid, non-dynamic basis without the capacity to adapt quickly to change, in addition to being fragile to shocks ... and built on old energy demands ... and suffers from an insufficient number of transmission substations.” ²¹² This has resulted in high technical losses in transmission and distribution, a significant contributor to Lebanon’s electricity crisis. ²¹³ There have been several plans to upgrade the transmission network and increase interconnection with neighboring countries, but those have been on hold due to the lack of financing and conflicts in the region. ²¹⁴

²⁰⁷ Decree No. 4517, December 13, 1972, <http://www.legallaw.ul.edu.lb/Law.aspx?lawId=243846>

²⁰⁸ Law No. 20 of 1966, <http://www.legallaw.ul.edu.lb/LawView.aspx?opt=view&LawID=179176>

²⁰⁹ Law No. 247 of 2000, <http://www.legallaw.ul.edu.lb/Law.aspx?lawId=185692>; Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, pg. 11.

²¹⁰ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 14; Ali H. Berjawi et al, *Assessing Solar PV's Potential in Lebanon*, Working Paper, American University of Beirut, August 2017, p. 6, https://www.aub.edu.lb/ifi/Documents/publications/working_papers/2016-2017/20170808_solar_pvs.pdf (accessed February 2, 2023); Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 16.

²¹¹ Berjawi et al, *Assessing Solar PV's Potential in Lebanon*, p. 6; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 11; “Turkish Company Halts Power Supplies to Crisis-hit Lebanon after Contract Expires,” *Alarabiya*, October 1, 2021, <https://english.alarabiya.net/News/middle-east/2021/10/01/-Turkish-company-halts-power-supplies-to-crisis-hit-Lebanon-after-company-expires> (accessed February 2, 2023).

²¹² Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 16.

²¹³ *Ibid.*; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 12.

²¹⁴ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 16.

Since 2012, EDL has relied on three private companies to act as distribution service providers to upgrade the distribution network through the installation of smart meters and to improve bill collection and customer service.²¹⁵ Although the contracts were supposed to expire in August 2016, they were extended until 2018 and again until 2021.²¹⁶

Insufficient Supply

Between the end of the civil war and the beginning of the economic crisis in 2019, EDL was increasingly unable to generate enough electricity to meet the demand in Lebanon, and therefore resorted to rationing electricity, providing residents with 12 to 21 hours of electricity per day, depending on the region, with rationing being more severe in areas further away from the capital.²¹⁷ Between 2008 and 2018, EDL went from providing around 78 percent of Lebanon's electricity needs to around 55-64 percent.²¹⁸ Peak demand in Lebanon in 2018 was estimated at around 3,500 MW, but EDL was only able to generate 2,334 MW.²¹⁹ The rest of the country's needs were secured through expensive and highly polluting diesel generators. This shortage has drastically increased since the economic crisis in 2019, with EDL providing less than three hours of electricity per day across the country, according to Human Rights Watch's survey.²²⁰

²¹⁵ Ibid., p. 17

²¹⁶ Ibid.; The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 20.

²¹⁷ According to Charbel Nahas, electricity rationing began in 1997 as a measure by the government to curb a then-current account deficit and minimize the outflow of foreign currency reserves, See Nahas, *An Economy and a State for Lebanon*, p. 115; International Monetary Fund, "The Electricity Sector in Lebanon: A New Plan to Address Long-standing Inefficiencies," October 17, 2019, <https://www.elibrary.imf.org/view/journals/002/2019/313/article-A001-en.xml> (accessed February 2, 2023).

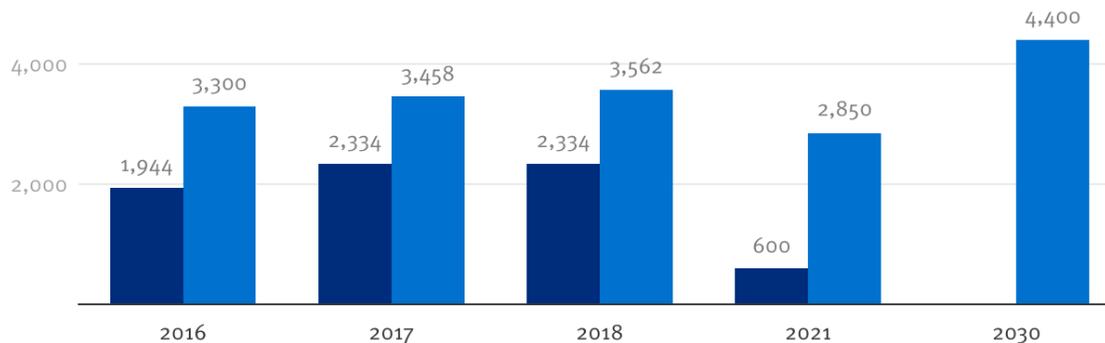
²¹⁸ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 16; International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 12.

²¹⁹ Republic of Lebanon, Ministry of Energy and Water, "Updated Policy Paper for the Electricity Sector," p. 9; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 10; IRENA, *Renewable Energy Outlook: Lebanon*, p. 10.

²²⁰ Human Rights Watch survey. 95 percent confidence interval for hours of electricity from EDL: 2-6 – 3.

Average demand vs. EDL Supply (in MW)

■ Supply ■ Estimated demand



Supply is gross supply before technical losses. 2021 demand estimate assumes demand decreased in line with the drop in real GDP by approximately 20 percent. 2030 demand estimate assumes 5 percent year-over-year demand increase starting in 2023.

Source: 2016-18 demand and supply from Lebanese Ministry of Energy and Water, Updated Policy Paper for the Electricity Sector, March 2019. 2021/2030 estimate and supply from Ayat, Carol, Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon, 2021, pg. 9.

The World Bank assessed that “the supply shortage is mostly due to chronic underinvestment in new generation capacity.”²²¹ Policy proposals to address the generation gap have been limited to expensive and temporary stop-gap measures such as the renting of Turkish power barges that are stationed in the Jiyeh and Zouk ports.²²² The Lebanese government supplies the barges with heavy fuel oil and diesel and then pays the Turkish company, Karadeniz, at a per-kilowatt hourly rate for the conversion into electricity.²²³ Before the contract with Karadeniz expired in September 2021, these power barges accounted for 16 percent to 25 percent of Lebanon’s total generation capacity.²²⁴

²²¹ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 18.

²²² Ibid.; Nada Maucourant Atallah, “Juicy Contract, Suspicious Call for Tenders – in the Murky Waters of Lebanon’s Floating Power Plants,” *L’Orient Today*, July 26, 2021, <https://today.lorientlejour.com/article/1269444/juicy-contract-suspicious-call-for-tenders-in-the-murky-waters-of-lebanons-floating-power-plants-part-i-of-ii.html> (accessed February 2, 2023); Leila Molana-Allen, “Lebanon’s Power Barges Pay a Heavy Environmental Price.”

²²³ Ibid.

²²⁴ Republic of Lebanon, Ministry of Energy and Water, “Updated Policy Paper for the Electricity Sector,” p. 10; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 11; Karpowership, “Project Lebanon (Past Project),” n.d., <https://karpowership.com/en/lebanon> (accessed February 2, 2023).

Further, many of Lebanon’s old power plants are operating at low efficiency and have outputs that are between 36 and 68 percent lower than their design capacity.²²⁵

Lebanon primarily relies on imports of expensive and highly polluting heavy fuel oil and diesel to generate electricity. The International Energy Agency reported that 96 percent of Lebanon’s primary energy supply comes from oil, and the World Bank estimates that 60-74 percent of the electricity sector’s overall costs between 2016 and 2019 were spent on fuel imports.²²⁶ Not only does this pose a grave risk to residents’ health and the environment, but it also makes Lebanon’s electricity sector extremely vulnerable to financial shocks and fluctuations in international fuel prices.

Since the summer of 2021, in the midst of an acute financial and economic crisis, the Lebanese state has failed to secure the foreign currency necessary to purchase fuel.²²⁷ As a result, EDL generation fell from 2,334 MW in 2018 to around 500-600 MW, and it has struggled to provide more than 1 to 3 hours of electricity per day.²²⁸

²²⁵ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 18; Republic of Lebanon, Ministry of Energy and Water, “Updated Policy Paper for the Electricity Sector,” p. 10.

²²⁶ IRENA, *Renewable Energy Outlook: Lebanon*, p. 5; The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 18; The World Bank, *Lebanon Public Finance Review: Ponzi Finance?*, p. 89.

²²⁷ Aya Majzoub, “Lebanon in the Dark,” Commentary, Human Rights Watch Dispatch, July 9, 2020, <https://www.hrw.org/news/2020/07/09/lebanon-dark>; “Lebanon Left without Electricity as Main Power Stations Run out of Fuel,” *France 24*, October 9, 2021, <https://www.france24.com/en/middle-east/20211009-lebanese-power-outage-will-last-several-days-govt-official-says> (accessed February 2, 2023); Maya Gebeily, “Why Are Power Outages Paralyzing Lebanon?” Thomas Reuters Foundation News, October 11, 2021, <https://news.trust.org/item/20210820140602-6xyah> (accessed February 2, 2023).

²²⁸ Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 8.

Generation Capacity and Costs of Existing Power Plants

Facility	Fuel type	Installed capacity (MW)	Effective capacity 2018 (MW)	Total generation cost per kWh at 2018 barrel cost (\$/1)
Existing EDL				
Zouk 1 Thermal Power Plant	Heavy fuel oil	607	440	\$0.15
Jieh 1 Thermal Power Plant	Heavy fuel oil	343	180	\$0.19
Zouk 2 ICE Power Plant	Heavy fuel oil/Natural gas	198	157	\$0.11
Jieh 2 ICE Power Plant	Heavy fuel oil/Natural gas	78	63	\$0.11
Zahrani I CCPP	Diesel oil/Natural gas	469	420	\$0.14
Deir Ammar I CCPP	Diesel oil/Natural gas	464	430	\$0.15
Baalbeck Open Cycle GT	Diesel oil	64	57	\$0.20
Tyr Open Cycle GT	Diesel oil	72	56	\$0.21
Richmaya-Safa Hydro	-	13	3	\$0.04
Naameh (Landfill Gas)	-	7	7	\$0.01
Existing barges				
Power Barge Zouk	Heavy fuel oil/Natural gas	187	195	\$0.14
Power Barge Jiyeh	Heavy fuel oil/Natural gas	187	195	\$0.14
Existing Independent power producer				
Litani Hydro	-	199	47	\$0.04
Nahr Ibrahim Hydro	-	32	17	\$0.03
Bared Hydro	-	17	6	\$0.03
Kadisha Hydro	-	21	15	\$0.03
Hrayche Thermal Power Plant	Heavy fuel oil	35	46	\$0.20
Power wheeling				
Imports from Syria	Syria	276	69	\$0.15

Source: Lebanese Ministry of Energy and Water, Updated Policy Paper for the Electricity Sector, March 2019, Table 1.
https://energyandwater.gov.lb/mediafiles/articles/doc-100516-2019_05_21_04_50_46.pdf

Lack of Financial Viability

Despite the failure of EDL to provide continuous electricity supply to Lebanon's residents, Finance Ministry and Energy Ministry figures show that EDL ran a deficit of between US\$1.5 to \$2 billion per year over the last 10 years.²²⁹

The World Bank estimates that annual budgetary transfers to EDL averaged 3.8 percent of Lebanon's Gross Domestic Product (GDP) over the last decade, amounting to almost half of the overall fiscal deficit.²³⁰ Between 1992 and 2018, transfers to EDL contributed to over \$40 billion of the country's public debt.²³¹

EDL's lack of financial viability is due to the high costs of electricity production and low cost-recovery. As discussed previously, Lebanon relies on expensive heavy fuel oil and diesel for generation, even though experts estimate that at least 77 percent of the power plants are tri-fueled and can run on gas, saving around \$200 to 300 million per year in fuel costs, based on fuel prices in 2018.²³² Further, the old and inefficient power plants produce less electricity than their actual capacity and are expensive to maintain.²³³

The temporary and stop-gap measures that Lebanon has adopted to deal with the supply shortages have also contributed to the drain on the state's budget. The power barges that Lebanon rented from Karadeniz cost Lebanon more than \$1.5 billion between 2013 when the government signed the contract and July 2021, excluding the cost of the heavy fuel oil that the state supplied to run the barges.²³⁴ Experts say that this amount of money could have been used to build three land-based power plants.²³⁵

²²⁹ Republic of Lebanon, Ministry of Finance, "Treasury Transfers to Electricité du Liban: A Monthly Snapshot"; Republic of Lebanon, Ministry of Energy and Water, "Updated Policy Paper for the Electricity Sector," p. 8. See also Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 8.

²³⁰ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 16.

²³¹ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 20; Bank Audi, "Electricity Sector Reform Notes," p. 1.

²³² Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 11; The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 18; Bank Audi, "Electricity Sector Reform Notes," p. 1.

²³³ Republic of Lebanon, Ministry of Energy and Water, "Updated Policy Paper for the Electricity Sector," p. 8.

²³⁴ Nada Maucourant Atallah, "Juicy Contract, Suspicious Call for Tenders."

²³⁵ *Ibid.*

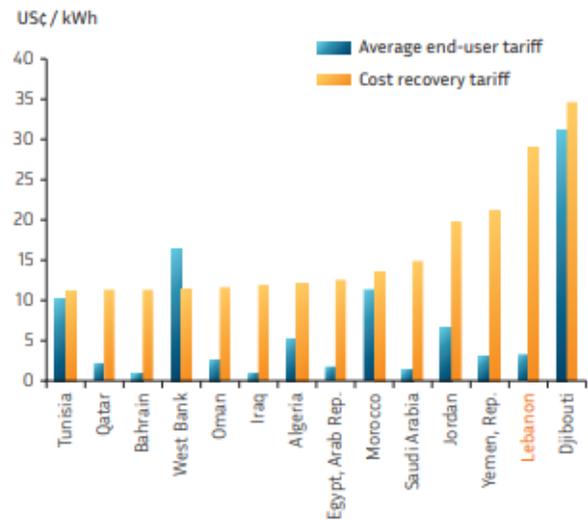
Yet, cost-recovery in Lebanon is exceedingly low. The World Bank found that Lebanon had the largest gap by far between cost and end-user electricity tariffs in the MENA region.²³⁶

Three main factors explain the low cost-recovery. First, EDL’s tariffs went unchanged between 1994, when the price of a barrel of crude oil was around \$20, and the announcement of new tariffs in November 2022, though it was unclear at the time of writing if the new tariffs had been implemented. By 2023 the price of oil had quadrupled, but the previous tariffs had remained fixed at 138 Lebanese pound per kilowatt hour (kwh).²³⁷ This was equivalent to around 9.5 cents/kwh before the devaluation of the Lebanese pound began in 2019, and at the time of publication was about 0.001 cent/kwh at the parallel market rate of approximately 87,000 LBP/US dollar.²³⁸

However, the average cost of production in 2018, according to Ministry of Energy figures, averaged 14.42 cent/kwh.²³⁹ The World Bank estimates that once network losses and other operation costs are added, EDL’s costs averaged 27 cents/kwh.²⁴⁰ Therefore, the existing tariff covers less than a third of EDL’s operating costs.

Second, only 62.5 percent of the electricity generated or purchased by EDL was billed for due to high technical and non-technical losses. The lack of proper maintenance and investment in infrastructure in transmission and distribution has resulted in technical

FIGURE 2 – TARIFF COMPARISON IN THE MENA REGION (2013)



Source: Shedding Light on electricity Utilities in the Middle East and North Africa: Insights from a Performance Diagnostic, World Bank (2017)

The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 19.

²³⁶ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 19.

²³⁷ Republic of Lebanon, Ministry of Energy and Water, “Updated Policy Paper for the Electricity Sector,” p. 8.

²³⁸ Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 12; The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 20.

²³⁹ Republic of Lebanon, Ministry of Energy and Water, “Updated Policy Paper for the Electricity Sector,” p. 10; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 11.

²⁴⁰ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 20.

losses reaching 16.5 percent in 2018.²⁴¹ Further, non-technical losses from electricity theft and illegal connections in 2018 stood at around 21 percent.²⁴²

Third, even the amount of electricity that EDL billed for is not fully collected. The World Bank estimates that around 5 percent of bills are not collected and notes that this number is likely higher as it excludes collections from state institutions and refugee camps that historically have had low collection rates.²⁴³ In 2019, the International Monetary Fund estimated that total accumulated unpaid dues reached \$2 billion.²⁴⁴ In the midst of the economic crisis and the Covid-19 pandemic, EDL stopped the collection of bills for a period of around 18 months, creating a backlog. According to Marc Ayoub, an energy policy coordinator at the Issam Fares Institute, 2017 is the last year for which all bills have been sent out.²⁴⁵

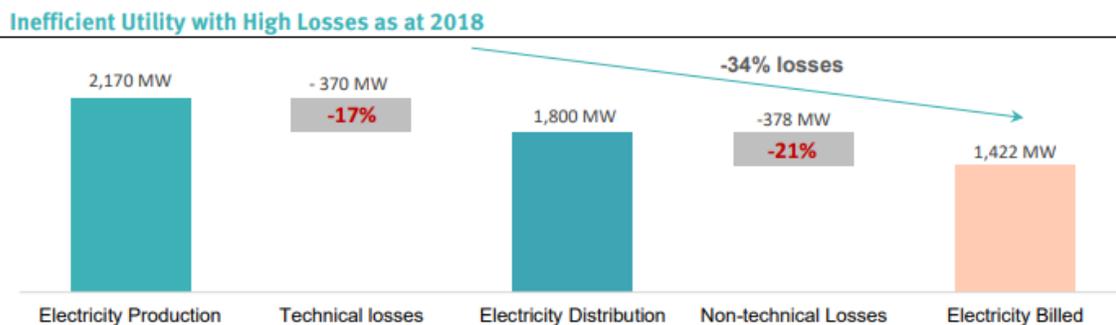


Figure from Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 12.

²⁴¹ Republic of Lebanon, Ministry of Energy and Water, “Updated Policy Paper for the Electricity Sector,” p. 9; The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 19-20; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 12.

²⁴² Ibid.

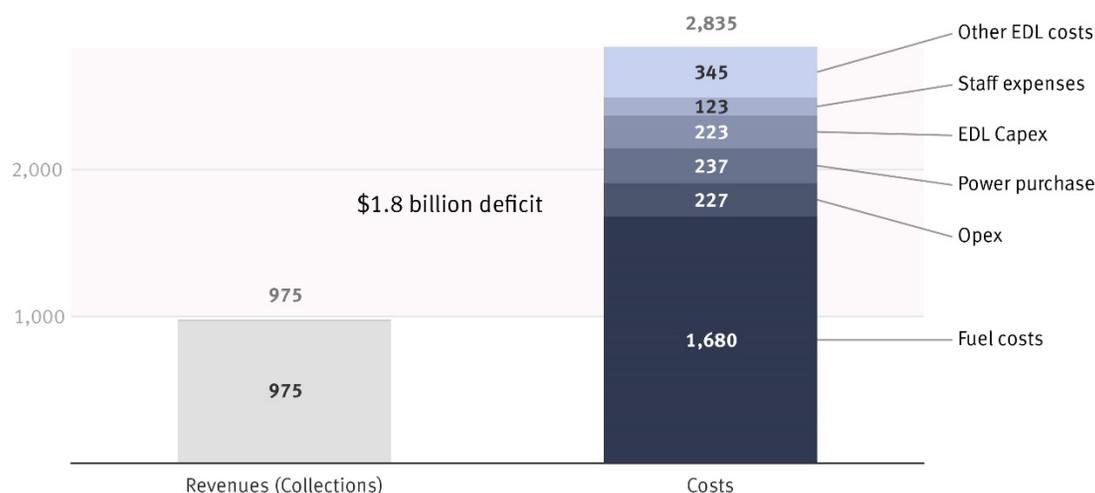
²⁴³ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 20-21.

²⁴⁴ International Monetary Fund, *Lebanon: Selected Issues*, IMF Country Report No. 19/313, October 2019, p. 3, <https://www.imf.org/-/media/Files/Publications/CR/2019/1LBNEA2019002.ashx> (accessed February 2, 2023).

²⁴⁵ Human Rights Watch interview with Marc Ayoub, energy policy coordinator at Issam Fares Institute, Beirut, Lebanon, November 12, 2021.

2018 Estimated Financial Deficit

Figures in \$ million



Source: EDL from Ayat, Carol, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, 2021, pg. 13.

Weak Governance and Mismanagement

By the government’s own admission, “at the center of the [electricity] sector’s challenges have been its governance structure, its inability to recruit new employees (engineers, technicians and others) and to sustain its own operations, and political interventionism crippling decision making and progress in the sector.”²⁴⁶ The government’s 2022 electricity plan recognized the “rigid and arcane processes” in EDL’s operations, which they said were exacerbated by “significant deficiencies in EDL’s information systems and the almost complete absence of process automation that have become standard in many utilities around the world.” They concluded that the confluence of these factors, in addition to “political factors and [a] capability gap,” (i.e. the lack of technical expertise) created an inefficient system characterized by bureaucratic management at EDL’s highest level and that disincentivizes initiative and accountability at the staff level.”²⁴⁷

The World Bank has also found that “EDL is significantly hampered by challenges in its (and the sector’s) governance structure.”²⁴⁸ As discussed previously in the section on

²⁴⁶ Lebanese Republic Ministry of Energy and Water, *Setting Lebanon’s Electricity Sector on a Sustainable Growth Path*, p. 6.

²⁴⁷ *Ibid.*, p. 29.

²⁴⁸ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 16.

EDL’s regulatory framework, the independent Electricity Regulatory Authority, which should regulate and monitor the sector, has still not been appointed. Instead, the minister of energy effectively exercises authority over the sector, acting as a policymaker, supervisor, and regulator, and the minister of finance provides financial oversight over the sector. Further, in the absence of the ERA, the Council of Ministers has the authority to issue production licenses and permits.²⁴⁹

The authority and responsibilities of EDL’s management and board of directors are relatively limited, and their reporting is mainly focused on day-to-day operations, with limited consideration for the overall performance of the sector, reducing accountability for the EDL’s failure to ensure consistent and affordable electricity supply throughout the country.²⁵⁰

Ali Ahmad, an energy expert with the World Bank, told Human Rights Watch that the sector’s diffuse decision-making is a “perfect mechanism for avoiding accountability.”²⁵¹

You can’t pinpoint the failure of the sector on a particular party. People accuse the Free Patriotic Movement [a Christian political party founded by former President Michel Aoun in 2005], and that is correct because they ran the ministry [of energy] for so long. But at the same time, there are other parties who have control over important ministries, like finance, that are critical here. They have mastered this blame shifting narrative...However, when splitting the pie, everyone is happy.

Further, according to the World Bank, appointments to EDL’s board of directors were “historically made by political parties based on Lebanon’s sectarian-based governance system rather than strictly competence,” creating conflicts of interest and decisions that may not be in the best interests of EDL.²⁵²

²⁴⁹ Ali Ahmad, Mounir Mahmalat, and Jamal Saghir, “Lebanon’s Independent Electricity Regulator: Avoiding the ‘Political Economy Trap’,” The Lebanese Center for Policy Studies, Policy Brief No. 65, July 2021, p. 8, <https://api.lcps-lebanon.org/content/uploads/files//policy-brief-65.pdf> (accessed February 2, 2023); Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon’s Electricity Sector*, p. 19.

²⁵⁰ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 17.

²⁵¹ Human Rights Watch interview with Ali Ahmad, World Bank energy expert and Research Fellow at Harvard University’s Kennedy School of Government, remote, November 30, 2021.

²⁵² The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 17.

Additionally, EDL has limited control over its own budget. The Ministry of Energy and the Ministry of Finance review and approve EDL’s budget, and both ministries regularly intervene in how this budget is spent, “creating ample delays and space for rent-seeking, whether for political or personal gain.”²⁵³ For example, EDL has in the past requested to change electricity tariffs in order to balance its budget, but those requests have been denied by the cabinet, reducing the incentives for EDL to increase electricity generation.²⁵⁴

Lebanon’s political elites have benefited from EDL’s weak governance structures, using the utility for political ends. This is especially apparent in EDL’s hiring practices. Experts have noted that most of EDL’s workers are hired on short-term contracts and distributed by political leaders as a form of clientelism, rather than based on merit and expertise.²⁵⁵ A high-level EDL representative told Human Rights Watch that ministers of energy have frequently sent EDL a list of individuals to hire, and EDL must comply.²⁵⁶

As a result, EDL staff are beholden to their political leaders for job security and tend to lack the required skills and experience to successfully perform their job functions.²⁵⁷

Despite politicians doling out EDL short-term contracts as political favors, EDL remains significantly understaffed, with experts estimating that the utility requires 5,000 workers to function at full capacity.²⁵⁸ In 2021, however, EDL only employed 1,690 workers.²⁵⁹

²⁵³ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 17.

²⁵⁴ Ibid.

²⁵⁵ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon’s Electricity Sector*, p. 19; Ali Ahmad, Neil McCulloch, Muzna Al-Masri, and Marc Ayoub, “From Dysfunctional to Functional Corruption: the Politics of Decentralized Electricity Provision in Lebanon,” *Energy Research & Social Science* (86), April 2022, p. 3, <https://www.sciencedirect.com/science/article/pii/S2214629621004862> (accessed February 2, 2023); The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 18.

²⁵⁶ Human Rights Watch interview with high-level EDL representative, Beirut, Lebanon, August 30, 2022.

²⁵⁷ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 17 – 18; Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon’s Electricity Sector*, p. 19.

²⁵⁸ Yazan al-Saadi, “Electricity Workers in Lebanon, and the Fate of Labour, National Development, and Governance,” Civil Society Knowledge Centre, June 2015, <https://civilsociety-centre.org/content/electricity-workers-lebanon-and-fate-labour-national-development-and-governance> (accessed February 2, 2023); Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon’s Electricity Sector*, p. 19.

²⁵⁹ Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon’s Electricity Sector*, p. 19.

Alleged Corruption and Mismanagement

Alleged corruption and mismanagement in Lebanon's public institutions is rampant with corrosive effects on key sectors vital for rights.²⁶⁰ The World Bank found in a 2022 review of the state's public finances that "dilapidated public service delivery is a principal manifestation of the hollowing of the State, which we argue, is a desired/deliberate outcome intended to cement public-private privilege for principal benefactors of Lebanon's post-civil war economy."²⁶¹ The World Bank reported that the "elite capture of the State's resources for private gains necessitated the weakening of public service delivery so that (1) lucrative and dollar-inflated private sector contracts can step in ... and (2) confessional groups can tighten their grip on citizens by supplanting the State in these service provisions."²⁶²

Corruption impacts service delivery and increases inequality. At a basic level, it allows elites to capture public resources that should have been used to benefit the broader public. Human Rights Watch has repeatedly noted in investigations related to financial corruption and mismanagement, that under international human rights law, governments are obliged to invest in essential social services commensurate to their available resources. When large sums intended to provide basic services are simply lost through mismanagement or corruption, rather than being allocated to some other legitimate government purpose, it leaves governments in breach of their human rights obligations.

Studies by the International Monetary Fund and the World Bank establish that corruption increases inequality through lower economic growth, biased tax systems favoring the wealthy and well connected, lower levels and effectiveness of social spending, and unequal access to education and public services.²⁶³ In the case of Lebanon, alleged

²⁶⁰ Rania Abouzeid, "How Corruption Ruined Lebanon," *The New York Times*, October 28, 2021, <https://www.nytimes.com/2021/10/28/magazine/corruption-lebanon.html> (accessed February 2, 2023); Anti-corruption Resource Centre, "Overview of Corruption and Anti-corruption in Lebanon," October 15, 2012, <https://www.u4.no/publications/overview-of-corruption-and-anti-corruption-in-lebanon.pdf> (accessed February 2, 2023); Mohammad Almoghabat, "Lebanon: Systemic Corruption Problems Require a Systemic Response," *Transparency International*, January 28, 2021, <https://www.transparency.org/en/blog/cpi-2020-lebanon-systemic-corruption-problems-require-systemic-response> (accessed February 2, 2023).

²⁶¹ The World Bank, *Lebanon Public Finance Review: Ponzi Finance?*, p. 80.

²⁶² *Ibid.*, p. 80.

²⁶³ The World Bank, "Combating Corruption," n.d., <https://www.worldbank.org/en/topic/governance/brief/anti-corruption> (accessed February 2, 2023); An IMF paper published in 2000, based on cross-country regression analysis for 1980-97, establishes the impact of corruption on income inequality, with a one standard deviation point increase in corruption

corruption and mismanagement appears to have investment in the electricity sector, which primarily affects people with lower incomes who cannot easily switch to alternative energy providers.

One of the principal sectors at risk of mismanagement and corruption are publicly funded large infrastructure projects, according to a 2021 report by the Lebanese Center for Policy Studies and sponsored by the London School of Economics and Oxford University.²⁶⁴ Dr. Reinoud Leenders, a researcher and author of a book about corruption and state building in post-war Lebanon, documented the ease with which Lebanon's political elites circumvented public accountability mechanisms in the procurement processes, independent of their formal political positions.²⁶⁵ As a result, those elites were able to allocate state resources to their cronies and to politically connected firms in exchange for political and financial support (see Post-Civil War section).²⁶⁶

Marc Ayoub, the coordinator of the Issam Fares Institute's Energy Policy and Security program, told Human Rights Watch that the severe financial deficit of EDL allowed the Ministry of Energy to exert complete dominance over the legal and financial independence of EDL. The need to keep EDL solvent meant bypassing typical procurement practices and instead allowed the Ministry of Energy to make these procurements on behalf of EDL and finance them from the public treasury after getting approvals from the Council of Ministers. Ayoub, and other legal experts, have raised concerns about the legalities and risks of such procurement processes.²⁶⁷

In November 2020, the United States Treasury imposed Global Magnitsky sanctions on Gebran Bassil, who served as energy minister from 2011-2014. Then-US Treasury Secretary, Steven T. Mnuchin, noted that "The systemic corruption in Lebanon's political system

resulting in an income reduction for people in poverty of 7.8 percentage points a year, Sanjeev Gupta, Hamid Davoodi, and Rosa Alonso-Terme, "Does Corruption Affect Income Inequality and Poverty?" *Economic of Governance* (3), 2002, <https://link.springer.com/article/10.1007/s101010100039> (accessed February 2, 2023).

²⁶⁴ Mahmalat, Atallah, and Maktabi, "Public Infrastructure Procurement in Post-conflict Power-sharing Arrangements Evidence from Lebanon's Council for Development and Reconstruction"; Leenders, *Spoils of Truce: Corruption and State-building in Postwar Lebanon*.

²⁶⁵ Leenders, *Spoils of Truce: Corruption and State-building in Postwar Lebanon*.

²⁶⁶ Mahmalat, Atallah, and Maktabi, "Public Infrastructure Procurement in Post-conflict Power-sharing Arrangements Evidence from Lebanon's Council for Development and Reconstruction," p. 2.

²⁶⁷ Human Rights Watch Interview with Marc Ayoub, November 12, 2021, Beirut, Lebanon; Human Rights Watch interview with high-level EDL representative, Beirut, Lebanon, August 30, 2022. See also Ayoub, Rizkallah, and Abi Haidar, *Unbundling Lebanon's Electricity Sector*, p. 19.

exemplified by Bassil has helped to erode the foundation of an effective government that serves the Lebanese people...This designation further demonstrates that the United States supports the Lebanese people in their continued calls for reform and accountability.”²⁶⁸

The US Treasury Department also noted that:

Bassil has held several high-level posts in the Lebanese government, including serving as the Minister of Telecommunications, the Minister of Energy and Water, and the Minister of Foreign Affairs and Emigrants, and Bassil has been marked by significant allegations of corruption. In 2017, Bassil strengthened his political base by appointing friends to positions and purchasing other forms of influence within Lebanese political circles. In 2014, while Minister of Energy, Bassil was involved in approving several projects that would have steered Lebanese government funds to individuals close to him through a group of front companies.

Bassil was designated for being a current or former government official, or a person acting for or on behalf of such an official, who is responsible for or complicit in, or who has directly or indirectly engaged in corruption, including the misappropriation of state assets, the expropriation of private assets for personal gain, corruption related to government contracts or the extraction of natural resources, or bribery.²⁶⁹

The US did not divulge the underlying evidence related to the imposition of sanctions against Bassil nor state what he should do to have the sanctions lifted.

In addition to the US Magnitsky sanctions, there have been two recent major domestic developments related to large and lucrative energy contracts being awarded to politically connected companies, which shed light on the alleged corruption and mismanagement in the sector.

²⁶⁸ Ibid.

²⁶⁹ Ibid.

In July 2020, a Lebanese judicial investigation indicated that since 2005, the government purchased billions of dollars' worth of tainted, faulty fuel because of an alleged counterfeiting scheme and alleged forged lab quality tests.²⁷⁰ According to the indictment by Lebanese authorities, Ministry of Energy officials and individuals at testing labs allegedly received bribes to issue false reports indicating that the delivered fuel met international specifications.²⁷¹ This tainted fuel contained prohibited chemicals that were damaging Lebanon's power plants and posed a serious health and environmental risk.²⁷²

The investigation resulted in 17 arrest warrants and charges against over 20 individuals, including senior Ministry of Energy employees, with a range of allegations that they committed serious crimes, including forgery, fraud, bribery, and professional misconduct.²⁷³ In September 2020, individuals detained as part of the investigation were all released on bail ranging from LBP5 to LBP20 million [\$694 to \$2,777 at the former official exchange rate of 1,500 Lebanese pounds per US dollar].²⁷⁴ As of February 2023, their criminal cases were pending.

The indictment alleged that Lebanon purportedly entered into a contractual relationship with the Algerian state oil company, Sonatrach, but the contract was actually signed with a similarly-named subsidiary based in London and registered in the British Virgin Islands,

²⁷⁰ Indictment by the First Investigative Judge in Mount Lebanon, April 28, 2020, on file with Human Rights Watch. See also Nada Maucourant Attalah and Fouad Gemayel, "Tainted Fuel Scandal: 22 People and Entities to Stand Trial," *L'Orient Today*, May 28, 2021, <https://today.lorientlejour.com/article/1263384/tainted-fuel-scandal-22-people-and-entities-to-stand-trial.html> (accessed February 2, 2023).

²⁷¹ Indictment by the First Investigative Judge in Mount Lebanon, April 28, 2020, on file with Human Rights Watch. See also BBC News, "Lebanon Electricity: The Largest Corruption Allegation," at 27:12, Video, YouTube, https://www.youtube.com/watch?v=OC42WeITQJA&t=1625s&ab_channel=BBCNews%D8%B9%D8%B1%D8%A8%D9%8A (accessed February 2, 2023).

²⁷² Indictment by the First Investigative Judge in Mount Lebanon, April 28, 2020, on file with Human Rights Watch, p. 105. See also BBC News, "Lebanon Electricity: The Largest Corruption Allegation," at 4:50 and 16:49.

²⁷³ Indictment by the First Investigative Judge in Mount Lebanon, April 28, 2020, on file with Human Rights Watch, p 1-3. See also "Lebanon Says It Will Honour Sonatrach Contract amid Probe," *Reuters*, May 19, 2020, <https://www.reuters.com/article/lebanon-algeria-fuel-idAFL8N2D124Z> (accessed February 2, 2023); Radwan Mortada, "The Story of Tainted Fuel in 114 Pages: The Accusation of Rahma, Halees, Feghali, Hayek, and Al-Fawal," *Al-Akhbar*, July 11, 2020, <https://al-akhbar.com/Politics/291327> (accessed February 2, 2023); BBC News, "Lebanon Electricity: The Largest Corruption Allegation," at 20:59; Maucourant Attalah and Gemayel, "Tainted Fuel Scandal: 22 People and Entities to Stand Trial."

²⁷⁴ "The Accusation of Mount Lebanon Evacuated All Those Arrested in the Tainted Fuel File,"²⁷⁴ "The Accusation of Mount Lebanon Evacuated All Those Arrested in the Tainted Fuel File" (in Arabic), *Nida Al-Watan*, September 18, 2020, <https://www.nidaalwatan.com/article/29959-%D8%A5%D8%AA%D9%87%D8%A7%D9%85%D9%8A%D8%A9-%D8%AC%D8%A8%D9%84-%D9%84%D8%A8%D9%86%D8%A7%D9%86-%D8%A3%D8%AE%D9%84%D8%AA-%D8%AC%D9%85%D9%8A%D8%B9-%D8%A7%D9%84%D9%85%D9%88%D9%82%D9%88%D9%81%D9%8A%D9%86-%D9%81%D9%8A-%D9%85%D9%84%D9%81-%D8%A7%D9%84%D9%81%D9%8A%D9%88%D9%84-%D8%A7%D9%84%D9%85%D8%BA%D8%B4%D9%88%D8%B4> (accessed February 2, 2023).

that then subcontracted fuel orders and routed them through two Lebanese-owned companies allegedly tied to political elites.²⁷⁵ Sonatrach provides 70 percent of the fuel oil used in Lebanon's power plants.²⁷⁶

According to the indictment, this arrangement led to the shipment of substandard and faulty fuel to Lebanon, causing damage to Lebanon's power plants, and serious harm to the environment and public health.²⁷⁷

Despite the situation, the Lebanese government did not immediately suspend the contract with Sonatrach, though Sonatrach announced that it had decided not to seek a renewal after the expiry of its contract in 2020.²⁷⁸

In May 2020, a spokesperson for the Algerian Presidency denied any involvement on the part of the Algerian state in the matter, adding that an investigation was underway.²⁷⁹

A second high-profile situation that led to a judicial inquiry and other government scrutiny because of alleged mismanagement involved a contract that Lebanon entered into with a Turkish company in 2013. Karpowership, a subsidiary of Karadeniz, was contracted to provide around 370 MW of electricity from two floating barges stationed in the Jiyeh and Zouk ports, or between 20 to 25 percent of Lebanon's energy capacity.²⁸⁰

²⁷⁵ Indictment by the First Investigative Judge in Mount Lebanon, April 28, 2020, on file with Human Rights Watch, p. 100-103; Elie Al-Farzali, "The Fayoul Scandal Ends Sonatrach's Journey in Lebanon," *Al-Akhbar*, May 6, 2020, <https://al-akhbar.com/Politics/288221> (accessed February 2, 2023); "The Hidden Stitch... Between Sonatrach and BB Energy," *Beirut Observer*, May 14, 2020, <https://www.beirutobserver.com/2020/05/2209111/> (accessed February 2, 2023); BBC News, "Lebanon Electricity: The Largest Corruption Allegation," at 29:04.

²⁷⁶ Sunniva Rose, "Lebanon Crisis: Fuel Scandal Leaves Lebanese in the Dark for Longer," *The National*, July 2, 2020, <https://www.thenationalnews.com/world/mena/lebanon-crisis-fuel-scandal-leaves-lebanese-in-the-dark-for-longer-1.1043191> (accessed February 2, 2023).

²⁷⁷ Indictment by the First Investigative Judge in Mount Lebanon, April 28, 2020, on file with Human Rights Watch, p. 105.

²⁷⁸ Nada Maucourant Atallah and Fouad Gemayel, "Sonatrach's Contract to Supply Fuel to Lebanon Ends Next Month, but the State Has Yet to Find a Replacement," *L'Orient Today*, November 23, 2020, <https://today.lorientlejour.com/article/1242085/sonatrachs-contract-to-supply-fuel-to-lebanon-ends-next-month-but-the-state-has-yet-to-find-a-replacement.html> (accessed February 2, 2023).

²⁷⁹ Younes Borman, "Harsh Response from Sonatrach on the Allegations of Tainted Fuel in Lebanon," *Al-Ain*, June 6, 2020, <https://al-ain.com/article/algeria-lebanon-adulterated-gasoline> (accessed February 2, 2023).

²⁸⁰ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 18; Berjawi et al, *Assessing Solar PV's Potential in Lebanon*, p. 6; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 11; "Turkish Company Halts Power Supplies to Crisis-hit Lebanon after Contract Expires," *Alarabiya*.

Lebanon's Central Inspection, the government agency responsible for overseeing public administrations, found that some aspects of the contract were breached, and that some terms appeared to favor Karpowership at the expense of EDL and the Lebanese state.²⁸¹

Gebran Bassil, the energy minister at the time, described the power ships an “appropriate, expedient, and affordable” option to temporarily increase Lebanon’s electricity generation, while stationary power plants were constructed and old ones rehabilitated, as per his 2010 electricity plan.²⁸² However, the contract was extended until September 2021, and no other plans to permanently increase Lebanon’s power generation were implemented during that time.²⁸³

According to Central Inspection, the contract included a bonus-related clause that provides for paying Karpowership a premium in case the power barges consumed less fuel than the Lebanese state has committed to supplying.²⁸⁴ The Central Inspection advised against this clause, as they found that “decreasing the consumption of heavy fuel oil is very beneficial for the contractor, whereas the benefits to the institution [EDL] are negligible by comparison”.²⁸⁵

In May 2021, the financial public prosecutor, Judge Ali Ibrahim, seized the barges following an initial investigation into alleged corruption.²⁸⁶ He issued an arrest warrant against three implicated individuals who were detained but later released on bail.²⁸⁷

²⁸¹ Central Inspection Report on file with Human Rights Watch, p. 5.

²⁸² “Electricity Ships ‘Easy, Fast, and an Available Option’” (in Arabic), *Al-Akhbar*, September 25, 2010, <https://al-akhbar.com/Community/105879/%D8%A8%D9%88%D8%A7%D8%AE%D8%B1-%D8%A7%D9%84%D9%83%D9%87%D8%B1%D8%A8%D8%A7%D8%A1-%D8%AE%D9%8A%D8%A7%D8%B1-%D8%B3%D9%87%D9%84-%D9%88%D8%B3%D8%B1%D9%8A%D8%B9-%D9%88%D9%85%D9%88%D9%81-%D8%B1>; <https://web.archive.org/web/20221108192310/http://www.databank.com.lb/docs/Policy%20paper%20for%20the%20electricity%20sector%202010.pdf> (accessed February 2, 2023).

²⁸³ Berjawi et al, *Assessing Solar PV’s Potential in Lebanon*, p. 6; Ayat, *Bridging the Banking Crisis to Crowdfund Electricity Reform in Lebanon*, p. 11; “Turkish Company Halts Power Supplies to Crisis-hit Lebanon after Contract Expires,” *Alarabiya*; Atallah, “Juicy Contract, Suspicious Call for Tenders – in the Murky Waters of Lebanon’s Floating Power Plants.”

²⁸⁴ Nada Maucourant Atallah, “Juicy Contract, Suspicious Call for Tenders.”

²⁸⁵ Central Inspection Report on file with Human Rights Watch, p. 5. See also Nada Maucourant Atallah, “Juicy Contract, Suspicious Call for Tenders.”

²⁸⁶ “Judge Bitar’s Decision to Seize the Electricity Generating Ships,” *NNA*, May 6, 2021, <https://www.nna-leb.gov.lb/ar/show-news/172337/nna-leb.gov.lb> (accessed February 2, 2023).

²⁸⁷ *Ibid.*

The seizure of the barges was lifted and they departed in early October 2021 when the contract expired.²⁸⁸ No other charges or other action has been taken against any of the parties involved.

²⁸⁸ Elie Farzali, “‘Karadeniz’ Leaves with a Billion Dollars: The Ships Leave with One Hour of Electricity Instead of 24!” (in Arabic), *Al-Akhbar*, October 8, 2021 <https://al-akhbar.com/Politics/319737> (accessed February 3, 2023); “Turkish Electricity Ships May They Not Be Repeated” (in Arabic), Video, *Sawt Beirut International*, February 6, 2022, <https://www.sawtbeirut.com/video/%D8%A8%D9%88%D8%A7%D8%AE%D8%B1-%D8%A7%D9%84%D9%83%D9%87%D8%B1%D8%A8%D8%A7%D8%A1-%D8%A7%D9%84%D8%AA%D8%B1%D9%83%D9%8A%D8%A9-%D8%AA%D9%86%D8%Bo%D9%83%D8%B1-%D9%88%D9%85%D8%A7-%D8%AA%D9%86%D8%B9%D8%A7/> (accessed February 3, 2023).

Private Generators

Because of Électricité du Liban's (EDL) inability to meet the electricity demand in Lebanon, an informal and largely unregulated private diesel generator industry valued at around \$3 billion has mushroomed across the country. The large sums of money in the generator market, as well as the vested interests of the diesel importers, help explain why the electricity sector has been so resistant to reform and why the government has continued to adopt policies that entrench Lebanon's oil dependency. Diesel importers exert great influence on the national level, primarily because of the overlap between the shareholders of these companies and the political establishment.

A \$3 Billion Industry

As a result of EDL's inability to meet the electricity demand in Lebanon, expensive and highly polluting diesel generators proliferated across the country. Although no official figures exist about the size and operations of the diesel generator sector, experts value its market size at around \$3 billion.²⁸⁹

Ali Ahmad, World Bank energy expert, has estimated that the commercial generator market is valued at around \$1.1 billion.²⁹⁰ Further, Ahmad estimates that the supporting sectors, including the import and distribution of fuel, the sales of generators and spare parts, and the maintenance of generators are valued at around \$2 billion.²⁹¹

The sector also has a substantial workforce. The total size of the labor force linked to the operations of diesel generators is estimated to be around 13,200 persons. Of these jobs 4,200 are linked to diesel fuel imports and distribution, 2,000 to generator sale and maintenance services, and 7,000 to the retail operations of private generator networks.²⁹²

²⁸⁹ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 25.

²⁹⁰ *Ibid.*, p. 22.

²⁹¹ *Ibid.*, p. 25.

²⁹² *Ibid.*, p. 26.

Experts predict that there are between 33,000 and 37,000 generators in Lebanon, often located in densely packed urban areas.²⁹³

Lebanese laws (Decree 16878/1964 and Law 462/2002) grant the right to generate and sell electricity solely to EDL and licensed independent power producers. Therefore, the commercial generator sector exists largely outside of the formal economy and is resistant to regulation (see Vested Interests Hindering Reform section). While the fuel imported for the use of generators has become a source of income to the government through customs and taxes, generator operators do not declare their revenues nor pay taxes, resulting in significant losses to the state.²⁹⁴ But the Lebanese state has turned a blind eye to the sector due to the inability of successive governments to tackle EDL's shortages.

Before the economic crisis in Lebanon in 2019, private generators supplied around 40 percent of Lebanon's electricity needs, including supplying power to run state institutions. Further, local authorities, such as municipalities, often own and operate generators.²⁹⁵

Since the economic crisis and the resulting fuel shortages that saw EDL provides less than 1 to 3 hours of electricity per day, the share of electricity provided by private generators has drastically increased, although no figures exist yet on their share of total electricity production.

There are three models of ownership of diesel generators in Lebanon: neighborhood generators owned by commercial actors who provide power subscription services to customers, private and building generators owned by residents to supply their own needs, and municipal generators, where local authorities either purchase their own generator or buy the generator network from an existing private owner and start providing electricity as a municipal service.²⁹⁶ Our research finds that neighborhood generators are the most accessed type of generator with approximately 83 percent of households receiving energy from one.²⁹⁷

²⁹³ Ibid., p. 67.

²⁹⁴ Ibid., p. 33 and 35.

²⁹⁵ Ibid., p. 32.

²⁹⁶ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 32.

²⁹⁷ Human Rights Watch survey. 95 percent confidence interval for using a neighborhood generator in previous month: 80.9 – 85.1 percent.

Failed Attempts to Regulate the Electricity Sector

Successive attempts to regulate the electricity industry have failed. The government first tried to regulate and control the market in 2011. The Council of Ministers passed a decree in December 2011 tasking the Ministry of Energy and Water, the Ministry of Economy and Trade, and the Ministry of Interior to take the necessary steps to enforce the implementation of a diesel generator tariff set monthly by the Ministry of Energy, to protect consumers from over-billing, and hold violators to account.²⁹⁸ However, the relevant ministries took no steps to enforce the decision, and consumers still paid unregulated and often inflated flat monthly tariffs set by the generator owners.²⁹⁹

Successive decisions, including a Ministry of Economy circular specifying acceptable emission limits for generators and a Ministry of Finance decision imposing a 30 percent income tax on commercial diesel generator owners, also went unenforced.³⁰⁰

In July 2018, then-Minister of Economy Raed Khoury issued a circular mandating that generator owners install metering systems for all their subscribers by October 2018 and abide by the tariff set by the Ministry of Energy.³⁰¹ For the first time, the concerned ministries took action to implement the decision, issuing fines for noncompliant generator owners, confiscating several generators, and even calling in for questioning some generator owners.³⁰²

However, many generator owners rejected the new pricing structure, claiming that it would unfairly eat into their profits, and took a series of measures aimed at pressuring the government to back down, including suspending their services from consumers and

²⁹⁸ Lebanese Republic, Council of Ministers, “December 14, 2011 Session,” December 14, 2011, <http://www.pcm.gov.lb/arabic/subpg.aspx?pageid=521> (accessed February 3, 2023).

²⁹⁹ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 14-15.

³⁰⁰ *Ibid.*, p. 14, 64.

³⁰¹ *Ibid.*, p. 15; “Ministry Tells Generator Owners to Start Installing Meters,” Civil Society Knowledge Centre, July 13, 2018, <https://civilsociety-centre.org/actions/ministry-tells-generator-owners-start-installing-meters> (accessed February 3, 2023).

³⁰² International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 15; Sahar Houry, “Generator Owners Still Defying Meter Law,” *The Daily Star*, November 9, 2018, <https://khabarlb.com/articles/khabar28528.html> (accessed February 3, 2023).

forcing a widespread blackout.³⁰³ One generator owner who was called in for questioning and held for 24 hours by Lebanon’s State Security, an intelligence agency, told the media, “I was asked to sign a pledge that I will install a meter and comply with the price within a period of three weeks, but I refused.”³⁰⁴ Further, the media reported that some generator owners tampered with the meters or forced subscribers to sign a waiver and pay the previous flat fee.³⁰⁵

According to a 2020 World Bank report, the Ministry of Economy claimed in March 2019 that 60 percent of all subscribers had installed meters and that invoices were almost halved.³⁰⁶ However, the metering and pricing issues remained salient for consumers, and many generator owners continued to charge their customers inflated fixed fees. Our research found that approximately 70 percent of households accessing a neighborhood generator currently receive a meter-based bill.³⁰⁷ In September 2021, amid severe EDL blackouts and skyrocketing diesel prices, the state once again attempted to mandate that generator owners install meters and charge based on the rates set by the Energy Ministry, with limited success.³⁰⁸

Parliament attempted to tax the sector in 2019, passing a budget that mandates generator owners to pay 50,000 Lebanese pounds (then \$33) annually on every kilovolt-ampere (KVA) of electricity generation capacity they own.³⁰⁹ A parliamentarian estimated that this tax could bring the Treasury around \$66 million annually. However, the generator owners rejected the new tax, claiming that it would cut far too deep into their profits and warned

³⁰³ “Lebanon: Private Generators Owners Reject Price Reduction Plans,” MENAFN, July 8, 2018, <https://menafn.com/1097259985/Lebanon-private-generators-owners-reject-price-reduction-plan> (accessed February 3, 2023); Salah Hourri, “Generator owners still defying meter law,” *The Daily Star*, November 9, 2018, <https://khabarlb.com/articles/amp/28528>; (accessed February 3, 2023); “Generator Owners Receive Warnings in South Lebanon,” *The Free Library*, n.d., <https://www.thefreelibrary.com/Generator+owners+receive+warnings+in+south+Lebanon.-a0561165758> (accessed February 3, 2023).

³⁰⁴ Salah Hourri, “Generator owners still defying meter law.”

³⁰⁵ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 15; Richard Salame, “Lebanon’s Generator Sector: The Known Workings of a Once Illegal, Largely Unregulated Industry,” *L’Orient Today*, December 21, 2021, <https://today.lorientjour.com/article/1285477/lebanons-generator-sector-the-known-workings-of-a-once-illegal-largely-unregulated-industry.html> (accessed February 3, 2023).

³⁰⁶ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 15.

³⁰⁷ 95 percent confidence interval for meter-based bill for neighborhood generator users: 70.3 – 75.8 percent of households.

³⁰⁸ Salame, “Lebanon’s Generator Sector: The Known Workings of a Once Illegal, Largely Unregulated Industry.”

³⁰⁹ Timour Azhari, “Generator Owners: New Tax Is KO for Sector,” *The Daily Star*, July 23, 2019.

that generator owners would be “forced” into noncompliance.³¹⁰ This tax was never implemented by the government.

Vested Interests Hindering Reform

The large sums of money involved in the generator industry and their influence on the government help explain why the sector has been so resistant to reform and why the government has continued to adopt policies that entrench Lebanon’s oil dependency. Dr. Khaled Nakhleh, an advisor to the energy minister, admitted on live television that “the ruining of the electricity sector is related to the big interests in the generator sector given the huge amounts of money that exceed 2 billion dollars ... I don’t think that all these works, these huge works, will facilitate [state] electricity coming and this work stopping.”³¹¹

Ali Ahmad told Human Rights Watch that although diesel generator owners receive the most negative media attention, they account for a relatively small portion of the market.³¹² He said that the biggest winners from this sector are the diesel importers, who account for around \$1.784 billion of the sector’s \$3 billion market share.³¹³

Diesel arrives in Lebanon either as imports tendered by the state-supervised oil installations in Tripoli and Zahrani, or via an oligopoly of thirteen licensed private sector fuel importers, who maintain their own storage facilities and distribution networks.³¹⁴

A Lebanese news outlet, *L’Orient Today*, calculated that between 2010 and 2021, the Lebanese state spent \$10 billion on diesel imports for generators. During the same period,

³¹⁰ Ibid.

³¹¹ Al-Jadeed, “Team Fawda Monitors Violations of Generator Owners in Lebanon and a Live Confrontation between Joe Maalouf and Abdo Saadeh,” at 31:40, Video, YouTube, November 10, 2021, https://www.youtube.com/watch?v=AwdtgSmnOGU&t=1826s&ab_channel=ALJadeed (accessed February 3, 2023).

³¹² Human Rights Watch interview with Ali Ahmad, World Bank energy expert and Research Fellow at Harvard University’s Kennedy School of Government, Remote, November 30, 2021.

³¹³ Human Rights Watch interview with Ali Ahmad, World Bank energy expert and Research Fellow at Harvard University’s Kennedy School of Government, Remote, November 30, 2021.

³¹⁴ Albin Szakola, “National Suicide’: A Breakdown of Lebanon’s Deepening Dependence on Diesel Fuel for Private Generators,” *L’Orient Today*, January 14, 2022, <https://today.lorientlejour.com/article/1287555/national-suicide-a-breakdown-of-lebanons-deepening-dependence-on-diesel-fuel-for-private-generators.html> (accessed February 3, 2023); Shaya Laughlin, David Wood, and Alex Ray, “Fuelling Addiction: How Importers and Politicians Keep Lebanon Hooked on Oil,” *Triangle*, January 2022, https://securereservercdn.net/160.153.137.163/f62.e5d.myftpupload.com/wp-content/uploads/2022/01/Lebanoin_oil_import_politics_FINAL.pdf (accessed February 3, 2023).

Lebanon spent \$16.8 billion for EDL's fuel purchases. This means that diesel for generators constituted 40 percent of Lebanon's total fuel bill for electricity, producing about 33 percent of the country's electricity.³¹⁵

Ahmad explained that these diesel importers, who comprise the Association of Petroleum Importing Companies to lobby for their interests, exert great influence on the national level, primarily because of the overlap between the shareholders of these companies and the political establishment.³¹⁶

Ahmad added that these companies also carry influence through donations to political and religious institutions, philanthropy work, and nepotism.³¹⁷

For years, these companies have benefitted from state policies that have entrenched Lebanon's reliance on fuel imports, including diesel. Between 2010, when then-Energy Minister Gebran Bassil announced his plan to provide 24-hour electricity, until the onset of the economic crisis in 2019, EDL's electricity deficit more than doubled, according to EDL's production figures and demand estimates.³¹⁸ Diesel-run generators compensated for the increasing deficit. Diesel imports increased from 1.18 million tons in 2010 to 2.35 million tons in 2019, according to data from the Energy Ministry's Directorate General of Oil.³¹⁹ The thirteen private fuel importers accounted for much of that increase. In 2010, the companies imported 27 percent of the diesel entering Lebanon, and by 2019, they imported 75 percent.³²⁰

³¹⁵ Szakola, "'National Suicide': A Breakdown of Lebanon's Deepening Dependence on Diesel Fuel for Private Generators."

³¹⁶ Human Rights Watch interview with Ali Ahmad, World Bank expert and Research Fellow at Harvard University's Kennedy School of Government, Remote, November 30, 2021. See also International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 35.

³¹⁷ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 35.

³¹⁸ Ibid.

³¹⁹ Szakola, "'National Suicide': A Breakdown of Lebanon's Deepening Dependence on Diesel Fuel for Private Generators."

³²⁰ Ibid.

Diesel Fuel Importers and Their Market Share (2018 Data)

Importer	Share	Capacity (MT)
Uniterminals	22.4%	393,232
Liquigas	14.1%	247,526
Cogico	12.3%	215,927
Coral Oil	10.6%	186,083
Medco	9.8%	172,039
Total Liban	6.9%	121,130
IPT	6.0%	105,330
Gefco	5.3%	93,042
Wardieh	4.4%	77,242
Mediterranean Petr.Co.	3.8%	66,709
Apec	3.3%	57,932
Universal Gas	1.1%	19,311
Total		1,755,500

Source: ESMAP. 2020. "Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways. (May), World Bank, Washington, DC. Table 12.

Not only did these companies benefit from the country's dilapidated electricity sector to increase their market share, but they also benefitted from state subsidies. Since the 1990s, the state subsidized the import of fuel either directly with cash transfers to EDL and a value-added tax (VAT) exemption on diesel since 2012, or indirectly through policies that artificially maintained the peg of the Lebanese pounds to the American dollar.³²¹ The fuel subsidy regime meant that companies would sell fuel to EDL and to consumers at the state-mandated price, which was significantly lower than the international price, and the government would cover the difference, while also allowing for the companies' overheads and profit margins.³²²

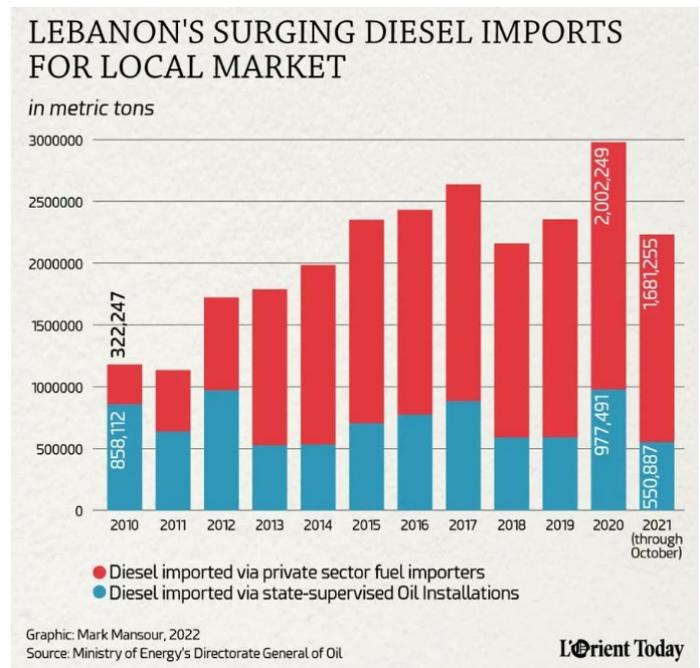


Figure from Szakola, “‘National Suicide’: A Breakdown of Lebanon’s Deepening Dependence on Diesel Fuel for Private Generators.”

Since the onset of the economic crisis in October 2019 and the resulting devaluation of the Lebanese pound, the state introduced a new subsidy on fuel imports, whereby the Central Bank used its dollar reserves to provide importers with dollars at exchange rates well below the real price of the Lebanese pound.³²³ Reuters estimated that this policy cost the state around \$3 billion per year and ended in August 2021 when the Central Bank said it did not have money to continue this subsidy.³²⁴

³²¹ Lebanese Republic, Ministry of Environment, *Fossil Fuel Subsidies in Lebanon: Fiscal, Equity, Economic, Environmental Impacts*, May 2015, p. 4, <https://climatechange.moe.gov.lb/viewfile.aspx?id=218> (accessed February 3, 2023).

³²² Shaya Laughlin and David Wood, “Importers and politicians Keep Lebanon Hooked on Oil,” *L’Orient Today*, April 2, 2022, <https://today.lorientlejour.com/article/1295619/importers-and-politicians-keep-lebanon-hooked-on-oil.html> (accessed February 3, 2023).

³²³ “Lebanese Central Bank Effectively Ends Fuel Subsidy,” *Reuters*, August 11, 2021, <https://www.reuters.com/world/middle-east/lebanese-cbank-says-can-no-longer-subsidise-fuel-report-2021-08-11/> (accessed February 3, 2023); “Lebanon Bank Boss Slams Criticism over Ending Fuel Subsidies,” *Aljazeera*, August 14, 2021, <https://www.aljazeera.com/news/2021/8/14/lebanon-bank-boss-slams-criticism-over-ending-fuel-subsidies> (accessed February 3, 2023).

³²⁴ “Lebanese Central Bank Effectively Ends Fuel Subsidy,” *Reuters*.

Despite this policy being aimed at ensuring the continuous supply of affordable fuel in Lebanon, the country witnessed severe diesel shortages that led to generator owners rationing their supply.³²⁵ Lebanon's then-energy minister, Raymond Ghajar, blamed these shortages on smuggling to Syria, where the subsidized fuel was being sold at much higher prices.³²⁶ In the end, according to an analysis by the Lebanese newspaper *L'Orient Today*, the state spent more money in 2021 on diesel imports for generators than on fuel for EDL.³²⁷

While fuel importers make the lion's share of the profits from this sector, generator owners also benefit substantially from the current system and have an interest in maintaining the status quo. Before the economic crisis, Ali Ahmad estimated that the revenue generated by a single 500 KVA generator, a medium-sized generator that accounts for more than 70 percent of the generators in Lebanon, is between \$17,000 to \$22,000 per month, or \$240,000 per year, about 164 times what the annual household median income was in early 2022.³²⁸ Meanwhile, Ahmad estimated that "mega" owners, who run large generators that deliver electricity to thousands of customers, make between \$160,000 and \$211,000 in revenue per month, or over \$2.2 million per year.³²⁹

In August 2017, generator owners joined together to form the "Syndicate of Generator Owners" to better coordinate among themselves and push for their interests. Although the body refers to itself as a syndicate, it has no legal character, as the sector is illegal.³³⁰

³²⁵ Szakola, "'National Suicide': A Breakdown of Lebanon's Deepening Dependence on Diesel Fuel for Private Generators"; Fouad Gemayel, "Private Generators: When Plan B Reaches its Limits" (in French), *L'Orient Today*, July 12, 2021, <https://www.lorientlejour.com/article/1268139/generateurs-privés-lorsque-le-plan-b-atteint-ses-limités.html> (accessed February 3, 2023).

³²⁶ "Lebanese Minister Blames Fuel Shortages on Smuggling to Syria," *France 24*, April 15, 2021, <https://www.france24.com/en/live-news/20210415-lebanese-minister-blames-fuel-shortages-on-smuggling-to-syria> (accessed February 3, 2023); Ali Ibrahim, Mohammad Bsiki, and Ahmad Abid, "Smuggling from Lebanon to Syria: What, Why & Where To?" *Daraj*, December 2, 2021, <https://daraj.com/en/84699/> (accessed February 3, 2023); Szakola, "'National Suicide': A Breakdown of Lebanon's Deepening Dependence on Diesel Fuel for Private Generators."

³²⁷ Szakola, "'National Suicide': A Breakdown of Lebanon's Deepening Dependence on Diesel Fuel for Private Generators."

³²⁸ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 30-31. Household income from Human Rights Watch survey. 95 percent confidence interval for median household income: \$114 – 132.

³²⁹ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 31.

³³⁰ *Ibid.*, p. 33.

Around 50 percent of generator owners—mostly small-scale owners—are members. The “mega” owners have their own channels of exerting influence.³³¹

The Syndicate of Generator Owners played a key role in mobilizing the response to the government’s attempts to compel the installation of meters and abide by the Energy Ministry’s tariffs in 2018, and they took a series of coordinated actions aimed at pressuring the government to back down, including suspending their services from consumers and forcing a widespread blackout.³³²

Generator owners also exert a lot of influence at the local level, which allows them to maintain and expand their business operations, and in some cases, skirt government regulations. Two energy experts told Human Rights Watch that generator owners donate free electricity to municipalities, religious institutions, the army, and the police.³³³ In some cases, the local officials themselves own and operate the generator network. Ministry of Economy staff told Ali Ahmad that the municipalities who have not cooperated with the ministry’s requirement to install meters are often those with mayors who either own the generator network or are close to those who own it.³³⁴

One expert also told Human Rights Watch that some generator owners donate money directly to political parties.³³⁵ The expert also said that the political parties themselves run the generator networks in their areas of influence, which also gives them a vested interest in maintaining the status quo.³³⁶

³³¹ Ibid.

³³² Sahar Hourii, “Generator Owners Still Defying Meter Law,” *The Daily Star*, November 9, 2018, <https://khabarlb.com/articles/khabar28528.html> (accessed February 3, 2023); “Generator Owners Receive Warnings in South Lebanon,” *The Free Library*.

³³³ Human Rights Watch interview with energy expert, February 11, 2021, remote; Human Rights Watch interview with Ali Ahmad, World Bank energy expert and Research Fellow at Harvard University’s Kennedy School of Government, November 30, 2021, remote.

³³⁴ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 35.

³³⁵ Human Rights Watch interview with energy expert, Remote, February 11, 2021.

³³⁶ Human Rights Watch interview with energy expert, Remote, February 11, 2021. See also “Southern Lebanon: Generators that Generate Energy and Money... Hezbollah and Amal, and the Third is ‘Corruption’” (in Arabic), *Janoubia*, December 3, 2021, <https://janoubia.com/2021/12/03/%D8%AC%D9%86%D9%88%D8%A8-%D9%84%D8%A8%D9%86%D8%A7%D9%86-%D9%85%D9%88%D9%84%D8%AF%D8%A7%D8%AA-%D8%AA%D8%AF%D8%B1%D9%91-%D8%A7%D9%84%D8%B7%D8%A7%D9%82%D8%A9-%D9%88%D8%A7%D9%84%D8%A3%D9%85%D9%88%D8%A7/> (accessed February 3, 2023).

Renewable Energy

Lebanon has almost unlimited renewable energy potential, particularly from solar and wind. Dr. Sven Teske, engineer and Research Director of the Institute for Sustainable Futures, told Human Rights Watch that "Lebanon has a brilliant solar potential and moderate to good wind resources."³³⁷ Stanford University Professor Mark Z. Jacobson agreed that Lebanon could transition to 100 percent renewable energy utilizing wind, solar, and hydropower by 2035 using existing technologies.³³⁸

Yet, only 7.83 percent of Lebanon's energy mix comes from renewable sources. Despite several government commitments to increase the share of energy generated from renewable sources, Lebanon is nowhere near meeting those targets. Increasing the share of energy generated from renewable sources would decrease the health and climate change impacts of burning fossil fuels, help balance Lebanon's fiscal deficit through limiting the amount of fossil fuels that need to be purchased with precious foreign currency reserves, and protect consumers from the price volatility inherent in fossil fuels.

An Untapped Resource

In the 1970s, hydropower comprised between 70 to 75 percent of Lebanon's electricity production.³³⁹ But by 2019, the Lebanese Center for Energy Conservation (LCEC), a body within the Energy Ministry that acts as the technical arm of the Lebanese government on all issues related to energy efficiency and renewable energy, estimated that the share of renewables in Lebanon's total electricity generation was just 7.83 percent, of which only 0.73 percent was from solar power and only 1.82 percent was from hydropower.³⁴⁰

³³⁷ Human Rights Watch email correspondence with Dr. Sven Teske, November 15, 2022.

³³⁸ Human Rights Watch email correspondence with Marc Jacobson, November 8, 2022. Currently ten countries provide all, or nearly all, of their energy via a combination of wind, solar and hydroelectricity. Stanford University, "31 Countries Whose Electricity Generation is With Over 50%" n.d., <https://web.stanford.edu/group/efmh/jacobson/WWSBook/Countries100Pct.pdf> (accessed February 3, 2023).

³³⁹ IRENA, *Renewable Energy Outlook: Lebanon*, p. 17; Lebanese Center for Energy Conservation, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*, November 2016, p. 25, https://www.lsec.ac.uk/GranthamInstitute/wp-content/uploads/2018/02/LBNNREAP_DEC14.pdf (accessed February 3, 2023).

³⁴⁰ Lebanese Center for Energy Conservation, *The 2019 Solar PV Status Report for Lebanon*, March 2021, p. 17, <https://lcec.org.lb/sites/default/files/2021-04/LCEC1.pdf> (accessed February 3, 2023). Note that this figure includes waste incineration, which has a slew of harmful pollutants and emits greenhouse gases.

Lebanon has several aging and outdated hydroelectric power stations that have a total installed capacity of 286 megawatts (MW).³⁴¹ However, many of these plants are operating at a loss given the low set tariff of \$0.1 per kilowatt-hour, and therefore have not been properly maintained in years, leading to production losses of around 30-40 percent.³⁴² Therefore, the LCEC estimates that the actual generation capacity of these stations is closer to 190 MW.³⁴³ The LCEC predicts that rehabilitating the existing hydroelectric power stations would lead to a 25 percent increase in their production capabilities.³⁴⁴

However, while many governments promote hydropower projects as a response to climate change and financing for hydropower projects has been provided under various international financial instruments, some of these projects—but not in Lebanon—have been linked to serious human rights concerns. Such concerns include displacement of local populations, impacts on water quality and quantity, decrease of river flow, and loss of livelihoods.³⁴⁵

Further, the impacts of climate change, which in recent years have resulted in droughts and rivers drying out, add further uncertainty regarding the viability of hydropower plants.³⁴⁶

³⁴¹ IRENA, *Renewable Energy Outlook: Lebanon*, p. 17.

³⁴² Ibid.

³⁴³ Lebanese Center for Energy Conservation, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*, p. 96.

³⁴⁴ Ibid., p. 97.

³⁴⁵ For example, in April 2020, Human Rights Watch reported on harms to the local communities caused by Guinea's Souapiti hydropower dam, including displacement and decreased access to water and food. See Human Rights Watch, *We're Leaving Everything Behind: The Impact of Guinea's Souapiti Dam on Displaced Communities*, April 2020, p. 29-30, https://www.hrw.org/sites/default/files/report_pdf/guineao420_web.pdf. Similarly, in August 2021, Human Rights Watch investigated the construction of a large hydroelectric dam in Cambodia that resulted in the displacement of nearly 5,000 people and adverse impacts to the livelihoods of tens of thousands. See Human Rights Watch, *Underwater: Human Rights Impacts of a China Belt and Road Project in Cambodia*, August 2021, <https://www.hrw.org/report/2021/08/10/underwater/human-rights-impacts-china-belt-and-road-project-cambodia>.

³⁴⁶ Claire Kfoury, "Preserving Lebanon's Water before the Wells Run Dry," The World Bank, September 30, 2014, <https://www.worldbank.org/en/news/feature/2014/09/30/preserving-lebanon-s-water-before-the-wells-run-dry> (accessed February 3, 2023).

Existing hydroelectric power stations in Lebanon

River	Establishment	Plant(s)	Year of Installation	Number of units	Installed capacity (MW)
Litani/Awali Rivers	Litani Water Authority	Markaba, Awali, Joun	1961, 1964, 1967	7	199
Nahr Ibrahim river	Société Phénicienne des Forces de Nahr Ibrahim des Eaux et Electricité	Chouane, Yahchouch, Fitri	1961, 1955, 1951	8	32
Kadisha valley	La Kadisha, Société Anonyme d'Electricité du Liban Nord	Bechare, Mar Licha, Blaouza II, Abu-Ali	1924, 1957, 1961, 1932	11	25
Nahr Al Bared	Al Bared Concession	Al Bared 1, Al Bared 2	1936	5	17
Safa spring	Electricité du Liban	Richmaya–Safa	1931	3	13
Total installed capacity					286

Source: IRENA (2020), Renewable Energy Outlook: Lebanon International Renewable Energy Agency, Abu Dhabi. Table 3.

Currently, almost no electricity in Lebanon is generated through wind despite having significant potential for wind energy. In 2018, the Energy Ministry signed its first power purchase agreement for three planned utility-scale wind power projects in the northern governorate of Akkar with a total capacity of 226 MW, but these projects were put on hold amid the economic crisis.³⁴⁷

³⁴⁷ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 31; Lebanese Center for Energy Conservation, “Wind Farms – Round 1 – 226 MW,” n.d., <https://lcec.org.lb/our-work/MEW/Wind-Round-1> (accessed February 3, 2023).

The LCEC and Lebanese Foundation for Renewable Energy both estimate that around 5,000 MW of electricity annually can be generated through wind power based on wind speeds in Lebanon and the availability of public lands – enough to power the entire country.³⁴⁸

Most of the recent increase in renewable energy in Lebanon in recent years has come from the deployment of solar photovoltaic (PV) systems.³⁴⁹ Between 2010 and 2020, the cumulative installed solar PV capacity grew 27,200 percent in 10 years from 330 kWp in 2010 to 89.84 MWp in 2020.³⁵⁰ Wind energy has high upfront costs, but very low and generally predictable operating costs. It has no direct emissions and none of the pollution that comes from burning of fossil fuels, but it is an intermittent energy source and only produces power when the wind is blowing. While there are challenges with appropriately siting wind power, it has few human rights risks. Wind power can be an important contribution to Lebanon’s energy mix.

Despite the big percentage increase, solar energy still constitutes less than 1 percent of Lebanon’s energy mix. The government launched two solar projects that are connected to the national electricity grid: the Beirut River Solar Snake, which has been connected since September 2015, and the Zahrani Oil Installations Solar PV Project, which has been connected since 2016.³⁵¹ However, both projects account for only 1.08 MWp and 1.09 MWp respectively.³⁵² The rest of the installed solar energy capacity is comprised of small-scale, decentralized systems for personal or commercial consumption.³⁵³ Solar energy has high upfront costs, but very low and generally predictable operating and maintenance costs. Like wind, it has almost zero emissions and no pollution. Utility level solar can be an

³⁴⁸ Lebanese Center for Energy Conservation, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*, p. 50; The Lebanese Foundation for Renewable Energy, “Our Solutions: Sun, Wind, Water,” n.d., <https://www.lfre.org/sun-wind-water> (accessed February 3, 2023).

³⁴⁹ International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 17.

³⁵⁰ Lebanese Center for Energy Conservation, *The 2019 Solar PV Status Report for Lebanon*, March 2021, p. 6; Thomas Schellen, “The Race to Solar: New Consumer Appetites and Old (Bad) Habits,” *Executive*, November 12, 2021, <https://www.executive-magazine.com/special-report/the-race-to-solar> (accessed February 3, 2023).

³⁵¹ Lebanese Center for Energy Conservation, “The Beirut River Solar Snake,” n.d., <https://lcec.org.lb/our-work/MEW/BRSS> (accessed February 3, 2023); Lebanese Center for Energy Conservation, “The Zahrani Oil Installations Solar PV Project,” n.d., <https://lcec.org.lb/our-work/MEW/ZahraniSolarPV> (accessed February 3, 2023).

³⁵² International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 17.

³⁵³ Lebanese Center for Energy Conservation, *The 2019 Solar PV Status Report for Lebanon*, March 2021, p. 20; International Bank for Reconstruction and Development/The World Bank, *Distributed Power Generation for Lebanon: Market Assessment and Policy Pathways*, p. 17.

important contribution to Lebanon’s energy mix, while household solar could contribute to household energy security. China has much of the global production capacity for the materials needed for a global transition to renewable energy including solar panels. Some of these materials are reportedly processed in Xinjiang, raising concerns about the use of forced labor.

Amid the economic crisis, the removal of subsidies on diesel, and the near total collapse of EDL’s generation capabilities, there has been a boom in residential solar power systems. The LCEC said that calls they received about installing solar PV systems increased from around one phone call per week in 2018 to an average of five calls per day in 2021.³⁵⁴ Further, the Lebanese Solar Energy Society, a non-governmental organization which surveys the number of companies that import solar technologies and provide maintenance services, said that since the outset of the crisis in 2019, almost 100 new companies entered the market – almost on par with the number of companies that had entered the market in the ten years prior.³⁵⁵

Companies that install solar PV systems also noted an exponential increase in residential sales. ECOsys, a company that provides renewable energy systems, said that it alone signed contracts for about 100 residential solar systems over approximately two months in the third quarter of 2021. By comparison, between 2008 and the end of 2020, it only signed between 5 to 10 residential market contracts.³⁵⁶

However, experts have raised concerns that the boom in the solar PV market has not been subjected to any regulations or monitoring. Energy expert Jessica Obeid noted:

Dozens are now operating in the [solar] field, many with poor or no track record...the result is a chaotic market with a wide range of technology types and grid implications, and product quality ranging from mediocre to high-end, in addition to the dissemination of under-sized systems and overpromised outputs. This creates a risk for the grid and the systems’

³⁵⁴ Schellen, “The Race to Solar: New Consumer Appetites and Old (Bad) Habits.”

³⁵⁵ Ibid.

³⁵⁶ Ibid.

performance and a hazard for the safety of the consumers, especially when dealing with electrochemical materials such as batteries.³⁵⁷

According to the head of LCEC, conversations on standard setting and technical supervision of solar PV systems have been initiated with the Order of Engineers, the union for engineers and architects, but to date, no regulations have been issued.³⁵⁸

In 2022, Lebanon’s Council of Ministers approved a draft law on distributed renewable power generation, which would introduce a new form of net metering based on peer-to-peer (distributed) renewable energy contracts, allowing solar energy system owners to get electricity credit for surplus electricity that they provide to other users connected to the grid.³⁵⁹ For example, if a residential owner has a solar system on their roof and generates more electricity than the home uses during daylight hours, excess energy can be “purchased” by other users connected to the electricity grid, and that customer can receive electricity credit, with the utility levying a transit fee . In the end, customers are only billed for their “net” energy use. The law has not yet been adopted by parliament.

The only limiting factor to pursuing a system run completely on renewable energy sources is cost. Yet in the long-term, a transition to renewable energy sources should save money as solar PV and wind power are significantly cheaper than Lebanon’s current reliance on costly diesel and gas. Energy expert Dr. Teske told Human Rights Watch, “Solar photovoltaic (PV) is significantly cheaper in regard to the generation cost per kilowatt-hour than diesel – in fact diesel is – with nuclear – by far the most expensive way to generate electricity. Solar PV and wind power (both for electricity generation) are also cheaper than gas fueled power plants in almost all cases. Gas is certainly not a bridge to renewables as it needs a new infrastructure – and the existing oil infrastructure cannot be used”.³⁶⁰

³⁵⁷ Jessica Obeid, “Power Seizures: Navigating the Chaos of Decentralized Power Generation and Distribution,” Executive, November 12, 2021, <https://www.executive-magazine.com/special-report/power-seizures> (accessed February 3, 2023).

³⁵⁸ Schellen, “The Race to Solar: New Consumer Appetites and Old (Bad) Habits.”

³⁵⁹ Lebanese Center for Energy Conservation, “Decentralized Re Law,” n.d., <https://lcec.org.lb/our-work/partners/RELAW> (accessed February 3, 2023); See draft law on distributed renewable power generation, March 12, 2022, <https://lcec.org.lb/sites/default/files/2022-03/%D8%A7%D9%84%D8%B5%D9%8A%D8%BA%D8%A9%20%D8%A7%D9%84%D9%86%D9%87%D8%A7%D8%A6%D9%8A%D8%A9%20%D9%84%D9%85%D8%B4%D8%B1%D9%88%D8%B9%20%D9%82%D8%A7%D9%86%D9%88%D9%86%20%D8%A7%D9%86%D8%AA%D8%A7%D8%AC%20%D8%A7%D9%84%D8%B7%D8%A7%D9%82%D8%A9%20%D8%A7%D9%84%D9%85%D8%AA%D8%AC%D8%AF%D8%AF%D8%A9%20%D8%A7%D9%84%D9%85%D9%88%D8%B2%D8%B9%D8%A9%20-%20Final%20No%20Cover.pdf>.

³⁶⁰ Human Rights Watch email correspondence with Dr. Sven Teske, November 15, 2022.

Government Plans on Renewable Energy

Since 2010, the Lebanese government has adopted several action plans and policies aimed at increasing the share of renewables in Lebanon’s energy mix. However, most of those plans have not been realized, and renewable energy continues to be seen as a last resort rather than an integral component of Lebanon’s electricity sector.

Lebanon first committed to increasing its renewable energy production during the 2009 UN Climate Change Conference (“Copenhagen Climate Summit”) when it set a 12 percent renewable energy target by 2020.³⁶¹ However, as the Ministry of Energy itself noted in 2016, “the Lebanese Government was not clear in defining the 12 percent target” and the government’s commitment “was more a political vision to promote RE [renewable energy] in Lebanon.”³⁶²

In 2010, the Energy Ministry incorporated this commitment into its Electricity Policy Paper, clarified Lebanon’s commitment to “launching, supporting, and reinforcing all public, private and individual initiatives to adopt the utilization of renewable energies to reach 12 percent of electric and thermal supply” and to setting up a national financing mechanism to encourage investments in renewable energy sources.³⁶³ The same year, the ministry launched, in collaboration with the Central Bank, the National Energy Efficiency and Renewable Energy Action Plan (NEEREA). NEEREA provided access to subsidized loans (with a 2.5 percent interest rate) for all renewable and energy efficiency projects, with a loan ceiling of \$10 million per project and a maximum term of fourteen years.³⁶⁴ By June 2020, the LCEC reported that the NEEREA financed more than 1,000 projects with a total investment value of over \$600 million.³⁶⁵

In November 2011, the Council of Ministers adopted the first National Energy Efficiency Action Plan for 2011-2015 (NEEAP 2011-2015), which set out the strategy for meeting the 12

³⁶¹ Lebanese Center for Energy Conservation, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*, p. 42.

³⁶² *Ibid.*, p. 21.

³⁶³ <http://www.databank.com.lb/docs/Policy%20paper%20for%20the%20electricity%20sector%202010.pdf>, p. 12.

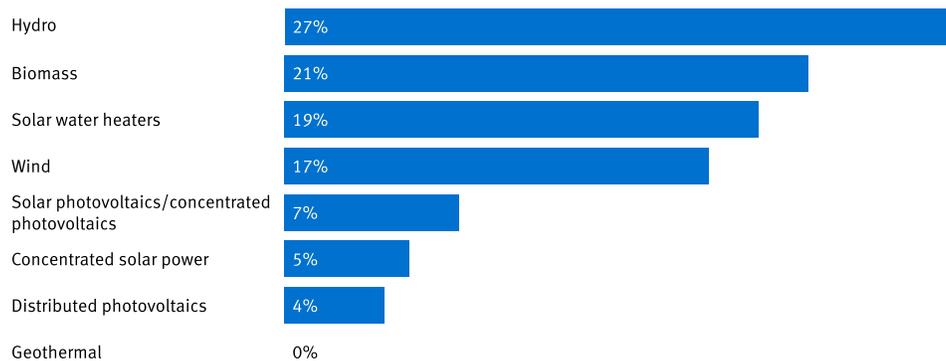
³⁶⁴ The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 47; Lebanese Center for Energy Conservation, “NEEREA,” n.d., <https://lcec.org.lb/our-work/partners/NEEREA> (accessed February 3, 2023).

³⁶⁵ Lebanese Center for Energy Conservation, “NEEREA”; See also The World Bank, *Lebanon Power Sector Emergency Action Plan*, p. 47

percent renewable energy target by 2020.³⁶⁶ However, by the energy ministry’s own admission, many of the initiatives set out in the 2011-2015 NEEAP “witnessed some delays or obstacles,” and the lack of clear baseline data made it difficult to evaluate.³⁶⁷

In 2016, the Ministry of Energy developed the second National Energy Efficiency Action Plan (NEEAP 2016-2020) to address issues relating to energy efficiency as well as the first Renewable Energy Action Plan for Lebanon (NREAP), which reiterated the government’s stated aim for renewable energy to constitute 12 percent of “the total amount of energy needed for electricity and heating demand in the country” by 2020 and provided some concrete pathways to achieve that goal.³⁶⁸ Based on an assessment of available and suitable land for the construction of solar farms, the NREAP found that there is an almost “limitless potential” for solar farms that can produce more than 87.6 gigawatts (GW) of power output – more than nine times the power demand of Lebanon in 2010.³⁶⁹ However, the plan only sets a goal of 150 MW of power from solar installation by 2020, as well as another 100 MW of solar power through distributed generation (i.e. installed by private entities for consumption at the source).³⁷⁰ The NREAP also set targets for wind power, hydropower, and geothermal energy. The renewable mix for Lebanon that the plan set for 2020 is below.

Shares of each resource out of the 12 percent renewable target



Source: Lebanese Foundation for Renewable Energy, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*, Figure 41.

³⁶⁶ Lebanese Republic, Ministry of Energy and Water, *The National Energy Efficiency Action Plan for Lebanon*, January 12, <https://lcec.org.lb/sites/default/files/2021-02/NEEAP%202011%202015.pdf> (accessed February 3, 2023).

³⁶⁷ *Ibid.*, p. 32-33.

³⁶⁸ Lebanese Center for Energy Conservation, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*.

³⁶⁹ *Ibid.*, p. 58.

³⁷⁰ *Ibid.*, p. 60, 70.

However, the targets set by the NREAP were not realized, and by 2019 the share of renewables in Lebanon’s total electricity generation was just 7.8 percent, a 2.4 percent increase from what it was in 2010 (5.2 percent).³⁷¹

Despite little progress in achieving Lebanon’s modest commitment of reaching 12 percent electricity generation from renewable sources, in 2018, the prime minister announced a more optimistic, yet also inadequate, renewable energy target of 30 percent of electricity consumed by 2030, and this was reflected in the 2019 electricity reform paper issued by the Ministry of Energy.³⁷² Lebanon also ratified the Paris Agreement in March 2019, which is a global agreement to combat climate change by aiming to keep global warming below 2 degrees Celsius, with nations pledging to gradually reduce greenhouse gas emissions, among other goals.³⁷³ In its 2020 updated Nationally Determined Contribution (NDC), a Paris agreement mandated climate action plan updated every five years, Lebanon reiterated its commitment to unconditionally reach 18 percent and conditionally reach 30 percent of its power demand from renewable energy sources in 2030.³⁷⁴

In March 2022, the Lebanese government approved another Ministry of Energy policy paper for the electricity sector, which aims to provide 8 to 10 hours of electricity supply per day in the first half of 2022, and between 16 to 18 hours per day by 2023 – up from around 2 hours currently.³⁷⁵ The plan also commits to “building renewable energy power plants using PPPs [private public partnerships] and ensuring a 15% share of the energy mix from renewable energy sources by the end of 2026, with the aim of reaching 30% by 2030.”³⁷⁶

³⁷¹ Ibid., p. 39.

³⁷² IRENA, *Renewable Energy Outlook: Lebanon*, p. 18; Lebanese Center for Energy Conservation, *The National Renewable Energy Action Plan for the Republic of Lebanon 2016-2020*, p. 35.

³⁷³ Lebanese Republic, Ministry of Energy, “Climate Change: Negotiations,” n.d., <https://climatechange.moe.gov.lb/Publication.aspx?pageid=26> (accessed February 3, 2023).

³⁷⁴ “Lebanon Submits Updated National Climate Pledge under Paris Agreement – Updated Pledge Will Significantly Ramp up Action to Limit Climate Change,” UNDP Press Release, April 19, 2021, <https://www.undp.org/lebanon/press-releases/lebanon-submits-updated-national-climate-pledge-under-paris-agreement> (accessed February 3, 2023); Lebanese Republic Ministry of Energy and Water, “Lebanon’s Nationally Determined Contribution: Updated 2020 Version,” 2020, <https://climatechange.moe.gov.lb/viewfile.aspx?id=319> (accessed February 5, 2023).

³⁷⁵ Lebanese Republic Ministry of Energy and Water, *Setting Lebanon’s Electricity Sector on a Sustainable Growth Path*, p. 2; Almost all of Jordan’s electricity is derived from fossil fuels.

³⁷⁶ Ibid., p. 3.

However, the two main measures that the plan lists for increasing Lebanon’s electricity generation in the short term are importing fossil fuel-fired electricity from Jordan and importing methane gas from Egypt. Even in the medium and long term, the plan seems to rely primarily on fossil fuels as the primary source of electricity, with renewable sources remaining relatively limited in Lebanon’s energy mix and largely seen as a last resort.³⁷⁷ Implementing the plan in its current form would lock in the generation capacity of fossil fuel-powered plants and decrease the incentives to introduce renewable energy sources at a later date once Lebanon’s energy needs have already been met.

As of January 2023, the government had not made significant progress on increasing electricity generation and meeting its targets, and residents were still receiving less than three hours of state electricity per day.

Lebanon should use the current fiscal and electricity crisis to immediately ramp up local and utility-scale renewable energy generation projects to decrease its reliance on imported, expensive, and heavily polluting fossil fuels. According to the International Renewable Energy Agency, if Lebanon achieves 30 percent renewable energy consumption by 2030, it could save \$250 million per year in the power sector, mainly through avoided fossil-fuel imports.³⁷⁸

Further, Greenpeace Middle East and North Africa’s analysis showed that reaching a 31.2 percent share of renewable energy in electricity consumption by 2026 will lead to a 14 percent increase in profit for EDL compared to the ministry’s plans. This analysis does not include the environmental and public health benefits of transitioning to renewable energy, which would also generate significant savings for the Lebanese state.³⁷⁹

³⁷⁷ See for example: Lebanese Republic Ministry of Energy and Water, *Setting Lebanon’s Electricity Sector on a Sustainable Growth Path*, p. 14-16.

³⁷⁸ IRENA, *Renewable Energy Outlook: Lebanon*, p. V.

³⁷⁹ Greenpeace MENA, *No More Excuses: Time to Go Renewable*, July 2019, p. 4, <https://www.greenpeace.org/static/planet4-mena-stateless/2019/07/3b78f740-no-more-excuses-en.pdf> (accessed February 3, 2023).

Lebanon's 2022 Electricity Plan

Since 2010, the government has approved three successive policy papers to reform the electricity sector put forward by the energy ministry.³⁸⁰ However, those plans have not been implemented. As noted previously, the latest plan, approved by the government on March 16, 2022, aims to provide eight to ten hours of electricity supply per day in the first half of 2022, between 16 to 18 hours per day by 2023, and continuous electricity within four years.³⁸¹ The policy statement predicts that any delay in approving its terms costs the government \$70 million monthly, or more than \$800 million per year.³⁸²

The plan rests on five main pillars:³⁸³

- 1- Increasing the hours of electricity supply within the first half of 2022 by importing electricity from Jordan and methane gas from Egypt. In 2023, securing additional generation capacity by supplying gas to the Zahrani power plant through a floating storage and regasification unit (FSRU) and adding temporary power capacity at the Deir Amar power plant in order to provide between 16 to 18 hours of electricity supply per day.
- 2- Increasing the generation capacity of Lebanon by commissioning three new power plants with the participation of the private sector, decommissioning the old and inefficient Zouk and Jiyeh power plants, and building renewable energy power – ensuring a 15 percent share of the energy mix from renewable energy sources by the end of 2026.
- 3- Improving the performance of the electricity network, reducing non-technical losses and enhancing bill collection in order to improve cost-recovery.
- 4- Achieving financial sustainability for the sector through increasing electricity tariffs. The new tariff will be indexed to the international oil price and billed according to the

³⁸⁰ Republic of Lebanon, Ministry of Energy and Water, “Updated Policy Paper for the Electricity Sector,” March 2022, https://energyandwater.gov.lb/mediafiles/articles/doc-100778-2022_03_31_10_22_46.pdf (accessed February 5, 2023); Lebanese Republic Ministry of Energy and Water, *Setting Lebanon's Electricity Sector on a Sustainable Growth Path*.

³⁸¹ Lebanese Republic Ministry of Energy and Water, *Setting Lebanon's Electricity Sector on a Sustainable Growth Path*, p. 2.

³⁸² *Ibid.*, p. 2.

³⁸³ *Ibid.*, p. 2 – 3.

US dollar exchange rate set on the Central Bank’s Sayrafa platform.³⁸⁴ The new tariff will be introduced in a gradual manner once electricity supply is increased to between eight and ten hours per day. On November 3, 2022, EDL's board of directors issued decision number 420-26/2022 in which it specified that consumption for each kWh will be billed at \$0.1 for the first 100 kWh and \$0.27 for each additional kWh consumed above that threshold, in addition to \$0.21 per ampere for the circuit breaker box’s strength and a maintenance fee ranging from \$4.3 to \$8.6 . The decision also cancelled all special tariffs for the industrial, agricultural, and tourism sectors, specifying that \$0.27 will be billed for each kWh consumed regardless of the consumption range.³⁸⁵

- 5- Reforming the regulatory and legislative frameworks of the sector, including by appointing the members of the Electricity Regulatory Authority (ERA), the independent oversight body that will have the power to regulate and set tariffs, issuing licenses, and ensuring transparency and competition in the sector, as well as opening up EDL to private sector investment. The plan also calls for amendments to Law 462 to bring it in line with international standards and best practices, without specifying what those amendments will look like.

However, rights experts and energy experts have criticized the government’s 2022 electricity plan. The United Nations special rapporteur on extreme poverty and human rights, Olivier de Schutter, noted after his November 2021 visit to Lebanon that while some private sector involvement may improve transparency, the goal of private companies is maximizing profits as opposed to delivering basic services. He also noted that while the government’s plan assumes the private sector will finance new infrastructure, such an assumption is “unrealistic,” as 80 percent of total investments in energy infrastructure globally comes from public resources. He called for a “more realistic plan.”³⁸⁶

³⁸⁴ Sayrafa is a new electronic platform developed by the Central Bank that is intended to record all Lebanese Pounds foreign exchange transactions into any other foreign currency, carried out by all persons and entities licensed to do so. The purpose of this platform is to identify the exchange rates at any point in time and to allow the Central Bank to supervise and intervene when needed.

³⁸⁵ “Zahle Electricity Receives a Decision to Raise the Price from EDL... Here is the New Price” (in Arabic), Zahle Politics, November 16, 2022, <https://zahlepolitics.com/news/19697/> (accessed February 3, 2023).

³⁸⁶ Human Rights Council, “Visit to Lebanon: Report of the Special Rapporteur on Extreme Poverty and Human Rights, Olivier De Schutter,” April 24, 2022, p. 17, <https://reliefweb.int/report/lebanon/visit-lebanon-report-special-rapporteur-extreme-poverty-and-human-rights-olivier-de> (accessed February 3, 2023).

De Schutter also expressed concern about the impact that the increase in electricity tariffs will have on low-income communities. While the government’s plan assumes that the new tariff will provide 70 percent savings for moderate consumption households compared to the cost of private generators, de Schutter notes that people in deep poverty do not have access to generators, “rendering the comparison meaningless.”³⁸⁷ He called on the government to adopt a clear strategy to protect low-income earners from cost increases.³⁸⁸

Further, methane gas is ultimately unnecessary were Lebanon to be supported in a full and rapid transition to 100 percent renewable energy, a goal supported by international lending institutions, including the World Bank.³⁸⁹ During this transition, the full costs of gas must be considered, including the toll on human rights.³⁹⁰ While gas is less polluting when burned than oil, the fuels are produced in the same way, sharing many of the same human rights harms to local communities at the points of exploration, production and transport, including to health, life, land and water rights, and the right to a sustainable environment.³⁹¹ Liquefied Natural Gas (LNG) also carries health harms to local communities at the points of export and import, and, like much of the fossil fuel sector, has routinely

³⁸⁷ Lebanese Republic Ministry of Energy and Water, *Setting Lebanon’s Electricity Sector on a Sustainable Growth Path*, p. 3.

³⁸⁸ Human Rights Council, “Visit to Lebanon: Report of the Special Rapporteur on Extreme Poverty and Human Rights, Olivier De Schutter,” p. 17.

³⁸⁹ Mark Z. Jacobson, “A Solution to Global Warming, Air Pollution, and Energy Insecurity for Lebanon,” Stanford University, <https://web.stanford.edu/group/efmh/jacobson/Articles/I/145Country/21-WWS-Lebanon.pdf> (accessed January 31, 2023); Mark Z. Jacobson, *100% Clean, Renewable Energy and Storage for Everything*, (Cambridge: Cambridge University Press, 2020); Demetrios Papatthaniou, “Renewables are the Key to Green, Secure, Affordable Energy,” World Bank, June 21, 2022, <https://blogs.worldbank.org/energy/renewables-are-key-green-secure-affordable-energy> (accessed January 31, 2023).

³⁹⁰ Richard Pearshouse, “OPINION: A Human Rights Agenda for Ending Fossil Fuels,” Thomson Reuters Foundation, April 22, 2022, <https://news.trust.org/item/20220421150140-rj8xt/> (accessed January 31, 2023).

³⁹¹ “Natural Gas Explained,” U.S. Energy Information Administration, November 7, 2022, <https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php#:~:text=Well%20drilling%20activities%20produce%20air,large%20volumes%20of%20contaminated%20water.> (accessed January 31, 2023); Philip J. Landrigan, Howard Frumkin, and Brita E. Lundberg, “The False Promise of Natural Gas,” *The New England Journal of Medicine*, January 9, 2020, <https://www.nejm.org/doi/full/10.1056/NEJMp1913663> (accessed January 31, 2023); “Myanmar: Total Energies Withdraws; Junta Gains,” Human Rights Watch news release, July 9, 2022, <https://www.hrw.org/news/2022/07/19/myanmar-totalenergies-withdraws-junta-gains>; Michael Page, “The US Must Pivot to Renewable Energy and End its Reliance on Petro Autocrats,” *Middle East Eye*, April 6, 2022, <https://www.middleeasteye.net/opinion/us-renewable-energy-pivot-end-reliance-petro-autocrats-why> (accessed January 31, 2023); “Oil Companies Help Fuel Abuses in Myanmar,” Human Rights Watch video, November 17, 2021, <https://www.hrw.org/video-photos/video/2021/11/18/oil-companies-help-fuel-abuses-myanmar>; Wendee Nicole, “On Wells and Wellness: Oil and Gas Flaring as a Potential Risk Factor for Preterm Birth,” *Environmental Health Perspectives* 128(11), November 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7682589/> (accessed January 31, 2023); Susan Phillips, “Children Living Near Pa. Fracking Sites are at Increased Risk of Leukemia, Study Finds,” *StateImpact Pennsylvania*, August 17, 2022, <https://stateimpact.npr.org/pennsylvania/2022/08/17/children-living-near-pa-fracking-sites-are-at-increased-risk-of-leukemia-study-finds/> (accessed January 31, 2023).

been located in already marginalized communities.³⁹² Natural gas is composed almost entirely of methane (and thus often referred to “methane gas”), a powerful greenhouse gas with a 20-year global warming potential 85 times that of CO₂.³⁹³ Methane is released at all stages of gas production and use, leaking from pipes and storage containers, and routinely flared or vented during operations in such vast amounts as to eliminate any purported climate advantages of gas over oil.³⁹⁴ Rather than serve as a “bridge” to renewable energy, gas has instead tended to act as a “block,” locking nations in with high upfront investments, subsidies, and transition costs that derail investments in renewables.³⁹⁵ Gas is often considered a requirement for regulating grid base load when not enough energy is available from renewables. But renewable energy storage via batteries and other devices has advanced so rapidly in capacity and cost savings (though cost remains the largest hurdle), that this argument for gas is increasingly losing merit, especially when combined with energy efficiency measures.³⁹⁶ Renewables ultimately require less overall energy production, employ more people than fossils, save money in health and climate costs, and

³⁹² The Environmental Integrity Project, *Troubled Waters for LNG: The Covid-19 Recession and Overproduction Derail Planned Construction of Liquefied Natural Gas Terminals*, October 5, 2020, <https://environmentalintegrity.org/wp-content/uploads/2020/10/LNG-Report-10.5.20-updated.pdf> (accessed January 31, 2023).

³⁹³ “Methane Management: The Challenge,” United Nations Economic Commission for Europe, <https://unece.org/challenge> (accessed January 31, 2023).

³⁹⁴ International Energy Agency, *The Energy Security Case for Tackling Gas Flaring and Methane Leaks*, June 2022, <https://iea.blob.core.windows.net/assets/9414ec9a-bbba-4592-b005-4af05c894bdc/Theenergysecuritycasefortacklinggasflaringandmethaneleaks.pdf> (accessed January 31, 2023); World Bank, “Global Gas Flaring Reduction Partnership (GGFR): Gas Flaring Data,” n.d., <https://www.worldbank.org/en/programs/gasflaringreduction/global-flaring-data> (accessed January 31, 2023); Nicole, “On Wells and Wellness”; Wesley Blundell and Anatolii Kokoza, “Natural Gas Flaring, Respiratory Health, and Distributional Effects,” *Journal of Public Economics* (2018), April 2022, <https://www.sciencedirect.com/science/article/abs/pii/S0047272722000032?via%3Dihub> (accessed January 31, 2023); “How Secretive Methane Leaks Are Driving Climate Change,” United Nations Environment Programme, July 19, 2022, <https://www.unep.org/news-and-stories/story/how-secretive-methane-leaks-are-driving-climate-change> (accessed January 31, 2023); Greg Muttitt, “Gas Is Not a Bridge Fuel, It’s a Wall. So Why Are Governments Still Financing It?” International Institute for Sustainable Development, June 10, 2021, <https://www.iisd.org/articles/gas-bridge-fuel> (accessed January 31, 2023); Jacobson, *100% Clean, Renewable Energy and Storage for Everything*, p. 88; Benjamin Hmiel, V.V. Petrenko, M.N. Dyonisius, et al, “Preindustrial ¹⁴CH₄ indicates greater anthropogenic fossil CH₄ emissions,” *Nature* (578), February 19, 2020, <https://www.nature.com/articles/s41586-020-1991-8#citeas> (accessed January 31, 2023).

³⁹⁵ “Q&A on Fossil Fuel Subsidies,” Human Rights Watch, <https://www.hrw.org/news/2021/06/07/qa-fossil-fuel-subsidies>; Xiaochun Zhang, Nathan P. Myhrvold, Zeke Hausfather, and Ken Caldeira, “Climate Benefits of Natural Gas as a Bridge Fuel and Potential Delay of Near-Zero Energy Systems,” *Applied Energy* (167), April 1, 2016, <https://www.sciencedirect.com/science/article/pii/S030626191501243X?via%3Dihub> (accessed January 31, 2023); Muttitt, “Gas Is Not a Bridge Fuel, It’s a Wall”; Philip J. Landrigan, Howard Frumkin, and Brita E. Lundberg, “The False Promise of Natural Gas,” *The New England Journal of Medicine*, January 9, 2020, <https://www.nejm.org/doi/full/10.1056/NEJMp1913663> (accessed January 31, 2023).

³⁹⁶ Landrigan, Frumkin, and Lundberg, “The False Promise of Natural Gas”; Jacobson, *100% Clean, Renewable Energy and Storage for Everything*, p. 89.

provide greater energy security—operational as close as your own home.³⁹⁷ If Lebanon chooses to utilize gas in the energy transition, the government should put in place limitations on use and protections to ensure a rapid transition is both possible and visible to potential renewable energy backers and investors and that human rights are protected from harm. Dr. Mark Jacobson told Human Rights Watch, “Using gas as an intermediary results in gas locked into the country for decades to come. It should be avoided at all costs. Money should be spent on renewables.”³⁹⁸

Marc Ayoub, the coordinator of the Issam Fares Institute’s Energy Policy and Security program, also raised concerns about the government’s 2022 electricity sector plan. While Ayoub recognized that the plan makes some unprecedented admissions, including the necessity of appointing the ERA and implementing Law 462, he said that a comprehensive reading of the plan revealed purposeful “ambiguity” and “craftiness.”³⁹⁹ In particular, Ayoub said that the plan appears to be more a “tick box exercise” for the World Bank rather than a realistic plan that can be implemented in Lebanon’s current context. He noted that the plan mentions revising Law 462, which called for the creation of the ERA, without specifying what those amendments are. His concern was that potential changes in the law would target the ERA and decrease its powers, making it more of a consultative body rather than an independent and autonomous entity.⁴⁰⁰

More generally, Ayoub raised concerns about the plan’s prospects for implementation, given that it requires significant private sector investments that will be hard to realize given Lebanon’s current economic crisis.⁴⁰¹ He told Human Rights Watch, “who is going to finance power plants or utility scale solar [projects] if they don’t know at which exchange

³⁹⁷ Jacobson, “A Solution to Global Warming, Air Pollution, and Energy Insecurity for Lebanon”; Antonia Juhasz, “To Keep the Lights On, New Orleans’ Grid Needs to Change—Here’s How,” *National Geographic*, September 8, 2021, <https://www.nationalgeographic.com/environment/article/to-keep-the-lights-on-new-orleans-grid-needs-to-change-here-is-how> (accessed January 31, 2023); Jacobson, *100% Clean, Renewable Energy and Storage for Everything*.

³⁹⁸ Human Rights Watch email correspondence with Dr. Mark Jacobson, November 8, 2022.

³⁹⁹ Human Rights Watch interview with Marc Ayoub, coordinator of the Issam Fares Institute’s Energy Policy and Security program, Remote, August 16, 2022. See also: Marc Ayoub, “The Electricity Plan in its Third Version: Intentional Wit and Ambiguity” (in Arabic), *Al-Akhbar*, March 21, 2022, <https://al-akhbar.com/Issues/333305/%D8%AE%D8%B7-%D8%A9-%D8%A7%D9%84%D9%83%D9%87%D8%B1%D8%A8%D8%A7%D8%A1-%D8%A8%D9%86%D8%B3%D8%AE%D8%AA%D9%87%D8%A7-%D8%A7%D9%84%D8%AB%D8%A7%D9%84%D8%AB%D8%A9-%D8%AA%D8%B0%D8%A7%D9%83-%D9%88%D8%BA%D9%85%D9%88%D8%B6-%D9%85%D9%82%D8%B5%D9%88> (accessed February 3, 2023).

⁴⁰⁰ Ibid.

⁴⁰¹ Ibid.

rate they will be paid? These are 25-year projects, they will be selling at a specific price for years to come. The environment is not conducive to investments.”⁴⁰²

⁴⁰² Ibid.

The Way Forward

Lebanon has a rare opportunity to radically transform the dilapidated electricity sector into one that is fairer, greener, and respects the rights of all. In the past, Lebanon has relied on temporary and expensive stop-gap measures to address problems within the sector, but the current economic crisis has exposed the unsustainability and costs of doing so. Lebanon should therefore use this opportunity to address the structural and governance issues within the electricity sector, while also urgently increasing its generation capacity and ensuring that everyone has access to continuous affordable electricity.

As a first step, Lebanon should increase transparency and accountability within the electricity sector by implementing the long-stalled Law 462 which establishes an independent and autonomous body, the Electricity Regulatory Authority (ERA), to provide technical oversight over the sector and decrease the dominance that the executive currently has over the sector. The council of ministers has so far failed to implement the law by declining to appoint the members of the ERA.

In parallel, Lebanon should immediately increase its generation capacity in order to increase the hours of state electricity provided to residents. Since more than 60 percent of Lebanon's existing power plants can run on methane gas, the government has said that it will seek to import gas and install floating storage regasification units (FSRUs) to supply existing power plants with gas. Lebanon should also decommission the old, inefficient, and highly-polluting power plants that cannot be switched to methane gas and immediately launch a transparent and competitive procurement process for new permanent power plants.

Electricity generated from renewable sources, particularly solar and wind, should play a key role in Lebanon's energy mix through the procurement and installation of utility-scale and localized wind and solar farms. To that end, Lebanon should develop the regulatory systems necessary to ensure appropriate siting and safety, to manage grid stability issues, and to ensure quality and efficiency that meet the latest technical standards. Lebanon's parliament should also quickly adopt the draft law on distributed renewable energy generation, which has already been approved by the cabinet, that would increase the

financial attractiveness for small-scale solar, further contributing to the development of an environment conducive for widespread adoption of solar. According to the International Renewable Energy Agency, if Lebanon achieves its modest 30 percent renewable energy consumption by 2030, it could save \$250 million per year in the power sector, mainly through avoiding fossil fuel imports. Lebanon, and the international financial institutions working with it, should ensure that any long-term funding towards the electricity sector should be focused on a full transition to renewable sources.

In the medium-term, Lebanon should improve governance, transparency, and accountability within the electricity sector by establishing an infrastructure planning department within the Ministry of Energy and developing a planning framework that involves and redefines the roles of all major stakeholders at various stages of the planning process. Lebanon should also make EDL's operations more modern and efficient by improving EDL's external and internal governance arrangements, strengthening EDL's core business operations, and improving EDL's administrative performance. Lebanon should also seek to decrease technical and non-technical losses in the network through upgrading its transmission network and improving bill collection.

While it is unavoidable that Lebanon will have to increase its artificially low electricity tariffs, tariffs should be progressive and in line with improvement in supply. Crucially, Lebanon should not increase tariffs before beefing up its social protection system so that low-income households can afford to pay for electricity without this expense compromising their ability to afford other essentials, such as food, medical care, and water. Lebanon should also ensure that no one's electricity supply is cut off due to an inability to pay.

In the immediate term, Lebanon should regulate and enforce the regulation of the private generator business to protect consumers from paying inflated tariffs that prevent many people, especially those with low incomes, from enjoying continuous electricity. This should include setting a diesel generator tariff for all types of generators, and providing licenses and permits only to those generator owners who satisfy certain prerequisites, such as the installation of meters, and filters to reduce emissions.

Throughout the process of reforming and restructuring the electricity sector, the Lebanese authorities should ensure that the public and civil society organizations are meaningfully

consulted, and that decisions that impact the population are communicated clearly. Such measures are vital to improve the trust deficit between the authorities and the public.

International financial institutions, including the International Monetary Fund (IMF), have made reforming the electricity sector a key pillar of any large-scale assistance to Lebanon. These institutions should urge the Lebanese government to reform the electricity sector while ensuring that those measures do not exacerbate inequality in the country and explicitly recognize and respect residents' rights to electricity, a healthy environment, and an adequate standard of living, including giving everyone an effective remedy when these rights are violated.

Access to safe, clean, accessible, and affordable electricity should be recognized in international legislation and national standards as a fundamental human right. The Committee on Economic, Social and Cultural Rights should recognize access to clean and affordable electricity as an independent human right and draft a General Comment on the right to electricity, emphasizing the social, economic, and gender dimensions associated with electricity access. Lebanon should enshrine the right to electricity in the constitution.

The Case for a Right to Electricity

International Standards

Right to Electricity

Article 11 of the International Covenant on Economic, Social and Cultural Rights recognizes the “right of everyone to an adequate standard of living ... including adequate food, clothing and housing, and to the continuous improvement of living conditions.” While Article 11 does not explicitly recognize a right to electricity, electricity is essential to ensuring an adequate standard of living. Lebanon is a prime example of the human rights implications when electricity is not guaranteed.

Human Rights Watch thus recognizes that the internationally-protected right to an adequate standard of living includes the right of everyone, without discrimination, to sufficient, reliable, safe, clean, accessible, and affordable electricity. Access to electricity is critical to ensuring other basic rights, including but not limited to the rights to health, housing, water, and education.

Some international or regional human rights bodies have explicitly referred to a right to energy or electricity. Those human rights bodies that have addressed this include the African Commission on Human and Peoples’ Rights (ACHPR) in its decision in *Free Legal Assistance Group and Others v. Zaire* (1995); the United Nations Committee on the Elimination of Discrimination against Women (CEDAW Committee) in General Recommendation No. 24 (1999); the European Committee of Social Rights (ECSR), drawing from the Council of Europe’s revised European Social Charter (1996); and the UN special rapporteur on adequate housing as a component of the right to an adequate standard of living in a 2002 report.⁴⁰³

⁴⁰³ *Free Legal Assistance Group and Others v. Zaire*, African Commission on Human and Peoples' Rights, Comm. No. 25/89, 47/90, 56/91, 100/93 (1995), http://hrlibrary.umn.edu/africa/comcases/25-89_47-90_56-91_100-93.html; UN Committee on the Elimination of Discrimination against Women (CEDAW Committee), General Recommendation No. 24: Article 12 of the Convention (Women and Health), 1999, A/54/38/Rev.1, chap. I, <https://www.refworld.org/docid/453882a73.html>; Council of Europe, European Social Charter (Revised), 1996, European Treaty Series No. 163, 3.V.1996, <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=090000168007cf93>; UN Office of the High Commissioner on Human Rights (OHCHR), Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, 2002, E/CN.4/2002/59, <https://digitallibrary.un.org/record/460146?ln=en>.

In the ACHPR decision, the commission indicated a right to electricity by citing the Zaire government's failure to fulfill article 16 of the African Charter (the right to the best attainable state of physical and mental health). It held that, "States Parties should take the necessary measures to protect the health of their people," and "the failure of the Government to provide basic services such as safe drinking water and electricity ... constitutes a violation of Article 16."⁴⁰⁴

The right to electricity is addressed in article 14(2)(h) of the Convention on the Elimination of All Forms of Discrimination against Women, as part of the right of rural women to enjoy adequate living conditions. The CEDAW Committee's General Recommendation No. 24 examines this right with reference to women's access to health care, highlighting the obligation of states parties "to take all appropriate measures to ensure adequate living conditions, particularly housing, sanitation, electricity and water supply" to prevent disease and maintain health.⁴⁰⁵

In its 2015 concluding observations on Azerbaijan's fulfillment of article 16 of the revised European Social Charter, the Council of Europe states that states parties are obligated to provide adequate housing for families, "and ensure that existing housing be of an adequate standard and size considering the composition of the family in question, and include essential services (such as heating and electricity)."⁴⁰⁶

The 2002 UN special rapporteur report locates the right to electricity under the right to adequate housing. The report calls for international cooperation to assist states "to develop strategies for social justice and equitable distribution of development opportunities and benefits, including ... well-targeted social spending on essential civic services such as access to credit, potable water, electricity, heating, and sanitation."⁴⁰⁷ Additionally, the special rapporteur calls on states to promote "equal access to civil

⁴⁰⁴ *Free Legal Assistance Group and Others v. Zaire* (1995), para. 47.

⁴⁰⁵ CEDAW Committee, General Recommendation No. 24, para 28. CEDAW Committee, General Recommendation No. 34 also addresses the right of rural women to adequate living conditions, including electricity.

⁴⁰⁶ European Committee of Social Rights, Conclusions 2015 on Articles 7, 8, 16, 17, 19, 27 and 31 of the Charter, 2015, <https://rm.coe.int/1680593904>; Conclusions 2015, Azerbaijan, Article 16 – Right of the family to social, legal and economic protection; Housing for families (p. 27).

⁴⁰⁷ Report of the Special Rapporteur Mr. Miloon Kothari on Adequate Housing as a Component of the Right to an Adequate Standard of Living, 2002, para. 35, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/Go2/111/29/PDF/Go211129.pdf?OpenElement>.

services essential to the realization of the right to adequate housing – including potable water, electricity, and sanitation.”⁴⁰⁸

Access to Electricity as Necessary for Fulfilling Other Rights

Right to Adequate Housing and Health

The link between the right to adequate housing and the right to electricity is implied in the revised guidelines for states parties reports to the UN Committee on Economic, Social and Cultural Rights (CESCR).⁴⁰⁹ In the revised guidelines, the CESCR requires that states “[i]ndicate whether a national survey on homelessness and inadequate housing has been undertaken, as well as its findings, in particular the number of individuals and families ... without access to basic infrastructures and services such as water, heating, waste disposal, sanitation, and electricity.”⁴¹⁰

Prior to these revised guidelines, the CESCR had stated that the right to adequate housing should be broadly interpreted, and not be limited to the physical embodiment of a shelter. The CESCR’s General Comment No. 4 specifies that a component of adequate housing includes “sustainable access to natural and common resources, safe drinking water, energy for cooking, heating and lighting, sanitation and washing facilities, means of food storage, refuse disposal, site drainage and emergency services.” Electricity is a fundamental aspect of energy in the home, particularly in terms of safe drinking water, cooking, heating, lighting, and food storage; as such, a potential strategy of states to ensure these components could be to provide universal affordable access to electricity.

Access to electricity under the right to adequate housing can also be linked to the right to health. The CESCR recognizes the right to adequate housing as being a necessary component of the right to the highest obtainable standard of health. The CESCR’s General Comment No. 14 states that the right to health is an “inclusive right extending ... to the underlying determinants of health, such as access to safe and potable water and sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and

⁴⁰⁸ Ibid., para. 46.

⁴⁰⁹ Committee on Economic, Social and Cultural Rights (CESCR), Revised General Guidelines Regarding the Form and Contents of Reports to be Submitted by States Parties under Articles 16 and 17 of the ICESCR, 2009, E/C.12/2008/224, <https://bit.ly/2JrwqUy>.

⁴¹⁰ Revised General Guidelines (2009) under Article 11(d), The right to adequate housing, para. 50.

information.”⁴¹¹ As with General Comment No. 4, the CESCR identifies the state’s obligation to “ensure equal access for all to the underlying determinants of health, such as nutritiously safe food and potable drinking water, basic sanitation and adequate housing and living conditions.”⁴¹²

Rights of Persons with Disabilities

Rights to Adequate Standard of Living and to Independent Living for Persons with Disabilities

In its General Comment No. 5 (1994) on persons with disabilities, the CESCR stresses that regarding article 11, the right to an adequate standard of living not only includes having equal access to adequate food, accessible housing, and other basic material requirements, but also the availability of support services and assistive devices and technologies fully respecting the human rights of persons with disabilities.⁴¹³

Assistive devices and technology often require electricity to function, such as power wheelchairs, scooters, hearing aids, braille displays and other communication aids, CPAP machines, prosthetics, ventilators, and other personal assistance devices. For people with disabilities living in an urban context, the electricity also dictates whether elevators work, impacting their ability to leave their homes, move around, and participate in the community.

The Convention on the Rights of Persons with Disabilities (CRPD) recognizes the rights to live independently and be included in the community (article 19), to personal mobility (article 20) and to an adequate standard of living and social protection (article 28).⁴¹⁴ Article 20 in particular obliges State Parties “to take effective measures to ensure personal mobility with the greatest possible independence for persons with disabilities.” CRPD Committee General Comment No. 5 on the right to live independently specifies the links between adequate standard of living and access to assistive devices, many of which require electricity.

⁴¹¹ Ibid.

⁴¹² CESCR, General Comment No. 14, para. 36.

⁴¹³ CESCR, General Comment No. 5: Persons with Disabilities, 1994, E/1995/22, para. 33.

⁴¹⁴ Convention on the Rights of Persons with Disabilities, UN General Assembly A/RES/61/106, adopted December 2007. art. 28(a).

The CRPD General Comment No. 5 states that: “To ensure that persons with disabilities enjoy an adequate standard of living (article 28), States parties should provide, inter alia, access to support services that enable them to live independently. Therefore, there is an obligation on the part of States parties to ensure access to appropriate and affordable services, devices and other assistance for impairment-related requirements, especially for those persons with disabilities who live in poverty.”⁴¹⁵

In the general comment, the CRPD Committee also specifies the provision of assistive devices as essential to the right to live independently on its own: “The provision of affordable and available quality mobility aids, devices, assistive technologies ... is a precondition for the full inclusion and participation of persons with disabilities in their respective communities.”⁴¹⁶

The CRPD has also identified electricity in its concluding observations, calling for “concrete measures to enable persons with disabilities to enjoy a decent standard of living, including by guaranteeing access to drinking water, electricity and sanitation, and to mitigate the impact of disability-related poverty.”⁴¹⁷

Right to Adequate Food

The right to adequate food, similar to the right to adequate housing, can be supported by access to electricity. The CESCR General Comment No. 12 on the right to adequate food sets out standards for food safety.⁴¹⁸ Specifically, it requires both public and private protective measures to “prevent contamination of foodstuffs through adulteration and/or through bad environmental hygiene or inappropriate handling at different stages throughout the food chain.”⁴¹⁹ While electricity is not explicitly referenced, refrigeration

⁴¹⁵ CRPD, General Comment No. 5: The right to independent living (article 19 of the CRPD) August 29, 2017, CRPD/C/18/1, para. 92. See also paras. 76 and 84, https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CRPD/C/GC/5&Lang=en.

⁴¹⁶ *Ibid.*, para. 84.

⁴¹⁷ CRPD, Concluding observations on the initial report of Panama, September 29, 2017, <http://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=6QkG1d%2fPPRiCAqhKb7yhskTwBiKMvzhkwCSGwFpNyyEHG lzJaXN2e1DPkfd4EBzoKSt%2bVtyWs7bNwZhd%2bBV8GySd3DhYah6QU43FrVKzU8hhLIDEl9n8cV2W9FldEFOV>.

⁴¹⁸ CESCR, General Comment No. 12: The Right to Adequate Food (art. 11), 1999, E/C.12/1999/5, <https://www.refworld.org/pdfid/4538838c11.pdf>.

⁴¹⁹ CESCR, General Comment No. 12, para. 10.

dependent upon electricity is a useful and necessary method of preventing types of contamination.⁴²⁰

Right to Electricity and Access to Internet in a Covid-19 Context

The CESCR statement regarding the Covid-19 pandemic specifically calls on states to mitigate the negative impacts of the pandemic on vulnerable groups.⁴²¹ Some of these measures include access to the internet and accessible information. On access to the internet, the CESCR calls on states to “adopt special, targeted measures, including through international cooperation ... [s]uch measures include ... ensuring affordable and equitable access to Internet services by all for educational purposes.”⁴²² The CESCR also calls on states to ensure that accurate and accessible information regarding the pandemic be “provided on a regular basis, in an accessible format.” One component of this is to “expedite access to affordable internet services and vital technical equipment for all students, particularly those in poorer communities and regions, so that they can benefit equally from online learning programmes.”⁴²³ The call for accessible internet, both as a tool to facilitate education and access to information, would directly require states to ensure access to affordable electricity to all.

Electricity and the Environment Including Climate Change

Human Rights Watch acknowledges that states should adopt and implement robust and rights-respecting climate mitigation and adaptation policies that are consistent with the best available science. The interplay between access to and production and supply of electricity and climate change is complex. The use of fossil fuels to generate electricity is one of the greatest contributions to the greenhouse gas emissions causing climate change. Most electricity (approximately two-thirds) is produced at present by fossil fuels. More electricity use means more greenhouse gas emissions, unless that electricity comes from clean, low-emitting sources.

⁴²⁰ See Stephen R. Tully, “The Contribution of Human Rights to Universal Energy Access,” *Nw. J. Hum. Rts.*, vol. 4, no. 518, 2006, p. 540, <https://scholarlycommons.law.northwestern.edu/njihr/vol4/iss3/3>.

⁴²¹ CESCR, Statement on the coronavirus disease (COVID-19) pandemic and economic, social and cultural rights, 2020, E/C.12/2020/1, <https://undocs.org/E/C.12/2020/1>.

⁴²² CESCR, Statement on the coronavirus disease, para. 15.

⁴²³ CESCR, Statement on the coronavirus disease, para. 18.

Human Rights Watch has conducted research on both the harmful impacts of a changing climate on vulnerable populations and the damage caused including to health and the environment by the fossil fuel industry.⁴²⁴ Human Rights Watch also recognizes that in places where electricity is generally unavailable or unreliable, many residents and businesses rely on diesel generators to produce electricity or use high-polluting cooking fuels, which also contribute to climate change. When advocating for recognition of a right to electricity, it is critical that states are pressed to meet this obligation through the generation of electricity in low-polluting, low-emitting, and rights-respecting ways essential for the fulfilment of rights for future generations, and not in ways that will exacerbate climate change.

Electricity Generation and Business Responsibility to Respect and Protect Human Rights

The role of private companies in global energy generation, including through public-private partnerships, is substantial, and is likely to increase as efforts to move towards to renewable, clean energy increase. It is therefore essential that all businesses involved in the generation, supply, and distribution of energy, including electricity, are held accountable to their human rights responsibilities, in particular as they are set out in the UN Guiding Principles on Business and Human Rights. The Guiding Principles provide that businesses have a responsibility to identify and address risks and impacts that their activity could have a detrimental effect on the full range of human rights. The impacts include those related to labor rights, the environment, climate change, and corruption. For energy companies, measures they could be expected to take to fulfill their human rights responsibilities include:

- Investing in the transition to clean energy generation in line with the responsibility to address their contribution to climate change.
- Using the best available technology to minimize air and noise pollution from energy generation.

⁴²⁴ See for example “Canada: Climate Crisis Toll on First Nations’ Food Supply,” Human Rights Watch, October 21, 2020, <https://www.hrw.org/news/2020/10/21/canada-climate-crisis-toll-first-nations-food-supply>; “Canada: Disastrous Impact of Extreme Heat,” Human Rights Watch, October 5, 2021, <https://www.hrw.org/news/2021/10/05/canada-disastrous-impact-extreme-heat>; “An Australian Community’s Struggle with Rising Heat Is a Warning to Us All,” Video, Human Rights Watch, March 22, 2022, <https://www.hrw.org/video-photos/interactive/2022/03/22/feeling-heat-australian-communitys-struggle-rising-heat-warning>.

- Respecting and protecting right to consultation when infrastructure projects such as dams are planned on their land.
- Ensure that energy is accessible and affordable for all consumers, including those with the lowest incomes.

States' Obligations Under a Right to Electricity

States have a duty to ensure that everyone in their territory or jurisdiction has access to electricity. This means ensuring adequate and sustainable electricity generation, supply, and international cooperation to ensure reliable, affordable, available electricity for the end user.

In meeting obligations to ensure the production and supply of adequate electricity, states should not violate other rights, such as the right to health and the right to a healthy environment. States should also ensure that their policies aimed at producing and supplying electricity are consistent with meeting their obligation to address climate change, including transitioning from fossil fuels as a source for generating electricity to renewable fuel sources.

States should take all necessary action to ensure everyone's access to energy is met through renewable supplies of electricity, and pursue through laws, policies, and other measures practices that minimize the impact on the environment and human rights of electricity production, supply, and use.

States should ensure that private sector entities, such as generator owners, are regulated appropriately to ensure the right to electricity for everyone.

If the existing methods of production or supply fail to ensure reliable affordable electricity for everyone, the state remains obligated to take action to ensure such access to electricity, including by permitting alternative forms of generation or supply, or permitting supply from other countries. The state should ensure that these alternatives are consistent with other human rights obligations.

Acknowledgements

This report was written and researched by Aya Majzoub, former Lebanon researcher in the Middle East and North Africa division, Brian Root, senior quantitative analyst, and Lena Simet, senior researcher and advocate on poverty and inequality in the Economic Justice and Rights division. Felix Horne and Antonia Juhasz, senior researchers with the Environment and Human Rights division contributed to this report. Charbel Salloum, senior research assistant in the Middle East and North Africa division, provided substantive research assistance and also contributed to the report.

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Annex I: Letter to Lebanon’s Caretaker Prime Minister

Najib Mikati
Caretaker Prime Minister
Beirut, Lebanon

November 17, 2022

Dear Prime Minister Mikati,

I am writing to you on behalf of Human Rights Watch to share with you some preliminary findings from our research into the rights impacts of the ongoing electricity crisis in Lebanon, and to ask for your input and responses to our questions.

It is our established practice to give relevant authorities the opportunity to provide information and to seek comment from the authorities in the interest of thorough and objective reporting. Due to our publication deadlines, we request that you provide responses to our questions and any other information you wish to provide by December 5, 2022. In addition, we would like to request a meeting to discuss our findings and recommendations in person at your earliest convenience.

Human Rights Watch is an impartial, nongovernmental organization that reports on human rights conditions in some 100 countries, including Lebanon.

Human Rights Watch commissioned a household survey with a local firm, the Consultation and Research Institute (CRI), who conducted a household survey with a representative sample of 1,219 Lebanese households. The survey, which was administered between November 2021 and January 2022, asked households about their levels of access to electricity, payment of electricity bills, willingness to pay, policy preferences, economic standing, and the effects of electricity shortages on the household. We also

conducted qualitative research, including interviews with energy specialists, a review of relevant literature, and media articles, into the failures of the Lebanon's electricity sector and its impact on health and the environment.

The household survey results made clear that the electricity crisis is exacerbating inequality, pushing people into poverty, hindering access to basic rights like food, water, and health, and causing extensive air pollution that is affecting the environment and the population's health. Some of key findings from the survey include:

- 1) Between November 2021 and January 2022, the median household only received electricity from EDL for about 10 percent of the day, or about 2-3 hours.
- 2) The median household monthly income is only \$122, and 70% of households said they had difficulty making ends meet or were always behind on basic expenses.
- 3) Among the poorest 20 percent of households, one in five do not have access to a generator. This compares to only one out of 50 of the wealthiest 20 percent of households.
- 4) Low-income households spend a much larger share of their income on generator bills compared to wealthier ones, straining family budgets and putting them at greater risk of falling behind on other essential expenses. We found that the average household had generator bills that accounted for 44 percent of monthly income. The disparities between income levels are huge. For those in the bottom 20% of income, their generator bills consumed 88 percent of their monthly income, on average, compared to 21 percent for the top quintile.
- 5) Access to generators and other electricity sources do not fully fill in the gap. Even accounting for generators, the average household still goes about 9 hours a day without any electricity from any source. The poorest quintile of households reported going without electricity for 11 hours per day on average compared with 6 hours on average for the wealthiest quintile of households.
- 6) Households are having to make difficult choices about how to make ends meet. In response to our survey, nearly nine out of ten households said the cost of electricity affected their ability to pay for other essential services. Two-thirds of residents have been unable to pay for heating. Over half unable to pay for tuition or school materials. More than two out of five homes have been unable to pay for medical care. Over a third unable to pay rent or mortgage.
- 7) Further, the electricity shortages were having a huge impact on people's rights:
 - a. Two-thirds have been unable to keep food refrigerated/frozen. A third of households have been unable to cook food because of shortages.
 - b. Nearly half of households said that electricity shortages affected their ability to receive water.

- c. One in four have been unable to participate in educational activities due to electricity shortages.
- d. Nearly two out of five households unable to heat/keep home at a safe temperature.

Based on our findings, we would be grateful for your responses to the following questions by December 5, 2022:

- 1) What steps is the government taking to fulfill the right to electricity?
- 2) What actions is the government taking to ensure everyone in Lebanon has access to reliable and affordable electricity, through either public or private means, and how long will it take to achieve this objective?
- 3) What plans or policies is the government enacting to transition to clean, environmentally sound energy and how long will it take to meet this objective? What role will the sizeable generator market play in this transition?
- 4) What are the main causes of the failure of the electricity sector to provide residents with reliable and around-the-clock electricity?
- 5) What do you see as the main obstacles towards reforming the electricity sector?
- 6) The 2022 Electricity Plan sets out a roadmap towards reform and mentions amendments to Law 462/2002, but it does not detail what those amendments are. What changes to the law are you seeking?
- 7) Has the government estimated the amount of money that is necessary to implement its 2022 Electricity Plan? Where does the government envision the funding will come from?
- 8) What steps is the government currently taking to increase the supply of electricity in Lebanon? What are the obstacles to the implementation of the deals agreed upon to import natural gas from Egypt and electricity from Jordan?⁴²⁵ Does the government have a timeline for the deals, what is the estimated cost of each deal to Lebanon per year, in USD, and how many hours of electricity will these deals provide per day?
- 9) What steps is the government taking to increase the share of renewables in Lebanon's energy mix and to meet international commitments to reach the renewable energy target of 30% of electricity consumed by 2030?
- 10) What steps is the government taking or planning to take in order to improve governance and transparency in the electricity sector and decrease corruption?

⁴²⁵ <https://www.mtv.com.lb/en/News/Local/1317121/egyptian-minister-of-petroleum-tells-fayad-egypt-ready-to-pump-natural-gas-to-lebanon-once-required-procedures-completed>; <https://www.reuters.com/world/middle-east/lebanon-jordan-agree-bring-electricity-through-syria-2022-01-26/>

- 11) Can you provide an update about two ongoing corruption cases related to the electricity sector, namely the Sonatrach tainted fuel scandal and the case against three individuals for receiving commissions related to the Karpowership contract?
- 12) Why have the members of the Electricity Regulatory Authority not been appointed yet, and what are the main reasons behind the long delay in appointing them? Where does the issue currently stand?
- 13) On November 1, EDL announced an increase in electricity tariffs.
 - a. How did the government decide the new pricing structure? Will the pricing structure be continually re-assessed, and how will changes in the international price of fossil fuels impact pricing in the future?
 - b. How were the new tariffs communicated to the public?
 - c. What steps will the government take to ensure that everyone in Lebanon, including the most economically disadvantaged, have access to reliable electricity?
 - d. Given that bill collection is currently lagging by at least several months, when will consumers start receiving bills according to this new pricing structure? What steps is the government taking to improve bill collection?
- 14) Lebanon's current social protection system is insufficient to address the acute economic crisis and ensure that people can afford basic rights such as food, healthcare, and education. What steps is the government taking to alleviate poverty in the country?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by December 5, 2022. We would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at beirut@hrw.org, by phone at XXX, or by fax at XXX.

Sincerely,

Lama Fakhri
Middle East and North Africa Director
Beirut Office Director
Human Rights Watch

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Annex II: Letter to Ministry of Energy and Water

Dr. Walid Fayad
Minister of Energy and Water
Beirut, Lebanon

November 17, 2022

Dear Dr. Fayad,

I am writing to you on behalf of Human Rights Watch to share with you some preliminary findings from our research into the rights impacts of the ongoing electricity crisis, and to ask for the ministry's input and responses to our questions.

It is our established practice to give relevant authorities the opportunity to provide information and to seek comment from the authorities in the interest of thorough and objective reporting. Due to our publication deadlines, we request that you provide responses to our questions and any other information you wish to provide by December 5, 2022. In addition, we would like to request a meeting to discuss our findings and recommendations in person at your earliest convenience.

Human Rights Watch is an impartial, nongovernmental organization that reports on human rights conditions in some 100 countries, including Lebanon.

Human Rights Watch commissioned a household survey with a local firm, the Consultation and Research Institute (CRI), who conducted a household survey with a representative sample of 1,219 Lebanese households. The survey, which was administered between November 2021 and January

2022, asked households about their levels of access to electricity, payment of electricity bills, willingness to pay, policy preferences, economic standing, and the effects of electricity shortages on the household. We also conducted qualitative research, including interviews with energy specialists, a review of relevant literature, and media articles, into the failures of the Lebanon's electricity sector and its impact on health and the environment.

The household survey results made clear that the electricity crisis is exacerbating inequality, pushing people into poverty, hindering access to basic rights like food, water, and health, and causing extensive air pollution that is affecting the environment and the population's health. Some of key findings from the survey include:

- 8) Between November 2021 and January 2022, the median household only received electricity from EDL for about 10 percent of the day, or about 2-3 hours.
- 9) The median household monthly income is only \$122, and 70% of households said they had difficulty making ends meet or were always behind on basic expenses.
- 10) Among the poorest 20 percent of households, one in five do not have access to a generator. This compares to only one out of 50 of the wealthiest 20 percent of households.
- 11) Low-income households spend a much larger share of their income on generator bills compared to wealthier ones, straining family budgets and putting them at greater risk of falling behind on other essential expenses. We found that the average household had generator bills that accounted for 44 percent of monthly income. The disparities between income levels are huge. For those in the bottom 20% of income, their generator bills consumed 88 percent of their monthly income, on average, compared to 21 percent for the top quintile.
- 12) Access to generators and other electricity sources do not fully fill in the gap. Even accounting for generators, the average household still goes about 9 hours a day without any electricity from any source. The poorest quintile of households reported going without electricity for 11 hours per day on average compared with 6 hours on average for the wealthiest quintile of households.
- 13) Households are having to make difficult choices about how to make ends meet. In response to our survey, nearly nine out of ten households said the cost of electricity affected their ability to pay for other essential services. Two-thirds of residents have been unable to pay for heating. Over half unable to pay for tuition or school materials. More than two out of five homes have been unable to pay for medical care. Over a third unable to pay rent or mortgage.
- 14) Further, the electricity shortages were having a huge impact on people's rights:

- a. Two-thirds have been unable to keep food refrigerated/frozen. A third of households have been unable to cook food because of shortages.
- b. Nearly half of households said that electricity shortages affected their ability to receive water.
- c. One in four have been unable to participate in educational activities due to electricity shortages.
- d. Nearly two out of five households unable to heat/keep home at a safe temperature.

Based on our findings, we would be grateful for your responses to the following questions by December 5, 2022:

- 15) What steps is the government taking to fulfill the right to electricity?
- 16) What is the ministry doing to ensure everyone in Lebanon has access to reliable and affordable electricity, through either public or private means, and how long will it take to achieve this objective?
- 17) What plans or policies is the government taking to transition to clean, environmentally sound energy and how long will it take to meet this objective? What role will the sizeable generator market play in this transition?
- 18) What are the main causes of the failure of the electricity sector to provide residents with reliable and around-the-clock electricity?
- 19) What does the ministry see as the main obstacles towards reforming the electricity sector?
- 20) The 2022 Electricity Plan sets out a roadmap towards reform and mentions amendments to Law 462/2002, but it does not detail what those amendments are. What changes to the law are you seeking?
- 21) Has the Energy Ministry estimated the amount of money that is necessary to implement its 2022 Electricity Plan? Where does the ministry envision the funding will come from?
- 22) What steps is the ministry currently taking to increase the supply of electricity in Lebanon? What are the obstacles to the implementation of the deals agreed upon to import natural gas from Egypt and electricity from Jordan?⁴²⁶ Does the ministry have a timeline for the deals, what is the estimated cost of each deal to Lebanon per year, in USD, and how many hours of electricity will these deals provide per day?

⁴²⁶ <https://www.mtv.com.lb/en/News/Local/1317121/egyptian-minister-of-petroleum-tells-fayad-egypt-ready-to-pump-natural-gas-to-lebanon-once-required-procedures-completed>; <https://www.reuters.com/world/middle-east/lebanon-jordan-agree-bring-electricity-through-syria-2022-01-26/>

- 23) What steps is the ministry taking to increase the share of renewables in Lebanon's energy mix and to meet international commitments to reach the renewable energy target of 30% of electricity consumed by 2030?
- 24) What steps is the ministry taking or planning to take in order to improve governance and transparency in the electricity sector and decrease corruption?
- 25) Why have the members of the Electricity Regulatory Authority not been appointed yet, and what are the main reasons behind the long delay in appointing them? Where does the issue currently stand?
- 26) On November 1, EDL announced an increase in electricity tariffs.
- a. How did the ministry decide the new pricing structure? Will the pricing structure be continually reassessed, and how will changes in the international price of fossil fuels impact pricing in the future?
 - b. How were the new tariffs communicated to the public?
 - c. What steps will the ministry take to ensure that everyone in Lebanon, including the most economically disadvantaged, have access to reliable electricity?
 - d. Given that bill collection is currently lagging by at least several months, when will consumers start receiving bills according to this new pricing structure? What steps is the ministry taking to improve bill collection?
- 27) What steps is the ministry taking or planning to take in order to improve EDL's administrative operations, including improving hiring practices and re-training staff?
- 28) A July 2020 investigation by Lebanon's judiciary uncovered a counterfeiting scheme that resulted in Lebanon purchasing billions of dollars of tainted, faulty fuel, from Sonatrach Petroleum Corporation BVI, with Ministry of Energy officials and individuals at testing labs receiving bribes to issue false reports indicating that the delivered fuel met international specifications.
- a. Has the ministry conducted its own internal investigation into how such a counterfeiting scheme went undetected for several years? If so, what are the main findings of this investigation, and can you share the resulting report with us? What disciplinary measures, if any, have been taken against the ministry officials and EDL staff members who were implicated in this scheme?
 - b. What measures has the ministry put in place to ensure that such corrupt practices do not occur again in the future?
 - c. Since the 2020 judicial investigation into Sonatrach and its intermediaries, has the Energy Ministry signed any new contracts with Sonatrach, BB Energy, or ZR Energy DMCC?

- d. Has the energy ministry conducted a study or investigation into the health impacts on residents of the burning of tainted fuel? If so, what did the investigation reveal, and can you share a copy of the report with us?
- 29) Investigations and a judicial probe into corruption and bribery related to the Karpowership contract revealed a suspicious tendering process that seemed designed to award Karpowership the contract for two power barges to supply Lebanon with power.
- a. Can you share the Karpowership contract with us?
 - b. On May 5, 2021, the financial public prosecutor, Judge Ali Ibrahim, seized the barges following an episode that aired on Al Jadeed TV revealing that the state paid a commission of \$6 million under the guise of “environmental advisory services.” Inexplicably, the seizure of the barges was lifted and they departed in early October 2021 with the contract’s expiry. Can you provide us with information as to why the seizures on the barges were lifted?
 - c. Experts have criticized the leasing of two power barges from Karpowership for costing the state more than \$1.5 billion and have said that for a slightly greater sum of money, Lebanon could have built three new power plants. What is your assessment of this claim?
- 30) Since the beginning of the electricity crisis in the summer of 2021, what steps has the energy ministry taken to regulate the private generator market and ensure that consumers were not being overcharged?
- a. In September 2021, the ministry attempted to mandate that generator owners install meters and charge based on the rates set by the Energy Ministry. How has the ministry enforced these decisions, and what is the level of compliance today?
- 31) Between 2010 and 2022, how many tons of diesel did the state import per year? How much money, in USD, did the state spend on these diesel imports per year?
- 32) Between 2010 and 2022, how many tons of fuel for EDL did the state import per year? How much money, in USD, did the state spend on these fuel imports per year?
- 33) Between October 2019 and October 2022, how much money did the state spend on fuel subsidies? Then-minister Raymond Ghajar stated that some of the subsidized fuel was being smuggled to Syria and sold at higher prices.⁴²⁷ Has the ministry

⁴²⁷ <https://www.france24.com/en/live-news/20210415-lebanese-minister-blames-fuel-shortages-on-smuggling-to-syria>;
<https://daraj.com/en/84699/>

- conducted an investigation into these allegations, and if so, can you share the results with us?
- 34) How much money has the Finance Ministry transferred to EDL between 2019 and 2022 in USD per year?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by December 5, 2022. We would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at XXX, by phone at XXX, or by fax at XXX.

Sincerely,

Lama Fakhri
Middle East and North Africa Director
Beirut Office Director
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Annex III: Letter to Ministry of Health

Dr. Firas Abiad
Minister of Health
Beirut, Lebanon

November 17, 2022

Dear Dr. Abiad,

I am writing to you on behalf of Human Rights Watch to ask for the Ministry’s input and responses to our questions regarding the health impacts of the electricity sector.

It is our established practice to give relevant authorities the opportunity to provide information and to have that information and point of view reflected in the reports that we publish. We will endeavor to reflect any relevant information you send us into our report, provided we receive it by December 5, 2022.

Human Rights Watch is an impartial, nongovernmental organization that reports on human rights conditions in some 100 countries around the world, including Lebanon.

We would be grateful for your responses to the following questions by December 5, 2022:

- 1) Has the ministry conducted or commissioned studies on the short and long-term health impacts of Lebanon’s power plants and/or the prevalence of private diesel generators? If so, can you share those studies with us?
- 2) Do you have any data about the increases in incidences of diseases or symptoms associated with air pollution, including respiratory and cardiovascular problems, since the electricity crisis began in the summer of 2021?

- 3) Have you developed any guidelines or informational campaigns to ensure residents in the vicinities of power plants and in densely packed urban areas are informed about the extent of air pollution from the burning of fossil fuels and possible health consequences?
- 4) Has the health ministry been tracking the health impacts on residents when their electricity supply is denied or disrupted, in homes and in hospitals?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by December 5, 2022. We would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at XXX, by phone at XXX, or by fax at XXX.

Sincerely,

Lama Fakhri
Middle East and North Africa Director
Beirut Office Director
Human Rights Watch

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Annex IV: Letter to Ministry of Environment

Dr. Nasser Yassin
Minister of Environment
Beirut, Lebanon

November 17, 2022

Dear Dr. Yassin,

I am writing to you on behalf of Human Rights Watch to ask for the Ministry’s input and responses to our questions regarding the health and environmental impacts of the electricity sector, and to request a meeting to discuss our findings and recommendations in person.

It is our established practice to give relevant authorities the opportunity to provide information and to have that information and point of view reflected in the reports that we publish. We will endeavor to reflect any relevant information you send us into our report, provided we receive it by December 5, 2022.

Human Rights Watch is an impartial, nongovernmental organization that reports on human rights conditions in some 100 countries around the world, including Lebanon.

We would be grateful for your responses to the following questions by December 5, 2022:

- Has the ministry conducted its own studies on the health and environmental impacts of Lebanon’s power plants and/or the prevalence of private diesel generators? If so, can you share those studies with us?

- What plans, policies, or initiatives is the ministry currently working on to decrease the adverse health and environmental impacts of the electricity sector and work towards a greener and more sustainable sector?
- What steps is the ministry taking to meet Lebanon’s commitment to reach 30% of electricity consumed from renewable sources by 2030?
- What steps, if any, has the ministry taken to decrease air pollution from private generators, such as the issuing of guidelines on where generators can be placed or the types of generators that can be used?
- For the last few years, the ministry’s air pollution monitors have been offline. Effective monitoring of air quality is necessary to assess and mitigate risks to human health from dangerous levels of air pollution. Is the ministry taking any steps to operationalize those monitors? If not, why not?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by December 5, 2022. We would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at XXX, by phone at XXX, or by fax at XXX.

Sincerely,

Lama Fakih
Middle East and North Africa Director
Beirut Office Director
Human Rights Watch

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Annex V: Letter to Lebanese Civil Defense

Brig. Gen. Raymond Khattar
Director General
General Directorate of the Lebanese Civil Defense
Beirut, Lebanon

May 31, 2022,

Dear General Khattar,

Human Rights Watch is an impartial, nongovernmental organization that reports on human rights conditions in some 100 countries around the globe, including Lebanon.

We are currently researching the impact of electricity blackouts on people's standards of living in Lebanon, particularly on older people, people with disabilities, and people with chronic health conditions.

As part of this research, we will be looking at the proliferation of private generators across the country, including the effect they have had on people's health and environment as well as the fire hazard they pose. Local media often report fire incidents involving generators while also citing the Civil Defense's swift intervention to put out the fire.

To ensure that our report accurately reflects the full extent of the Civil Defense's efforts, we would appreciate your response to the following questions by June 17, 2022:

- Between 2020 and 2022, and per month, how many reports of generators catching fire has the Civil Defense received and

responded to? How many incidents occurred in major cities? How many in rural areas?

- In how many of these incidents did the Civil Defense need to administer first aid on-site or refer individuals to medical care? Did any deaths occur as a result of such fires?
- In how many of these incidents did houses or shops in the vicinity of the burning generator suffer material damages?
- What are the main causes of these generator fires? Did the Civil Defense document an increase in generator fires over the past five years? If so, can you kindly elaborate why this is happening more frequently?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by June 17, 2022; alternatively, we would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at XXX, by phone at, or by fax at XXX.

Sincerely,

Lama Fakhri
Middle East and North Africa Director
Beirut Office Director
Human Rights Watch

Annex VI: Response Letter from Lebanese Civil Defense, June 10, 2022 (Arabic only)

جانب منظمة هيومن رايتس ووتش

الموضوع : طلب معلومات حول موضوع حرائق المولدات الكهربائية الخاصة .

المرجع : إيداعكم المسجل لدينا برقم 3209/د.م تاريخ 2022/6/2 .

بالإشارة إلى الموضوع والمرجع المبينين أعلاه ،

وبعد الإطلاع على مضمون إيداعكم المتضمن طلب الإجابة على النقاط والأسئلة المطروحة من قبل منظمة هيومن رايتس ووتش المتعلقة بموضوع إشتعال النيران في المولدات الكهربائية الخاصة و/أو انفجارها، ما تسبب في أضرار وإصابات خطيرة حيث أن الدفاع المدني هو المستجيب الأول لمثل هذه الحوادث .

نودعكم ربطاً" التقرير المطلوب المتضمن الإجابة على كافة النقاط والمسائل المتعلقة بموضوع إشتعال النيران في المولدات الكهربائية الخاصة و/أو انفجارها بين العامين 2020 و2022 .

للتفضل بالإطلاع والمقتضى .

مدير عام الدفاع المدني
العميد ريمون خطار

إجابات المديرية العامة للدفاع المدني على أسئلة منظمة " هيومن رايتس ووتش " حول موضوع اشتعال النيران في المولدات الخاصة و/أو انفجارها، ما تسبب في أضرار وإصابات خطيرة

1. بين عامي 2020 و2022 ،كم عدد البلاغات عن انفجار و/أو اشتعال النيران في المولدات الكهربائية تلقتها مديرية الدفاع المدني؟ كم مرة تمكن الدفاع المدني من الإستجابة لها؟ (يرجى تقديم توزيع شهري إن أمكن)

خلال العام 2021 بلغ عدد البلاغات عن حرائق المولدات الكهربائية 221 بلاغاً تلقتها غرفة عمليات المديرية العامة للدفاع المدني، وقد توزعت خلال أشهر السنة على الشكل التالي :

- كانون الثاني: 8 بلاغات
- شباط: 10 بلاغات
- آذار: 18 بلاغاً
- نيسان: 14 بلاغاً
- أيار: 10 بلاغات
- حزيران: 20 بلاغاً
- تموز: 38 بلاغاً
- آب: 35 بلاغاً
- أيلول: 29 بلاغاً
- تشرين الأول: 10 بلاغات
- تشرين الثاني: 9 بلاغات
- كانون الأول: 20 بلاغاً

2. لكل حادثة استجاب لها الدفاع المدني، يرجى تقديم معلومات عن الموقع (المدينة أو الحي)، وعدد الإصابات وشدتها، وعدد الوفيات وسببها. يرجى تزويدنا بمعلومات ديمغرافية (العمر والجنس والجنسية ومنطقة الإقامة) عن كل ضحية.

إن المهمات التي نفذها عناصر الدفاع المدني لجهة إخماد حرائق مولدات الكهرباء الخاصة خلال العام 2021 قد توزعت جغرافياً وفقاً للمحافظات اللبنانية الثمانية على الشكل الآتي:

- البقاع : 13 مهمة
- الجنوب : 15 مهمة
- الشمال : 20 مهمة
- النبطية : 6 مهمات

- بعلبك الهرمل : 21 مهمة
- بيروت : 29 مهمة
- جبل لبنان : 111 مهمة
- عكار : 6 مهمات

3. هل حدثت أي وفيات أو إصابات في صفوف عناصر الدفاع المدني الذين استجابوا لإنفجار أو حرائق المولدات من يناير/كانون الثاني 2020 إلى الوقت الحاضر؟ إذا كان الأمر كذلك، كم عدد الوفيات والإصابات وما كانت أسبابها؟

لم يتم تسجيل وقوع أي إصابات أو حوادث عمل كما عدم حصول وفيات في صفوف عناصر الدفاع المدني خلال تنفيذ مهمات إطفاء حرائق مولدات الكهرباء .

4. في كل من الحوادث التي استجاب لها الدفاع المدني وتضمنت احتراق أو انفجار مولدات، يرجى تقديم معلومات عن عدد وشدة الضرر الذي لحق بالمنازل أو المحلات التجارية القريبة من المولدات المحترقة.

لم يُلاحظ وقوع أي انفجار مباشر نتج عنه أضراراً جسيمة في المنازل أو المحال التجارية من جراء حريق المولد نفسه ، علماً أن الأضرار في الأماكن المحيطة من المولدات المحترقة تقتصر في معظم الأحيان على الماديات .

5. من واقع خبرتكم، ما هي الأسباب الرئيسية لاحتراق تلك المولدات؟

إن الأسباب الأكثر شيوعاً لإندلاع حرائق المولدات تعود إلى ما يلي :

- عدم إجراء الصيانة اللازمة لها .
- الضغط الشديد الناجم عن استعمالها لساعات طويلة .
- عدم التقيد بالتعليمات والشروط الصحيحة لإستخدامها .
- التخزين الخاطئ للوقود المستعمل للتعبئة في أماكن غير مهيأة لذلك .
- الطقس الحار في فصل الصيف يضاعف من مخاطر نشوب هذه الحرائق .

6. هل وثق الدفاع المدني زيادة في حرائق المولدات خلال العامين الماضيين مقارنة بما قبل 2020؟ إذا كان الأمر كذلك، فهل يمكنكم تفصيل سبب تكرار حدوث ذلك برأيكم؟

إن المديرية العامة للدفاع المدني ونظراً لعدم توافر إمكانية لإستحداث قاعدة بيانات إلكترونية لإحصاء عدد المهام العملانية المنفذة في هذا الإطار قبل العام 2020، فإنه لا تتوفر لديها إحصاءات دقيقة بهذا الشأن .

7. هل يملك الدفاع المدني ما يكفي من التمويل والمعدات والتدريب للقيام بهذه المهام؟ يرجى تحديد أي من أوجه النقص إن وجدت، وطرق تأثيرها على قدرات الدفاع المدني على أداء واجباته؟

إن المديرية العامة للدفاع المدني تعمل بجهوزية تامة بهدف تلبية نداءات الإغاثة على الرغم من الصعوبات التي تعاني منها كغيرها من الإدارات العامة، علماً أن الهبات العينية التي تقدم من جهات مانحة محلية وأجنبية لا تغطي بالقدر الكافي ما تحتاجه المراكز من معدات نظراً لارتفاع عدد المهام الملقاة على كاهل مراكز الدفاع المدني القائمة بغالبيتها على جهود المتطوعين. أما بالنسبة إلى التدريبات فهي تنظم باستمرار تحت إشراف العديد من الخبراء الأجانب لتعزيز قدرات العناصر وفقاً لأعلى المعايير المطلوبة لتلبية نداءات الإغاثة.

8. من أين تأتي معظم موارد الدفاع المدني؟ مثال، هل يمول الدفاع المدني بشكل أساسي من قبل الدولة اللبنانية أو التبرعات الخاصة أو المجتمع الدولي؟

المديرية العامة للدفاع المدني هي إدارة عامة تابعة لوزارة الداخلية والبلديات ولا تتمتع بالشخصية المعنوية والإستقلالين المالي والإداري عن شخصية الدولة، وبالتالي فإن تمويلها الأساسي يتم من الإعتمادات المرصودة لها في الموازنة العامة، كما أن الدعم والمساعدات التي تقدم من الدول الصديقة والجهات المحلية يساهم في تمكين عناصر الدفاع المدني من تأدية رسالتهم الإنسانية دون أي تأخير.

9. هل طلب من الدفاع المدني التعاون في أي تحقيقات مدنية أو جنائية تتعلق بانفجارات أو حرائق المولدات التي استجاب لها منذ 2020؟ إذا كان الأمر كذلك، يرجى تقديم تفاصيل تتضمن، حيثما أمكن، نتائج هذه التحقيقات؟ إن التنظيم الحالي المعتمد لدى المديرية العامة للدفاع المدني يتضمن مكتب متخصص يعمل تحت إشراف المدير العام ويتألف من خبراء حرائق يتم تكليفهم فور إندلاع أي حريق بهدف اكتشاف الأسباب التي أدت إلى ذلك، وبالتالي فإن التقارير المنظمة من قبل الخبراء التابعين للمكتب المذكور ترفع وفقاً للأصول القانونية والإدارية المرعية الإجراء إلى الجهات القضائية المختصة عند الإقتضاء أو بناءً للطلب المقدم بهذا الشأن .

HUMAN RIGHTS WATCH

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Annex VII: Letter to International Monetary Fund

Mr. Ernesto Rigo Ramirez
Head of IMF Mission to Lebanon
Beirut, Lebanon

November 17, 2022,

Dear Mr. Ramirez,

I am writing to you on behalf of Human Rights Watch to ask for the International Monetary Fund’s input and responses to our questions regarding reforms in the electricity sector, and to request a meeting with your team to discuss our findings and recommendations in person in Beirut at your earliest convenience.

It is our established practice to give relevant authorities and stakeholders the opportunity to provide information and to have that information and point of view reflected in the reports that we publish. We will endeavor to reflect any relevant information you send us into our report, provided we receive it by December 5, 2022.

Human Rights Watch is an impartial, nongovernmental organization that reports on human rights conditions in some 100 countries around the world, including Lebanon.

Human Rights Watch partnered with a local firm, the Consultation and Research Institute (CRI), to administer a household survey to a representative sample of 1,219 Lebanese households. The survey, which was administered between November 2021 and January 2022, asked households about their levels of access to electricity, payment of electricity bills, willingness to pay, policy preferences, economic standing,

and the effects of electricity shortages on the household. We also conducted qualitative research, including interviews with energy specialists, a review of relevant literature, and media articles, into the failures of the Lebanon's electricity sector and its impact on health and the environment.

Our results clearly demonstrated the extent to which the electricity crisis is exacerbating inequality, pushing people into poverty, hindering access to basic rights like food, water, and health, and causing extensive air pollution that is affecting the environment and the population's health. Some of the most important findings from our survey include:

- 15) Between November 2021 and January 2022, the median household only received electricity from EDL for about 10 percent of the day, or about 2-3 hours.
- 16) The median household monthly income is only \$122, and 70% of households said they had difficulty making ends meet or were always behind on basic expenses.
- 17) Among the poorest 20 percent of households, one in five do not have access to a generator. This compares to only one out of 50 of the wealthiest 20 percent of households.
- 18) Low-income households spend a much larger share of their income on generator bills compared to wealthier ones, straining family budgets and putting them at greater risk of falling behind on other essential expenses. We found that the average household had generator bills that accounted for 44 percent of monthly income. The disparities between income levels are huge. For those in the bottom 20% of income, their generator bills consumed 88 percent of their monthly income, on average, compared to 21 percent for the top quintile.
- 19) Access to generators and other electricity sources do not fully fill in the gap. Even accounting for generators, the average household still goes about 9 hours a day without any electricity from any source. The poorest quintile of households reported going without electricity for 11 hours per day on average compared with 6 hours on average for the wealthiest quintile of households.
- 20) Households are having to make difficult choices about how to make ends meet. In response to our survey, nearly nine out of ten households said the cost of electricity affected their ability to pay for other essential services. Two-thirds of residents have been unable to pay for heating. Over half unable to pay for tuition or school materials. More than two out of five homes have been unable to pay for medical care. Over a third unable to pay rent or mortgage.
- 21) Further, the electricity shortages were having a huge impact on people's rights:
 - a. Two-thirds have been unable to keep food refrigerated/frozen. A third of households have been unable to cook food because of shortages.

- b. Nearly half of households said that electricity shortages affected their ability to receive water.
- c. One in four have been unable to participate in educational activities due to electricity shortages.
- d. Nearly two out of five households unable to heat/keep home at a safe temperature.

Based on our findings, we would be grateful for your responses to the following questions by December 5, 2022:

- 1) One of the pillars of the staff-level agreement signed with the Lebanese government in April 2022 is “reforming state-owned enterprises, particularly in the energy sector, to provide quality services without draining public resources.” What specific recommendations has the IMF made to the Lebanese government regarding reforms to the electricity sector, including on governance and anti-corruption?
- 2) Do you agree that everyone has a right to electricity, as part of the right to an adequate standard of living?
- 3) On November 1, Lebanon announced an increase in electricity tariffs. The increased tariffs may impact the ability of many households to afford electricity. What measures is the IMF recommending to ensure that everyone in Lebanon has access to affordable and reliable electricity?
- 4) The IMF has repeatedly stated that Lebanon needs to increase its generation capacity. How has the IMF recommended the Lebanese authorities do this? Has the IMF made any recommendations regarding the need to move towards renewable sources of energy in order to decrease the cost of importing expensive fossil fuels and build a more sustainable energy sector?
- 5) In its engagement with the Lebanese authorities, has the IMF seen a willingness to engage in serious reforms and fix the dilapidated electricity sector?
- 6) If Lebanon does receive IMF funding, how will the IMF insulate that funding from corruption and mismanagement?
- 7) In the IMF’s 2019 Article IV report, the IMF recommended that fiscal tightening, including electricity subsidy removals, should be complemented with scaled-up targeted transfers to the “poor and vulnerable.” Specifically, the report called for an additional 0.5 percentage points of GDP in social safety net spending, primarily through the National Poverty Targeting Program. Considering the scale of the economic and social crisis today, with more than 80 percent of the population in multidimensional poverty, has the IMF changed its recommendations on improving

Lebanon's social protection system and the investments needed to protect people from poverty and food insecurity?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by December 5, 2022. We would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at XXX, by phone at XXX, or by fax at XXX.

Sincerely,

Lama Fakhri
Middle East and North Africa Director
Beirut Office Director
Human Rights Watch

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Annex VIII: Letter to World Bank

www.hrw.org

Mr. Jean-Christophe Carret
Country Director, Middle East Department
World Bank
Beirut, Lebanon

CC:

Ms. Haneen Sayed
Mr. Ganesh Kumar Seshan

November 23, 2022,

Dear Mr. Carret,

I am writing to you on behalf of Human Rights Watch to share with you some preliminary findings from our research into the rights impacts of the ongoing electricity crisis, and to ask for the World Bank's input and responses to our questions.

In the interests of thorough and objective reporting, we are requesting your response to some questions as well as any other information you may wish to provide. Due to our publications schedule, we request that any responses be sent by December 6th. In addition, we would like to request a meeting to discuss our findings and recommendations in person at your earliest convenience.

Human Rights Watch is an independent, nongovernmental organization that reports on human rights conditions in some 100 countries around the world, including Lebanon.

Human Rights Watch partnered with a local firm, the Consultation and Research Institute (CRI), to administer a household survey to a representative sample of 1,219 Lebanese households. The survey, which was administered between November 2021 and January 2022, asked households about their levels of access to electricity, payment of electricity bills, policy preferences, economic standing, ability to afford food, whether they receive government assistance, and the effects of electricity shortages on the household. We also conducted qualitative research, including interviews with energy specialists, a review of relevant literature, and media articles, into the failures of the Lebanon's electricity sector and its impact on health and the environment.

Our results clearly demonstrated the extent to which the electricity crisis is exacerbating inequality, pushing people into poverty, hindering access to basic rights like food, water, and health, and causing extensive air pollution that is affecting the environment and the population's health. Some of the most important findings from our survey include:

Between November 2021 and January 2022, the median household only received electricity from EDL for about 10 percent of the day, or about 2-3 hours.

The median household monthly income is only \$122, and 70% of households said they had difficulty making ends meet or were always behind on basic expenses. In more than one out of four households an adult had to skip a meal because there was not enough money to get food.

- 22) Very few respondents said they received financial or in-kind support from the government. Less than five percent of households reported receiving any kind of government assistance, most of which was in-kind only.
- 23) Among the poorest 20 percent of households, one in five do not have access to a generator. This compares to only one out of 50 of the wealthiest 20 percent of households.
- 24) Low-income households spend a much larger share of their income on generator bills compared to wealthier ones, straining family budgets and putting them at greater risk of falling behind on other essential expenses. We found that the average household had generator bills that accounted for 44 percent of monthly income. The disparities between income levels are huge. For those in the bottom 20 percent of income, their generator bills consumed 88 percent of their monthly income, on average, compared to 21 percent for the top quintile.
- 25) Access to generators and other electricity sources do not fully fill in the gap. Even accounting for generators, the average household still goes about 9 hours a day

without any electricity from any source. The poorest quintile of households reported going without electricity for 11 hours per day on average compared with 6 hours on average for the wealthiest quintile of households.

- 26) Households are having to make difficult choices about how to make ends meet. In response to our survey, nearly nine out of ten households said the cost of electricity affected their ability to pay for other essential services. Two-thirds of residents have been unable to pay for heating. Over half unable to pay for tuition or school materials. More than two out of five homes have been unable to pay for medical care. Over a third unable to pay rent or mortgage.
- 27) Further, the electricity shortages were having a huge impact on people's rights:
 - a. Two-thirds have been unable to keep food refrigerated/frozen. A third of households have been unable to cook food because of shortages.
 - b. Nearly half of households said that electricity shortages affected their ability to receive water.
 - c. One in four have been unable to participate in educational activities due to electricity shortages.
 - d. Nearly two out of five households unable to heat/keep home at a safe temperature.

Based on our findings, we would be grateful for your responses to the following questions by December 6:

- 1) Does the World Bank have a position on the right to electricity (or energy), as part of the right to an adequate standard of living? If so, can you provide any statements or policies on the right to electricity.
- 2) The World Bank has written several reports clearly outlining the failures of Lebanon's electricity sector and outlining required reforms to increase capacity and improve governance in the sector.⁴²⁸ Yet almost none of the Bank's recommendations have been implemented by the Lebanese authorities. What do you see as the primary reasons for the inability of the Lebanese authorities to implement reforms and improve the supply of electricity across the country?
- 3) On November 1, Lebanon increased the electricity tariffs. The increased tariffs may impact the ability of many households to afford electricity. What measures is the

⁴²⁸ See

<https://openknowledge.worldbank.org/bitstream/handle/10986/37824/P1733451f74154311fb4a149871a9041d2b545b62921.pdf?sequence=11&isAllowed=y>; https://energyandwater.gov.lb/mediafiles/articles/doc-100796-2022_05_21_01_43_29.pdf; <https://documents1.worldbank.org/curated/en/500281593636676732/pdf/Lebanon-Power-Sector-Emergency-Action-Plan.pdf>

- World Bank recommending to ensure that everyone in Lebanon has access to affordable and reliable electricity?
- 4) The World Bank has consistently recommended that Lebanon increase the level of penetration of renewable technologies. What are the main obstacles or constraints to increasing the share of renewable sources in Lebanon’s energy mix?
 - 5) Lebanon’s energy minister has said that World Bank financing is the “remaining essential step” for unlocking Egyptian and Jordanian power supplies.⁴²⁹ What are the obstacles delaying World Bank funding for the Egypt natural gas and Jordan electricity deals? How will the World Bank insulate that funding from corruption and mismanagement?
 - 6) In a 2019 white paper, Protecting All, the World Bank said it “wholly endorses the objective of universal social protection espoused by the international development community.” But the World Bank appears to be continuing to invest primarily in means-tested targeted programs, including the National Poverty Targeting Program (NPTP) and the Emergency Social Safety Net (ESSN). What is the rationale for continuing to fund these targeted programs? Is the World Bank in discussions with the Lebanese authorities about developing a universal social protection system and funding universal social protection programs following a lifecycle approach? If so, can you describe these programs? Especially in the absence of reliable data, which is the case in Lebanon, narrowly poverty targeted programs can be error prone.
 - 7) Has the World Bank studied the exclusion errors of Lebanon’s approach to targeting and its proxy means test? If yes, what are the findings?

In order for us to reflect your responses in our upcoming report, we request that you respond to us by December 6. We would welcome a discussion around these issues at a meeting at your convenience. We can be reached by email at XXX by phone at XXX, or by fax at XXX.

Sincerely,

Lama Fakih

Middle East and North Africa Director
Beirut Office Director
Human Rights Watch

⁴²⁹ <https://today.lorientlejour.com/article/1296388/energy-minister-walid-favad-says-world-bank-financing-is-the-remaining-essential-step-for-unlocking-egyptian-and-jordanian-power-supply.html>

Annex IX: Response Letter from The World Bank



The World Bank
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION
Jean-Christophe Carret
Country Director, Middle East Department
Middle East & North Africa Region

Bouric House 119, 5th Floor
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Beirut, Lebanon

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January 4, 2023

Ms. Lama Fakih
Middle East and North Africa Director
Beirut Office Director
Human Rights Watch
Beirut, Lebanon
(Transmission by email: [REDACTED])

Subject: Response to The Human Rights Watch Letter Dated November 23, 2022

Dear Ms. Fakih,

Thank you for your letter dated November 23, 2022, providing us with the preliminary findings from the household survey you conducted with the Consultation and Research Institute about the rights impact of Lebanon's ongoing electricity crisis and soliciting the Bank's input.

Regarding the electricity sector, the World Bank recognizes that energy is at the heart of development. And as is the case with all the Sustainable Development Goals (SDGs), the SDG that focuses on universal energy access (SDG7) is fully consistent with the World Bank Group's own twin goals to end poverty and build shared prosperity in a sustainable manner. SDG7 aims to ensure, by 2030, access to affordable, reliable, sustainable and modern energy for all. It also aims to increase substantially the share of renewable energy in the global energy mix and double the global rate of improvement in energy efficiency.

The collapse of the electricity sector in Lebanon has severe humanitarian, economic, and financial impacts. The World Bank maintains an ongoing dialogue with the Government of Lebanon (GOL) on critical sector reforms that can help provide access to affordable, reliable, and sustainable energy. To accelerate reforms in this vital sector, the government would need to take action on adopting informed policies choices and initiatives, drawing on shared knowledge, technical advice, and lessons learned from global experience.

Addressing the sector's long-standing challenges and ensuring its financial sustainability in the medium- to long-term is at the center of Lebanon's economic and social recovery. It is also an opportunity for Lebanon to demonstrate its resolve to change the status quo and implement long-overdue reforms to build more confidence and galvanize external support to complete the reform process. The reform agenda should concomitantly tackle the energy transition toward cheaper sources, notably renewables, the reduction of commercial losses, efficient billing and collection cycle, tariff adjustment based on reasonably incurred cost of service and accompanied by adequate social protection programs to mitigate the impact of tariff adjustment on the poorest and most vulnerable households, the establishment of an independent regulator, the adoption of competitive and transparent procurement processes and full transparency and accountability in the governance of the sector.

The transition toward affordable renewable electricity services has already started, with the accelerated deployment of standalone PV and hybrid systems by households and economic agents, to alleviate grid shortage and displace more costly diesel generators. Distributed renewable energy systems should be promoted in a manner that would ultimately serve a functional grid and increase system reliability. Yet, mobilizing private capital at scale to leapfrog toward a low-carbon energy mix would require a conducive and enforceable legal framework, a functional grid, and a creditworthy off-taker, as well as the stabilization of the country's macro-fiscal situation.

On social protection, the World Bank shares the vision of Universal Social Protection (USP) to ensure that all people have the support they need, and that no individual or group is left behind. Indeed, it is the cornerstone of inclusive social policy and drives Bank financing of social protection. The Bank recently launched the Social Protection and Jobs Compass, which guides engagement with countries learning from the lessons from the COVID-19 pandemic. Most importantly, the Compass recognizes that the realization of USP which ensures access to social protection for all whenever and however they need it, is critical for effectively reducing poverty and boosting shared prosperity.

Coming into the 2019 economic and financial crisis, Lebanon lacked a comprehensive inclusive social protection (SP) system that provides its citizens equal access and opportunity. Government spending on social safety nets (SSN) has been consistently low and did not meet the needs of the poor and vulnerable. Prior to the crisis, the National Poverty Targeting Program (NPTP), launched in 2011 by the GOL with technical and financial assistance from the World Bank¹, was the only poverty-targeted SSN program in Lebanon but covered only 1.5 percent of the Lebanese population.

In 2020, the GOL requested World Bank assistance in scaling up the NPTP through a new phase of support – the Emergency Crisis and COVID-19 Response Social Safety Net Project (ESSN). The ESSN project provides \$250 million with the objective of (i) arresting the increase in extreme poverty through the provision of unconditional cash transfers to 150,000 Lebanese households; (ii) preserving the human capital of 87,000 children (aged 13 – 18 years) who are enrolled in public schools through the provision of education-specific top-up cash transfers; and (iii) improving access to social services for vulnerable population groups. More importantly, the ESSN also aims at building a sustainable national social safety net system through the development of a National Social Registry (known as DAEM) and other SSN delivery-systems activities.

Progress in the ESSN has been notable in a short period of time in expanding coverage of SSNs and in building the underlying system for effective implementation. Disbursement to beneficiaries commenced on March 18, 2022 and has already shown positive results. For example, the post-distribution monitoring survey conducted in October 2022, indicates that for the majority of households receiving cash transfers from the ESSN reported that their living standards have improved, with ESSN cash transfers facilitating their access to food and healthcare. There was also positive effect on school attendance.²

In May 2022, the GOL approved the “National Social Protection Strategy: Towards a Rights-based, Shock-Responsive and Sustainable System”. The strategy espouses three key features: (1) universality; (2) shock responsiveness; and (3) financial sustainability. It adopts a people-centered lifecycle approach and is built around the achievement of five pillars: a) Social Assistance, b) Social Insurance, c) Social Welfare, d) Financial Access to Basic Services, and e) Economic Inclusion and Labor Activation. The World Bank participated in the development of the strategy and as co-chair of the Social Protection Partners Forum is in support of the strategy and its implementation.

Expanding the coverage of the current social safety net and building a robust social protection delivery system with DAEM Social Registry are two critical elements toward achieving the objectives of USP in Lebanon and are embedded in Lebanon’s National Social Protection Strategy. This is also key for adaptive social protection program, to be able to reach large volumes of the population in times of crisis and deliver benefits and services to meet peoples’ different needs. In addition, ESSN has another component to improve access to social services for vulnerable groups to address different lifecycle risks. ESSN and DAEM Social Registry are the fundamental steps toward achieving the objectives of USP, however, given the multiple crises the country is facing, Lebanon needs more support in several areas: social insurance programs, social care services, labor, and economic inclusion programs with significant emphasis on institutional capacity building. The World Bank Group and partners including WFP, UNICEF, and the ILO, and donors such as the EU, Germany, Canada, and Norway, among others, are collaborating to establish a more shock-responsive USP system in Lebanon to address multiple risks.

¹ The World Bank has provided technical assistance and financial support (US\$25 million) through four emergency grant project – the First and Second Emergency Social Protection Implementation Support Projects (US\$1 million and US\$6 million, 2007 and 2011, respectively), and the Emergency NPTP (US\$8.2 million, 2014) and NPTP Additional Financing (US\$10 million, 2016).

² The Post-Distribution Monitoring Survey (PDM) is one of the monitoring tools of the ESSN, implemented by the World Food Program. It is carried out quarterly on a representative sample of 1500 households. The ESSN also includes an independent Third-Party Monitoring Agency (TPMA) which has now initiated its work.

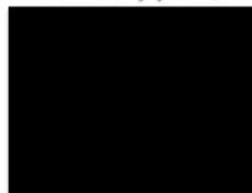
Targeting is an effective tool used in social protection to make the most of constrained fiscal space. For a given budget, prioritizing poorer households can produce more progress in reducing poverty and inequality, smoothing income, and other dimensions of welfare such as human capital³.

The ESSN program uses a hybrid targeting approach to select beneficiary households. These beneficiary households must belong to a socially vulnerable group (i.e., the household includes an elderly, child, or disabled family member, or is a female-headed household). The households must also be extremely poor, as determined by their proxy means test (PMT) score. Households that meet both conditions are eligible for the program.

The PMT model, as used in the ESSN, performs significantly better than categorical targeting at identifying the poor, and compares favorably with the performance of models used in other countries. Further information about the ESSN project and its results so far are provided in the Annex to this letter. If you haven't done so already, we also encourage you to engage with the GOL and the team implementing the project at the Presidency of the Council of Ministers and the Ministry of Social Affairs and IMPACT Team at the Central Inspection Bureau for further information about the design and implementation arrangements of the project.

We hope that the above information is helpful. Our team remains ready to meet with you to further discuss any aspects as well as the issues you raised in your recently published report.

Sincerely yours,



Jean-Christophe Carret
Country Director, Middle East Department
Middle East and North Africa Region

CC: Mr. Mansour Al Shamali, Executive Director, World Bank Group.
Ms. Rima Koteiche, Advisor to the Executive Director, World Bank Group.

³ *Revisiting Targeting in Social Assistance*: <https://www.worldbank.org/en/topic/socialprotection/publication/a-new-look-at-old-dilemmas-revisiting-targeting-in-social-assistance>

Annex 1: Emergency Crisis and COVID-19 Response Social Safety Net Project (ESSN)

Project Development Objective:

a) provide cash transfers and access to social services to extreme poor and vulnerable Lebanese populations affected by the economic and COVID-19 crises in Lebanon; and (b) in case of an Eligible Crisis or Emergency, provide immediate and effective response to such emergency or crisis.

Original Amount: US\$246 - IBRD financing

Additional Financing: US\$4 million - Lebanon Syria Crisis Trust Fund

Approval Date: January 12, 2021

Closing Date: February 29, 2024

Project Components

Component 1: Provision of Cash Transfers for Basic Income Support

Component 2: Provision of Cash Transfers for Students-at-Risk

Component 3: Provision of Social Services

Component 4: Enhanced Social Safety Nets Program Delivery

Project Results:

DAEM Social Registry: designed as the delivery system for ESSN and launched in Dec 1, 2021, for registration. During the registration phase, from December 1, 2021, to January 31, 2022, 583,000 households (almost 60% of the population) applied to the program. After applying initial program eligibility rules which included prioritizing 4 vulnerable categories (female-headed households, families with children, families with elderly, and families with disabled person), 200,000 households were visited for verification. To date, 75,000 households have been found eligible (under the extreme poverty score) and have been receiving monthly cash transfers since March 18, 2022.

Results from the verification and scoring process indicate that the ESSN has prioritized socially vulnerable groups, with a strong focus on female headed households. 43 percent of ESSN beneficiaries are female headed, while 22 percent of beneficiary households have a disabled member, 20 percent have an elderly member, and 75 percent have at least one child. This prioritization further deepens the program's emphasis on preserving human capital for extreme poor Lebanese through the ongoing crises. The poverty score distribution of beneficiary households shows that the program has successfully targeted households at different levels of extreme poverty. The average beneficiary household belongs to the second decile, while over 25 percent of beneficiary households belong to the poorest decile.

Post-distribution monitoring (PDM) data shows that ESSN cash transfers are playing a major role in preserving human capital among beneficiaries. 75 percent of beneficiary households in the PDM reported reducing health or education expenses, withdrawing children from school, or selling productive assets during the crises, in order to buy food (90 percent) or cover health expenses (52 percent). This highlights the acute vulnerability and increased risk on human capital that the poorest households in Lebanon are facing. After receiving the transfers, the majority of beneficiary household spending was on food (43 percent of spending) and healthcare (12 percent of spending). 99 percent of beneficiary households reported improved living conditions after the transfers, while 66 percent of beneficiary households with children reported the transfers facilitated school attendance. This implies that the program is directly facilitating spending on health, nutrition, and education- critical elements for strengthening human capital.

Annex X: Human Rights Watch Sampling Methodology

Right to Electricity in Lebanon *Human Rights Watch*

Sampling Methodology



*Consultation and Research Institute
November 2021*

In Lebanon, the “latest” population census was conducted in 1932, and the only available official statistics are:

- 1- The electoral lists or registration databases (birth, death, marriage, registrations)
- 2- Official national surveys, (based on samples) that are published by the Central Administration for Statistics (CAS).

The first one should not be used as a sampling base, since it reflects the registered population and not the resident population. Indeed, in Lebanon, registration is done in the place of the family origin. Hence, the population movement (within the country or abroad) and the concept of permanent resident are not taken into account in the registration statistics. The second one constitutes the sole base for any sampling approach, although it does not provide any contact list or addresses (i.e. sampling base).

The absence of a sampling base in Lebanon necessitates the development of a tailored sampling approach. Thus, for the purpose of the “Rights to Electricity” survey requested by the Human Rights Watch, the Consultation and Research

Institute (CRI) has designed an approach that has been previously applied in several national surveys and approved by several international partners and UN agencies. The present technical report describes this methodology.

- 1- The statistical unit is composed of household. Specifically, the statistical unit should target permanent resident households in their primary dwelling.
- 2- The field survey will cover the whole Lebanese territories, excluding:
 - a. Palestinian camps
 - b. Formal and informal Syrian refugees’ camps
- 3- There is no “filter” or “exclusion criteria” based on nationality. In other terms, all permanent residents may be included in the sample whatsoever their nationality is. However, two “filters” or “exclusion criteria” will be applied. In that case, households will be replaced. Excluded households are:
 - a. Those who resident in a secondary dwellings or non-permanent residents.
 - b. Those who moved/changed houses between summer 2019 and November 2021

In this regard, as agreed during CRI-HRW preliminary meetings, a log-sheet will be created to gather data about the above-mentioned households.
- 4- The sample size is set at 1200 questionnaires (filled questionnaires).
- 5- The sample of households will be distributed geographically per Mohafazat according to the latest official statistics. In this regard, four national surveys were published by CAS covering respectively the years 1997, 2004, 2009 and 2018. CRI has opted for the most recent distribution (2018).

Table 1: Distribution of the resident households in Lebanon per Mohafaza

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	LC- 1997	MPS- 2004	MICS- 2009	LFS-2018	Sample
Beirut	11.06%	11.56%	10.82%	7.90%	95
Mount- Lebanon	39.97%	42.20%	42.81%	44.42%	534
Northern Lebanon	17.48%	18.45%	17.54%	17.48%	211
Bekaa	12.69%	11.68%	11.75%	10.63%	128
Southern Lebanon	11.30%	10.16%	10.37%	11.67%	140
Nabatieh	7.50%	5.94%	6.70%	7.91%	97
Lebanon	100.00%	100.00%	100.00%	100.00%	1205

6- Within each Mohafaza, the household sample is distributed by Caza following the household distribution published by CAS in 2018⁽⁴³⁰⁾.

7- Within every Caza, the questionnaires will be distributed by CF⁽⁴³¹⁾. The determination of the number of questionnaires per CF follows the same logic of the demographic weight of each CF in a Caza (Probability proportional to Size), while satisfying the following two conditions:

- a. The number of households should not fall below a limited number (5 households) per CF in order to optimize surveyor efforts and time;
- b. Achieving an acceptable coverage of densely populated areas vs. semi-deserted areas.
- c. The sample will cover around 13% of the existing CFs (189 CFs out of 1448 non-empty CFs all over the Lebanese territories).

8- The error margin corresponding to a sample size of 1200 respondents is estimated at $\pm 2.82\%$ for an observed frequency of 50% at a level of confidence of 95%.

⁴³⁰ 2004 and 2009 surveys are limited only to Mohafazat level. Sub-categories of geographic units are available in the 1997 survey and in the Labour force survey (2018). The latter will be adopted as base for the geographical distribution.

⁴³¹ *Circonscription Foncière*, the smallest administrative unit in Lebanon.

9- Sampling robustness: several actions will be performed during the study implementation in order to set a series of safeguards aiming at avoiding sample biases. The preliminary results of some basic socio-demographic and economic variables will be generated (e.g. average family size, gender distribution, age distribution, etc.) and will be compared with the results published in previous studies implemented by official bodies or international organizations (UN, WB, etc.). If the difference is statistically significant (which was rarely the case in previous studies that adopted the same sampling methodology) corrections may be performed on the raw data (weighting questionnaires).

10- During the field implementation, surveyors:

- a. will fill the log-sheet (which describes the outcome of each field visit),
- b. and – if eligible – will fill the household questionnaire.

The data will be gathered using ODK-KOBO program on tablets, and then upload to our central server for regular/daily data checking. Geo-localization points (GPS) will also be collected.

Weekly field progress reports will be sent to HRW.

Table 2: Final distribution of the sample, per Mohafaza, Caza and CFs

Mohafazat	Caza	Total CFs	Empty CFs	Total non-empty CFs	Total Pop 2018	Total Pop 2018	Quest-Sample	CF-sample
Beirut	Beirut	13	1	12	341700	100%	95	8
Beirut Total		13	1	12	341700	100%	95	8
Bekaa	Baalbek	99	22	77	214600	40%	51	9
	Hermel	12	4	8	30500	6%	7	1
	Rachiaya	43	15	28	33800	6%	8	1
	West Bekaa	44	8	36	86400	16%	20	4
	Zahle	65	8	57	177400	33%	42	8
Bekaa Total		263	57	206	542700	100%	128	23
Mount Lebanon	Aley	83	16	67	300800	15%	79	14
	Baabda	57	2	55	553800	27%	145	11
	Chouf	109	19	90	277000	14%	73	14
	El Metn	103	4	99	511000	25%	134	20
	Jubail	107	15	92	129500	6%	35	7
	Kasrouane	84	12	72	260500	13%	68	13
Mount Lebanon Total		543	68	475	2032600	100%	534	79
Nabatiye	Bint Jubail	38	3	35	96200	25%	25	5
	Hasbaiya	23	3	20	28700	8%	7	1
	Marjaayoun	34	5	29	74000	20%	20	4
	Nabatiye	52	5	47	180200	48%	45	9
Nabatiye Total		147	16	131	379100	100%	97	19
North	Akkar	168	4	164	324000	34%	71	14
	Batroun	76	6	70	58900	6%	13	2
	Bcharre	24	1	23	22100	2%	5	1
	Koura	43	0	43	84600	9%	18	3
	Minieh-Danieh	63	10	53	140800	15%	31	6
	Tripoli	17	1	16	243800	25%	53	6
	Zgharta	52	5	47	87700	9%	20	4
North Total		443	27	416	961900	100%	211	36
South	Jezzine	80	17	63	32100	5%	8	1
	Saida	79	7	72	296600	51%	71	12
	Sour	75	2	73	255700	44%	61	11
South Total		234	26	208	584400	100%	140	24
Grand Total		1643	195	1448	4842400		1205	189

In total, CRI's surveyors will visit 189 CFs and fill 1205 questionnaires, according to the above geographical distribution.

The detailed list of CF will be communicated in a separate report, during the pilot survey implementation.

11- The quality control process is composed of several levels, detailed below

- a. The quality control process begins with human resources. CRI employs surveyors, supervisors and data entry officers who have an extensive experience in similar field surveys conducted and managed by CRI.
- b. The questionnaire design is also an essential factor of the quality control. Indeed, a fluent questionnaire, with clear definitions/sentences, indications and filters will facilitate the work of surveyors and reduce the risk of errors.
- c. The role of supervisors is crucial on the field. They double-check the filled questionnaires, assist surveyors and do call-backs (or revisits) on a sample of households.
- d. Data entry software is developed, using a tailor-made program which includes various build-in safety-nets and alerts that helps the data entry officer to reduce data entry errors.
- e. The consistency check is a critical task on the quality control process. CRI statistician performs the “data cleaning”.

Annex XI: Human Rights Watch Survey Instrument

SURVEY INSTRUMENT

(final version November 16, 2021)

I. INTRODUCTION

Hello, my name is _____, from [Consultation and Research Institute (CRI)], an organization based in Beirut that conducts surveys in Lebanon. Your household has been randomly selected to participate in a survey on electricity access, and your participation is of great importance. This survey is conducted on behalf of Human Rights Watch, an international non-profit organization that investigates human rights violations around the world. Human Rights Watch will use information from this survey as part of a research project about problems with electricity access and the implications on your life.

Do you know the approximate costs of your electricity in your primary residence, or is there someone in your household currently present who does?

The survey takes approximately 30 minutes. Your answers will be completely anonymous and will be kept absolutely confidential. At the end of the survey, you are given the option to provide your name, phone number, or email address so that we can reach out with follow-up questions, but providing this information is voluntary. There is no compensation for participating in the survey.

Name of Interviewer _____

Date of Interview _____

Household ID _____ (serial number)

LOG-SHEET: status of first contact:

- a. Accepted to conduct interview and fill questionnaire
- b. Refused
- c. Main respondent not present
- d. Nobody at home

PROMPT: First, we want to talk to you about EDL electricity supply, the electricity provided by the government. We'll ask some questions about the current situation, and some that ask about the time before the October 2019 crisis (In this questionnaire, we refer to "pre-crisis" as Summer 2019).

1. Is this your primary dwelling:
 - a. Yes
 - b. NoIF NO, EXCLUDE FROM SAMPLE AND REPLACE – STOP

2. Was this also your primary dwelling in summer 2019, in other words, before the economic crisis that began in October 2019?
 - a. Yes
 - b. No, I moved house(s)Why did you move house(s) since summer 2019? Open ended-question_____IF NO, EXCLUDE FROM SAMPLE AND REPLACE, GO TO Q59

II. EDL ELECTRICITY ACCESS⁴³²

3. Is your home connected to the EDL/government electricity network? [PROMPT: before the economic crisis in October 2019, did you get some hours of electricity from the state?]
 - a. Yes
 - b. NoPROMPT: Help explain what EDL is (i.e., this is the gov't electricity on a meter)

IF ANSWER TO Q3 IS NO, MOVE TO Q11

IF ANSWER TO Q3 IS YES:

4. Currently, for this past month, approximately how many hours of electricity supply did you get from EDL per day?
 - a. NUMBER OF HOURS: _____ hours per dayPROMPT FOR HELP: 2 hours a day, 4 hours a day, etc.

⁴³² "I don't know" answer will be coded separately in the questionnaire (e.g. 99). No need to add it in each question.

5. Before the crisis, in Summer 2019, how many hours of electricity did you get from the government (EDL) on average per day?
 - a. NUMBER OF HOURS: _____ hours per day
PROMPT FOR HELP: 2 hours a day, 4 hours a day, etc.

6. Before the crisis, in summer 2019, did you pay an EDL bill?
 - a. Yes
 - b. No, I received the bill and did not pay it
 - c. No, I did not receive any bill

7. Before the crisis, in summer 2019, what was your average monthly electricity spending for EDL in Lebanese pounds? _____ Thousand LBP.⁴³³

8. When was the last time you received an EDL bill? (specify month and year)

Month: _____

Year: _____

9. What was the amount of this bill? _____ Thousand LBP.⁴³⁴

10. Did you pay your last EDL bill (the last bill you received)?
 - a. Yes
 - b. No

II. OTHER SOURCES OF ELECTRICITY

PROMPT: Next, we would like to ask you about your use of electricity generators.

Questions should be asked source by source, in the “current situation”, and then, source by source in the “summer 2019” period.

	Neighborhood generator	Building generator	Own/personal generator
11. Current situation (over the past month)			

⁴³³ Please make sure to calculate the monthly amount. If the bill covers more than 1 month, please do the necessary calculations in order to write a monthly amount only.

⁴³⁴ Ibid

a) Currently, do you use this type of electricity source?	YES - NO ⁴³⁵	YES - NO ⁴³⁶	YES - NO ⁴³⁷
b) If NO to Q11-a for all sources of electricity, why not? (mark all that apply, multiple answers allowed)	a. It's too a / we can't afford it b. There were high initial connection fees/investment fees c. These sources are not available d. Bad service/unreliable e. EDL blackouts are tolerable f. Use alternative energy supply (APS, UPS, Solar, etc.) g. Other, specify ____		
c) Over the last month, approximately how many hours of electricity supply did you get from this source on an average day?	____ Hours	____ Hours	____ Hours
d) How many amperes do you get from this source?	____ Amperes	____ Amperes	____ Amperes
e) How many hours per day do you have no electricity at all, from any of the sources, including EDL)?	____ Hours		
f) Method of payment for this source?	Fixed bill Meter-based bill	NA	NA
g) What was your generator bill last month? (including stock of fuel and maintenance costs, if any), in thousands LBP?	____ Thousands LBP	____ Thousands LBP	____ Thousands LBP
h) To what extent are you satisfied by the capacity of supply of the electricity source [PROMPT: Can you run all appliances you want]?	Scale from 1 to 5 (1=totally dissatisfied, 5=totally satisfied)	Scale from 1 to 5 (1=totally dissatisfied, 5=totally satisfied)	Scale from 1 to 5 (1=totally dissatisfied, 5=totally satisfied)
i) To what extent are you satisfied by the safety of the electricity source? [PROMPT: risk of	Scale from 1 to 5	Scale from 1 to 5	Scale from 1 to 5

⁴³⁵ If No, go to next source

⁴³⁶ Ibid

⁴³⁷ If No, go to Q11-b (if all sources are No), then go to summer 2019 period (Q12.a)

generator exploding, causing a fire, causing electrocution, or releasing black smoke, destroying electrical equipment, etc.]?	(1=totally dissatisfied, 5=totally satisfied)	(1=totally dissatisfied, 5=totally satisfied)	(1=totally dissatisfied, 5=totally satisfied)
j) To what extent are you satisfied by the hours of supply of the electricity source?	Scale from 1 to 5 (1=totally dissatisfied, 5=totally satisfied)	Scale from 1 to 5 (1=totally dissatisfied, 5=totally satisfied)	Scale from 1 to 5 (1=totally dissatisfied, 5=totally satisfied)
12. Before the crisis (summer 2019)			
a) Did you use this type of electricity source?	YES - NO ⁴³⁸	YES - NO ⁴³⁹	YES - NO ⁴⁴⁰
b) On an average day, approximately how many hours of electricity supply did you get from this source per day?	___ Hours	___ Hours	___ Hours
c) How many amperes did you get from this source?	___ Amperes	___ Amperes	___ Amperes
d) How many hours per day you did not have electricity at all, from any of the sources, including EDL)?	___ Hours		
e) Method of payment for this source?	Fixed bill - Meter-based bill	NA	NA
f) What was your average monthly generator bill (including stock of fuel and maintenance costs, if any), in thousands LBP?	___ Thousands LBP	___ Thousands LBP	___ Thousands LBP

13. Have you or anyone in your household had any health concerns that you believe are related to the operation of generators [PROMPT: difficulty breathing, respiratory issues etc...]?

⁴³⁸ Go to next source

⁴³⁹ Go to next source

⁴⁴⁰ Go to Q13

- a. No
- b. Yes.
If yes, please explain (Insert health concern)
and timeframe of concern: _____

14. Do you have any other source of electricity [i.e. other than EDL and generator]?

- a. No
- b. Yes [check all that apply]
 - 1. UPS/APS or batteries systems
 - 2. Solar
 - 3. Kerosene/gasoil
 - 4. Luxe gas lantern
 - 5. Other, specify: _____

IF ANSWER TO Q14 IS NO, MOVE TO Q19

15. When did you buy an alternative source of electricity [i.e. other than EDL and generator]?

Month: _____

Year: _____

16. How much did the installation of this alternative source cost you (investment cost)?
(specify amount and currency):

Amount: _____ (if LBP, then in Thousand LBP)

Currency: LBP/USD

17. Over the past month, on average how much did you pay to operate your alternative source of energy [i.e. other than EDL and generator], in thousand LBP? _____
Thousand LBP.

18. If the answer to question 14 included solar,

- a. Around how many hours of electricity supply did you get from this source (daily)?

_____ hours per day

- b. How satisfied are you with this source of electricity [in terms of safety, reliability, and hours of supply]? Scale from 1 to 5 (1=totally dissatisfied,

5=totally

satisfied)

III. PAYMENT OF ELECTRICITY BILLS

19. Currently, do you face difficulties paying for your electricity bills (all sources)?
- No [IF NO, MOVE TO QUESTION Q21]
 - Yes
20. If yes, how difficult is it for you to pay your electricity bills compared to before the crisis (summer 2019)?
- Same
 - Now it is more difficult
 - Now it is less difficult
21. In the past 12 months, was your electricity ever shut off because you were unable to pay your electric bill?
- Yes, referring to EDL bill
 - Yes, referring to generator bill
 - Yes referring to both EDL and generator bills
 - No
22. Does the cost of electricity affect your ability to pay for other essential services or goods?
- No, it hasn't affected other expenses
 - Yes, regularly (e.g. several times per month)
 - Yes, sometimes (e.g. every other month)
23. During the past 3 months, has your entire home had a power outage lasting at least 24 hours?
- Yes
 - No
- If yes, how many days over the past three months (total of 90 days)?
_____ days with no electricity at all, whatsoever the source
24. In the last 12 months, have electricity shortages affected your household's ability to:
- Cook or heat food YES/NO
If YES, how often:
 - Almost every day

- ii. Every week
- iii. Every month
- iv. Every few months

b. Keep your food refrigerated/frozen YES/NO

If YES, how often:

- i. Almost every day
- ii. Every week
- iii. Every month
- iv. Every few months

c. Use medical equipment YES/NO/NA

If YES, specify medical equipment? _____

If YES, how often:

- i. Almost every day
- ii. Every week
- iii. Every month
- iv. Every few months

If YES, how did you cope? [choose all that apply]

- i. experienced health-related implications (physical or mental)
- ii. Went to the hospital / health center
- iii. Went to family member/friend with electricity
- iv. Went to business with electricity
- v. Other, specify: _____

d. Use assistive devices (power wheelchairs, hearing aids) YES/NO/NA

If YES, which ones? _____

If YES, how often:

- i. Almost every day
- ii. Every week
- iii. Every month
- iv. Every few months

e. Participate in a class, seminar, or any education-related activity?

YES/NO/NA

If YES, how often:

- i. Almost every day
- ii. Every week
- iii. Every month
- iv. Every few months

f. Participate in a work-related call/meeting/activity YES/NO/NA

If YES, how often:

- i. Almost every day
- ii. Every week
- iii. Every month
- iv. Every few months

If YES, did it affect your employment status or ability to make income?

YES/NO

- g. Receive sufficient water service and/or drinking water YES/NO
If YES, how often:
- i. Almost every day
 - ii. Every week
 - iii. Every month
 - iv. Every few months
- h. Keep your home at a temperature you feel is safe and healthy? YES/NO
If YES, how often:
- i. Almost every day
 - ii. Every week
 - iii. Every month
 - iv. Every few months
- i. Access your home (for example, because of an elevator or door not functioning) YES/NO
If YES, how often:
- i. Almost every day
 - ii. Every week
 - iii. Every month
 - iv. Every few months

25. Are there any other ways that a lack of electricity affects the health and livelihood of any of your family members? Please elaborate: _____

V. ECONOMIC STANDING

26. Currently, which of the following were your household's sources of livelihood? Distribution of sources of monthly household income in percentages (%)		27. Since the crisis (compare with summer 2019), has income value from these sources: a. Increased b. Stayed the same c. Decreased
a. Income from business activities / self-employment		
b. Wage employment		
c. Assets earnings (Income from properties, investment, interests, etc.)		
d. Remittances from abroad		
e. Pension		
f. Government assistance [PROMPT: cash or in-kind assistance from the central government or from the municipality]		
g. Assistance from NGO/charitable org/political party		
h. Other		
Total	100%	

28. What is your household's total monthly income?

- Income received in thousands LBP: _____ Thousand LBP
- Income received in fresh USD: _____
- Income received in "Lollars": _____

29. How would you consider your household's economic standing?

- Wealthy / financially well-off
- Average / middle-class
- Difficulty making ends meet
- Always behind on basic expenses

30. Is your primary dwelling?

- Owned by you or someone in your household free and clear

- b. Owned by you or someone in your household with mortgage or loan
- c. Rented
- d. Occupied without payment of rent

IF ANSWER TO Q30 IS b or c:

31. Is your household currently caught up on rent / mortgage payments?

- a. Yes
- b. No

32. How likely is it that your household will have to leave this house/apartment within the next three months because of eviction due to nonpayment of rent/mortgage?

- a. Very likely
- b. Somewhat likely
- c. Not very likely
- d. Not likely at all

33. Did someone in your HH lose employment since the October 2019 crisis?

- a. Yes, and remained unemployed
- b. Yes, but found another job
- c. No

34. How much is your total expenditure on household needs in a typical month (thinking about the last 3 months) in Lebanese pounds? (rent, electricity, food, medical bills, education, etc.) _____ Millions LBP

35. In the last 12 months, has your household been unable to pay for:

- a. Medicine, medical care, or other physical/mental health services
Yes – NO – Don't know
- b. Childcare
Yes – NO – Don't know
- c. Support services for older people
Yes – NO – Don't know
- d. Support services for people with disabilities
YES – NO – Don't know
- e. Transport (to school, to work)
YES – NO – Don't know
- f. Education tuition and school material (books, etc.)
Yes – NO - NA (if no kids in HH)
- g. School meals
YES – NO / NA (if no kids in HH)
- h. Rent/mortgage
Yes – NO – Don't know

- | | |
|----------------------|-----------------------|
| i. Internet | Yes – NO – Don't know |
| j. Heating | Yes-NO- Don't know |
| k. Adequate clothing | yes-No- don't know |

36. Getting enough food can be a problem amid all these expenses. In the last month, which of the following statements best describes the food eaten in your household? [select one]

- a. Enough of the kind of food we like to eat
- b. Enough, but not always what we like
- c. Sometimes not enough to eat
- d. Often not enough to eat

37. In the last month:

- a. You, or any other adult in your household, had to **skip a meal** because there was not enough money or other resources to get food?

Y/N

- b. You, or any other adult in your household, **went without eating for a whole day** because of a lack of money or other resources?

Y/N

- b. Your household **ran out of food** because of a lack of money or other resources?

Y/N

IF ANSWER TO Q26 IS f or g: (IF o% FOR BOTH q26 F OR G, GO TO Q45)

<u>Type of assistance:</u>	a. <u>Government assistance</u>	b. <u>NGO/charity assistance</u>
38. Source:	[check all that apply] - National Poverty Targeting Program بطاقة حلا - Ration card - Municipality assistance program	[check all that apply and write name of NGO] - UN: _____ - International NGO: _____ - Religious NGO: _____ - Local NGO _____ - Political Party: _____
39. Type of assistance	In-kind/Cash/Both	In-kind/Cash/Both
40. If Cash assistance, in which currency?	USD / LBP / BOTH	USD / LBP / BOTH
41. If cash assistance, what was amount?	_____ Thousand LBP _____ USD	_____ Thousand LBP _____ USD
42. If in-kind assistance, what was it?	[Prompt: food, clothing, medicine etc...]	[Prompt: food, clothing, medicine etc...]
43. What was the frequency of this assistance received?	a. Received only once b. Repeated weekly c. Repeated monthly d. Other, specify _____ _____	e. Received only once f. Repeated weekly g. Repeated monthly h. Other, specify _____
44. Was any of the aid you received	YES/NO/I don't know	YES/NO/I don't know

specifically designated to help you pay your electricity costs?		
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VI. HOUSEHOLD INFO

45. Governorate (Mohafazat) _____

46. District (Caza) _____

47. City / Municipality _____

48. Detailed address _____

49. Nationality:

- a. Lebanese
- b. Non-Lebanese, specify: _____

50. Relationship to household head:

- a. Self
- b. Spouse
- c. Mother / father
- d. Son/daughter
- e. Other, specify _____

51. Gender of respondent

- a. Female
- b. Male
- c. Other
- d. Prefer not to answer

52. Number of adults living in the household (as of now) _____

53. Of those, how many are above 55? _____

54. Number of children (0-18 years) permanently living in the household (as of now) _____

55. Is there a person with a physical/mental disability in the household
YES/NO

That was my last question, but we would love to hear more from you.

56. Can Human Rights Watch contact you with follow-up questions? (This is voluntary):

- a. Yes
- b. No

57. Please indicate your **name, and contact information** and your preferred way for us to contact you (this information will remain confidential and not be shared outside our organization):

- a. Name
- b. Mobile phone 1
- c. Mobile phone 2
- d. Landline
- e. Email

58. If there is anything else you would like to tell us about your experience electricity access?



“Cut Off From Life Itself”

Lebanon’s Failure on the Right to Electricity

Electricity in Lebanon has become a service only the wealthiest can afford. Decades of mismanagement, neglect, and alleged corruption caused the public electricity sector to collapse in 2021 amid the ongoing economic crisis, leaving the country without power through most of the day. The state-run company Électricité du Liban (EDL), responsible for the country’s electricity provision, now provides between 1-3 hours of electricity per day per household. A lucrative diesel generator market has proliferated to fill the supply gap, providing expensive and highly polluting electricity to those with the financial means to pay.

Using data from a representative household survey by Human Rights Watch, this report shows how the lack of affordable and clean electricity exacerbates poverty and inequality in Lebanon and affects people’s ability to access food, water, and health care, all while impacting the environment and people’s health. The report shows the urgent need for Lebanese government to end decades mismanagement and neglect of the electricity sector and take steps to regulate the private provision of electricity, expand renewable energy sources, and ensure that reforms of the sector center access to reliable and affordable electricity as a fundamental right.

(above) Men fill a private generator with diesel oil in Beirut on January 21, 2022.

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(front cover) A man in Beirut uses his mobile phone torch to walk up the stairs to reach his apartment during a blackout in July 2020.

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