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ENERGY

Lebanon's electricity sector has suffered chronic power supply shortages for decades, which have been partially met by private diesel generators. In addition to their negative impact on the environment and health, diesel generators rely on increasingly sparse and costly fuel supplies. The reliance on private diesel generators has exacerbated since the start of the economic crisis in October 2019. While the national utility network covers most of Lebanon, the electricity sector faced numerous challenges prior to the current crisis, including high technical and non-technical network losses, inadequate tariffs, and insufficient generating capacity due to underinvestment in supply. In fact, 40–45 per cent of Lebanon's national debt is due to subsidies that the Government of Lebanon has transferred to EDL to cover the cost of fuel since the 1990s, equal to \$1–2.3 billion in transfers per year.¹

¹ International Monetary Fund, "2016 article IV consultation—press release; staff report; and statement by the Executive Director for Lebanon", IMF country report no. 17/19 (2017). Washington, D.C.
www.imf.org/en/Publications/CR/Issues/2017/01/24/Lebanon-2016-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-44572.

This chapter analyses access to electricity by Syrian refugee households in Lebanon. It also assesses the hours of electricity supplied by different sources, including the grid and private generators. The data on hours of supply is as reported by the households, and not based on data from EDL or providers of electricity from private generators.

KEY FINDINGS

- Access to electricity declined significantly 2022, with 12 per cent of households reporting having no connection to any electricity source, compared to 3 per cent in 2021. This was highest in Bekaa, at 21 per cent.
- Access to the national grid and private generators both declined in 2022, with 13 per cent of households relying on other sources of electricity (non-existent in 2021).
- Hours of electricity deteriorated in 2022, with almost all households (97 per cent) experiencing some power outage. On average, 15 hours of power outage per day were reported, compared to 6.5 hours in 2021.
- The national grid supplied only 3 hours of electricity per day, and private generators supplied an average of 9 hours per day.
- Expenditures on electricity increased drastically from 2021, with national spending averaging over LBP 400,000 per family per month, reaching over LBP 500,00 per month in some regions.
- Almost all households reported having access to a source of energy for cooking, mainly gas (95 per cent).
- Reliance on wood as both a cooking and heating source increased significantly since 2021, with almost 40 per cent of households relying on wood for heating in 2022 compared to 12 per cent in 2021.
- Almost one third of households did not have any heating source during the last winter (2021/2022), compared to 20 per cent in 2020/2021 season.

ACCESS TO ELECTRICITY

Overall, 88 per cent of households had a connection to an electricity source,² down from 97 per cent in 2021. This leaves 12 per cent of households with no electricity connection in their shelter. The highest proportion of households with no connection to an electricity source was in Bekaa (21 per cent in 2022 compared to 10 per cent in 2021), followed by Baalbek-El Hermel (15 per cent). By shelter type, a larger proportion of households in non-permanent shelters (18 per cent) reported not having an electricity connection, compared to those in residential (10 per cent) and non-residential (10 per cent) shelters.

Figure 1: Households with connection to an electricity source, by shelter type

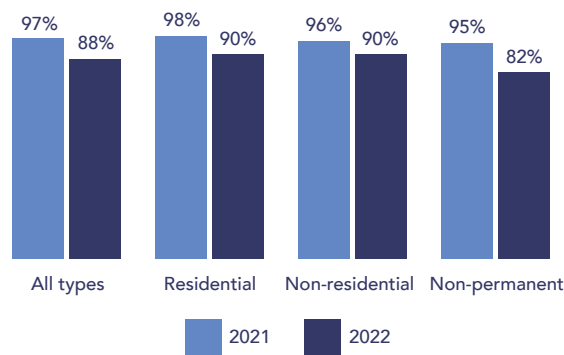
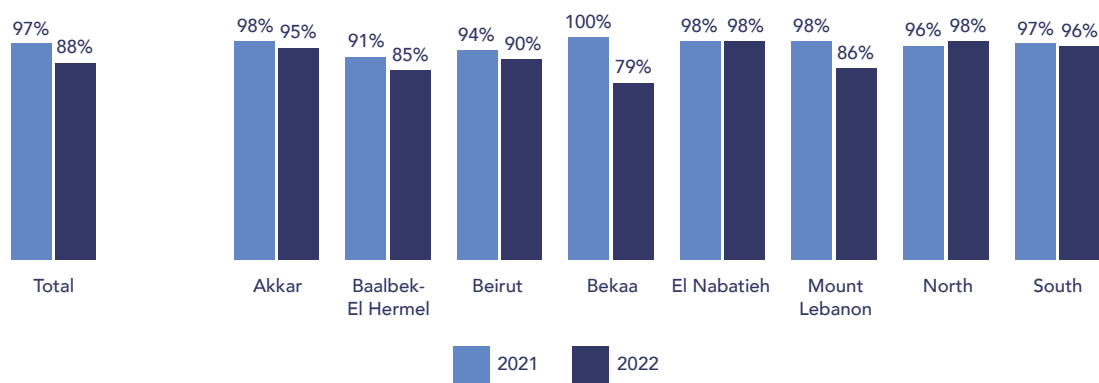


Figure 2: Households with connection to an electricity source, by governorate



SOURCES OF ELECTRICITY

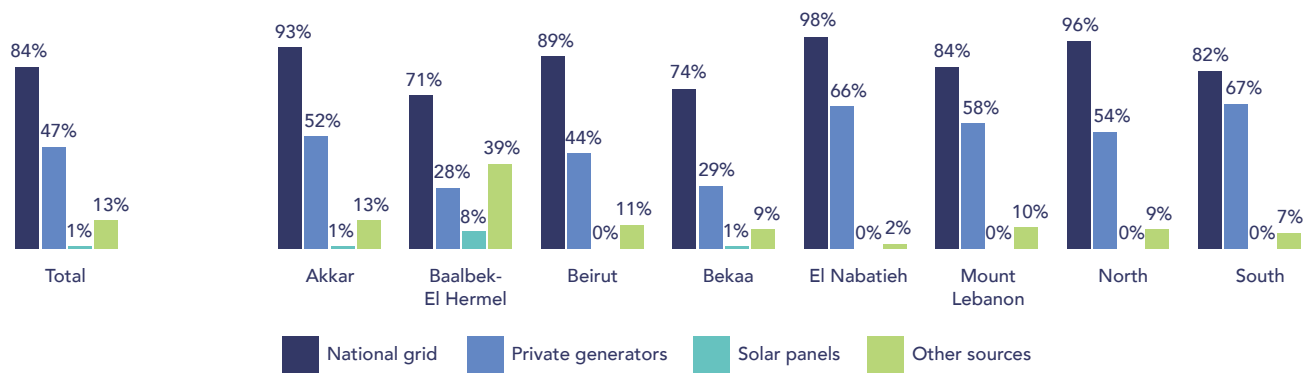
A total of 84 per cent of households had access to the grid. Households living in non-permanent shelters reported lower connection rates to the grid (73 per cent) compared to the other shelter types. Regionally, Baalbek-El Hermel had the lowest access to the national grid, with 71 per cent.

Access to diesel generators dropped significantly, from 65 per cent in 2021 to 47 per cent in 2022. Connection to diesel generators

varied significantly per governorate, ranging from 67 per cent in South Lebanon to only 28 per cent in Baalbek El-Hermel. Other power sources were negligible in previous years; however, in 2022, 14 per cent of households reported sourcing electricity from sources other than the national grid and private generators, including solar panels or batteries. In Baalbek El-Hermel, 8 per cent of households reported reliance on solar panels, a much higher percentage than in any other area.

² Connection to the energy source is not related to hours of supply.

Figure 3: Sources of electricity, by governorate



HOURS OF ELECTRICITY, BY SOURCE

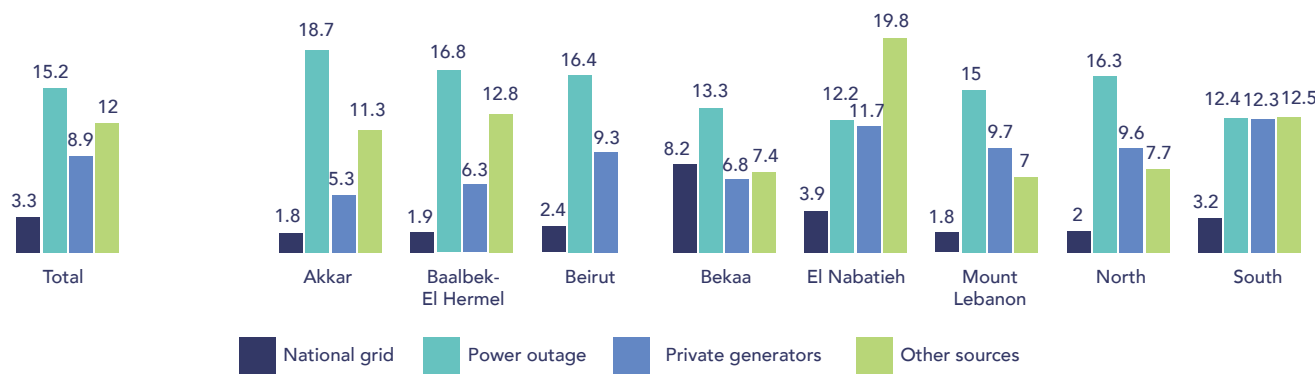
In line with trends discussed above, hours of electricity supply deteriorated in 2022, with almost all households (97 per cent) experiencing some power outage. On average, 15 hours of power outage per day were reported (compared to 6.5 hours in 2021). The number of hours supplied by the national grid and private generators both decreased since 2021. On average, the grid supplied only 3 hours of electricity per day,³ down from 7 hours in

2021 and 11 hours in 2020. Private generators supplied on average 9 hours of electricity per day,⁴ down from 15 hours in 2021. Power outages were longest in Akkar at almost 19 hours a day, followed by Baalbek-El Hermel, Beirut and North Lebanon. Other sources of energy supplied households with an average of 12 hours per day (among the 13 per cent of households that reported access).

Table 1: Average number of hours of electricity per day, by electricity source

	Per cent of households	Average hours (per day)
National grid	84%	3 hours 16 minutes
Private generators	48%	8 hours 56 minutes
Power outage	97%	15 hours 11 minutes

Figure 4: Average number of hours of electricity, by power source and governorate

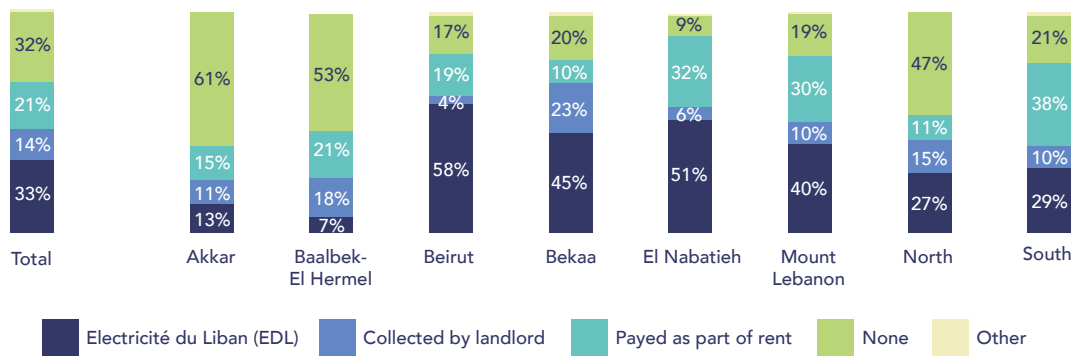


ELECTRICITY BILL COLLECTION

Collection of bills by EDL decreased slightly since 2021, with 33 per cent of households reporting that EDL staff collected the bill (40 per cent in 2021), and 35 per cent reporting that bills were either collected by the landlord (14 per cent) or included as part of the rental payment (21 per cent). Almost one third of households reported that no one was collecting bills for the national grid, up from 15 per cent in 2021.

³ The average is based on the 84 per cent of households which have access to electricity from the national grid.
⁴ The average is based on the 47 per cent of households which have access to private diesel generators.

Figure 5: Entity collecting electricity bills, by governorate



A higher proportion of households in residential shelters were paying their bills to an EDL employee (38 per cent), compared to those in non-permanent (16 per cent) and non-residential (29 per cent) shelters. A larger proportion of households in non-permanent shelters reported that no one was collecting bills (46 per cent).

Almost half (48 per cent) of households who paid their electricity bill (to EDL staff or a landlord) paid it at least monthly; this was highest among those in non-permanent structures, where 81 per cent paid monthly.

Table 2: Frequency of payments to EDL, among households that reported EDL collecting bills

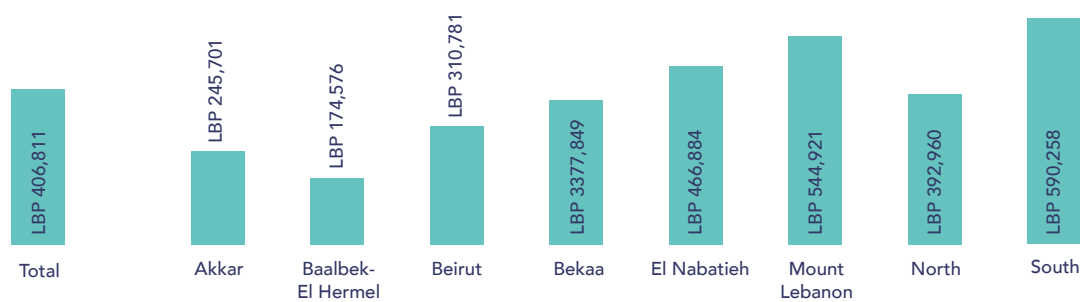
	Once a month or more	Once every 2 months	Once every 6 months to a year
Total	48%	46%	6%
Shelter type			
Residential	41%	52%	7%
Non-residential	49%	48%	3%
Non-permanent	81%	15%	4%
Governorate			
Akkar	50%	42%	9%
Baalbek-El Hermel	57%	38%	5%
Beirut	32%	54%	15%
Bekaa	84%	13%	3%
El Nabatieh	23%	68%	9%
Mount Lebanon	32%	61%	7%
North	33%	59%	8%
South	28%	72%	0.1%

EXPENDITURE ON ELECTRICITY

Average expenditure on electricity increased substantially in 2022. In 2021, the average monthly amount spent on electricity from the grid was LBP 17,674 per family, and LBP 47,566 per family on generators. In 2022, households were spending an average of LBP 406,810 per month on electricity (across all sources).⁵ Highest expenditures were reported in Mount Lebanon and South Lebanon, reaching over LBP 500,000.

⁵ This includes spending through cash and credit, an informal debt source.

Figure 6: Expenditure on electricity, by governorate



ENERGY SOURCES FOR COOKING

Almost all households (99.7 per cent) reported having access to a source of energy for cooking. The main energy source used for cooking remained gas, as reported by 95 per cent of households. A total of 17 per cent of households reported relying on wood to cook, a significant increase from only 2 per cent in 2021. Reliance

on wood in Akkar reached 41 per cent of households, compared to 2 per cent in 2021. Akkar also had the lowest proportion of families relying on gas for cooking (83 per cent). A higher proportion of households in non-permanent shelters relied on wood (37 per cent) compared to non-residential and residential shelters.⁶

Table 3: Energy sources for cooking, by shelter type and governorate

	Gas	Wood	Other
Total			
2021	99%	2%	0%
2022	95%	17%	2%
Shelter type			
Residential	97%	10%	1%
Non-residential	89%	24%	3%
Non-permanent	90%	37%	4%
Governorate			
Akkar	82%	40%	1%
Baalbek-El Hermel	97%	28%	3%
Beirut	98%	0%	2%
Bekaa	96%	18%	3%
El Nabatieh	92%	20%	1%
Mount Lebanon	97%	4%	1%
North	94%	17%	1%
South	94%	17%	2%

⁶ Respondents could select multiple answers, as households can have more than one source of energy for cooking.

ENERGY SOURCES FOR HEATING

Only 15 per cent of households reported that they had a sufficient supply of energy for heating during the last winter season, 40 per cent stated it was sufficient only on some days, and 46 per cent stated it was mostly not sufficient.

When asked about the last winter season, 32 per cent of households stated that they did not have any source of heating. This was highest in Beirut (49 per cent) and South Lebanon (47 per cent). A higher proportion of families in residential shelters reported not having any heating source (39 per cent) compared to those in non-residential (29 per cent) and non-permanent shelters (8 per cent).

Nationally, wood was the most commonly cited heating source at 38 per cent, a shift from 2021 when diesel was mostly used. In 2022, only 22 per cent of households reported relying on diesel for heating, down from 40 per cent in 2021. Almost three quarters of households in non-permanent shelters reported relying on wood, up from 37 per cent in 2021. A total of 5 per cent of households reported having to burn trash to stay warm during the last winter, with 17 per cent of households in Baalbek-El Hermel resorting to this.

Table 4: Energy sources for heating, by shelter type and governorate

	No heating source	Wood	Diesel	Gas	Electrical heater	Burning trash	Other
Total							
2021	20%	12%	40%	11%	15%	n/a	
2022	32%	38%	22%	8%	6%	5%	6%
Shelter type							
Residential	39%	26%	19%	10%	8%	3%	6%
Non-residential	29%	44%	20%	8%	4%	4%	5%
Non-permanent	8%	73%	32%	2%	1%	12%	6%
Governorate							
Akkar	27%	55%	14%	6%	1%	0.2%	1%
Baalbek-El Hermel	1%	68%	44%	1%	0.3%	17%	12%
Beirut	49%	1%	0%	14%	16%	0%	19%
Bekaa	2%	62%	51%	5%	2%	11%	5%
El Nabatieh	31%	49%	22%	5%	3%	2%	1%
Mount Lebanon	58%	12%	5%	8%	10%	0.7%	8%
North	43%	27%	9%	18%	6%	0.6%	1%
South	47%	21%	3%	12%	15%	0.5%	5%