

ENERGY

Lebanon's electricity sector has suffered chronic power supply shortage for decades, which has been partially met by private diesel generators. In addition to their negative impact on the environment and health, diesel generators rely on increasingly costly and sparse 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, between 40-45% of Lebanon's national debt is due to subsidies that the Government of Lebanon (GoL) has transferred to Electricité du Liban (EDL) to cover the cost of fuel since the 1990s (equal to \$1-\$2.3 billion in transfers per year).¹

This chapter analyzes access to electricity by Syrian refugee households in Lebanon. It also assesses the hours of electricity supplied by the national grid versus private diesel 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

- Like 2020, the majority of households (97%) had electricity connection either to the grid or to private generators. The lowest rate was in Baalbek-El Hermel at 91%.
- Nearly all (95%) households were connected to the national grid and 65% to private generators. Connection to private generators increased by 5 percentage points compared to 2020.
- Households with connection to the national grid had on average 7 hr of supply daily, down from 11 hr in 2020 and 13 hr in 2019.
- Households with connection to a private diesel generator relied on it on average for 15 hr 20 min daily (12 hr 48 min in 2020 and 7 hr in 2019).
- Continued increase in hours of electricity outage was reported. In 2021, households had on average 7 hr of power-cuts (up from 5 hr in 2020 and 3 hr in 2019). Beirut had the highest daily power-cuts with almost 13 hr of outage. Nationally, 25% of households reported over 12 hr of power-cuts daily.
- Private generators average expenditure increased from LBP 64,612 in 2020 to LBP 103,463 in 2021. The highest expenditures were recorded in Beirut (LBP 139,190) and the South (LBP 135,125).²
- The use of renewable power, including solar panels and biomass/biogas, remained negligible in all governorates.

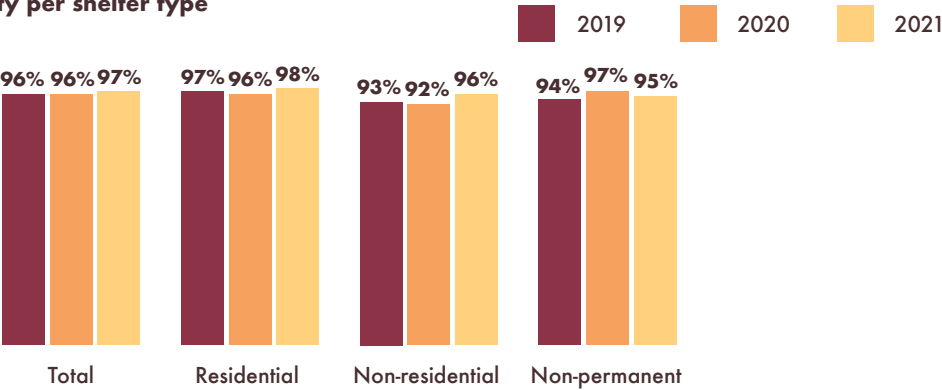
¹ IMF 2016: <https://www.imf.org/en/Publications/CR/Issues/2017/01/24/Lebanon-2016-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-44572>

² The average market rate during the time of data collection registered at 16,078LBP to the USD. source: www.lirarate.org

Access to electricity

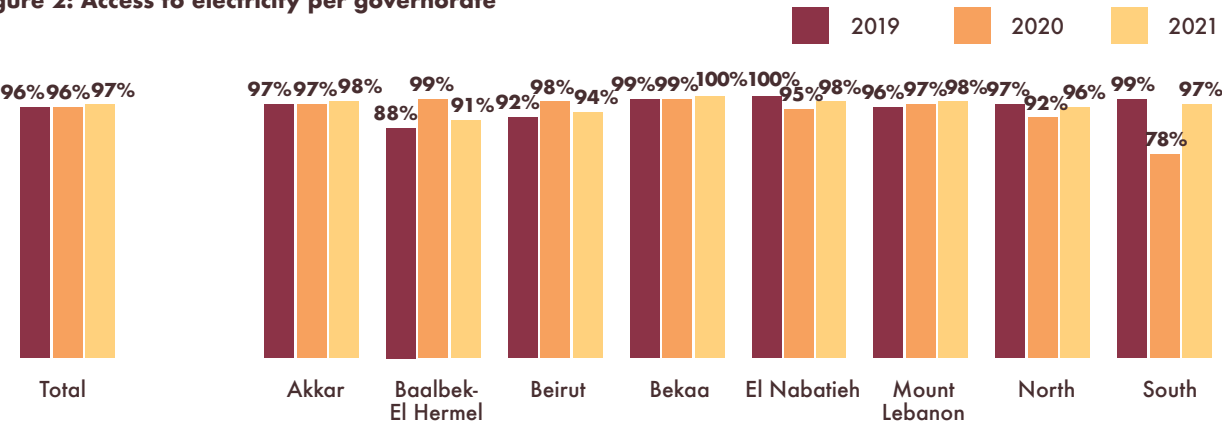
Overall, 97% of households had connection³ to either the electricity grid or to private generators. Only 3% reported no connection to any electricity source.

Figure1: Access to electricity per shelter type



Looking at access to electricity by geographical area, Baalbek-El Hermel scored as the governorate with the lowest rate at 91%.

Figure 2: Access to electricity per governorate

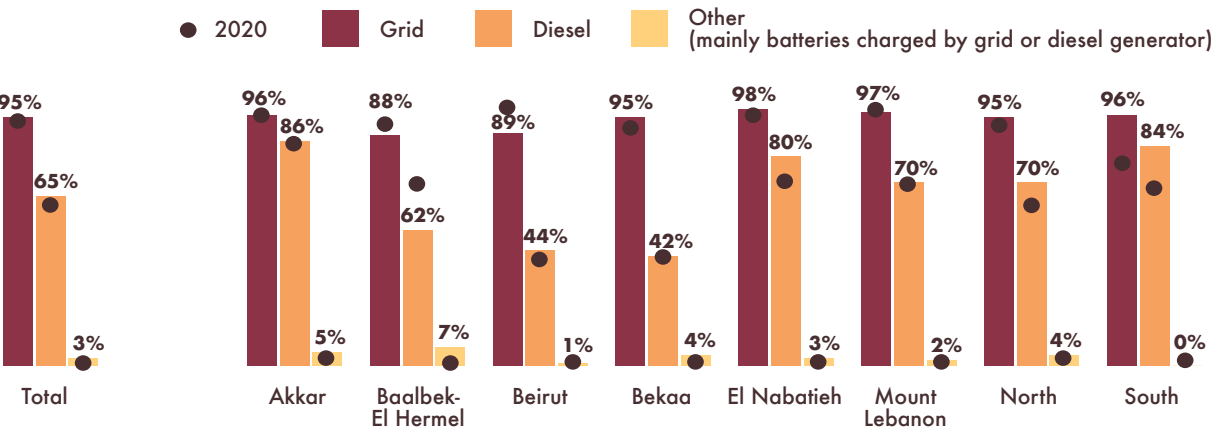


Sources of electricity

When considering the sources of electricity, 95% of households had access to the grid. Those living in non-residential and non-permanent shelters reported lower connection rates (92% and 90% respectively). Baalbek-El Hermel had the lowest access to the national grid with 88%.

Access to diesel generators was at 65%, an increase from 61% in 2020. Connection to diesel generators varied significantly per governorate, ranging from 86% in Akkar to 42% in Beirut. The use of renewable power, including solar panels and biomass/biogas, remained negligible in all governorates.

Figure 3: Source of electricity per governorate

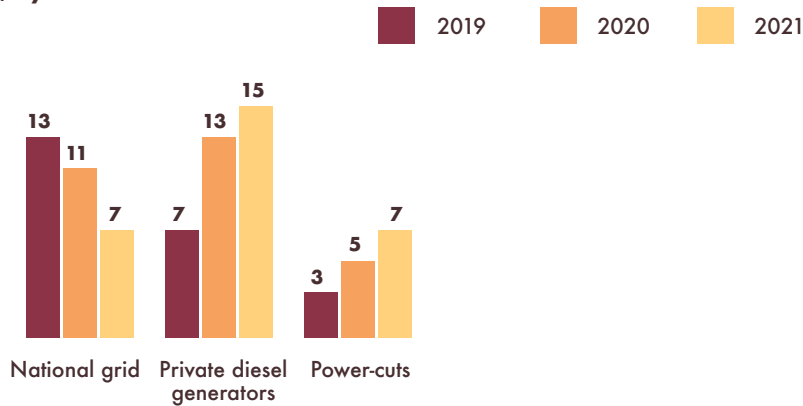


³ Connection to the energy source is not related to the hours of supply.

Hours of electricity by source

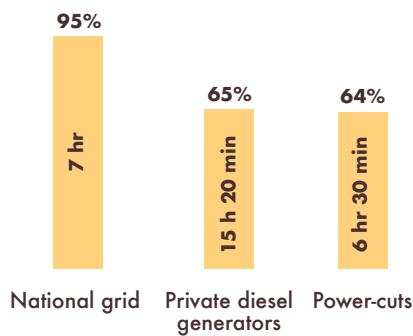
The hours of electricity supply by the national grid continued to decline in 2021. On average, the grid supplied only 7 hr⁴ of electricity per day, down from 11 hr in 2020 and 13 hr in 2019. This led to more reliance on private diesel generators which supplied 15 hr 20 min⁵ on average daily, up from 12 hr 48 min in 2020 and 7 hr in 2019.

Figure 4: Hours of electricity per day, by source



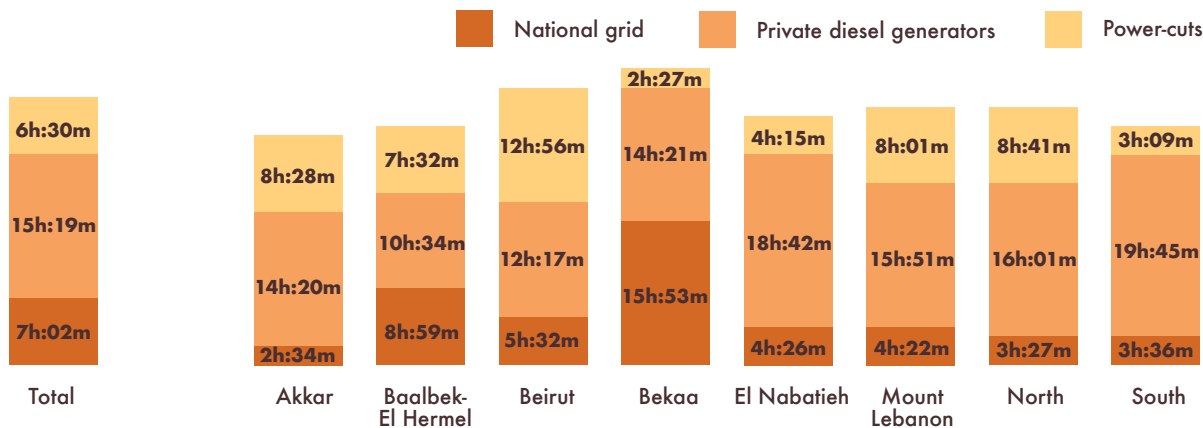
Power cuts, reported by 64% of households, were on average 6 hr 30 min per day, up from 5 hr 24 min in 2020. A quarter of households reported over 12 hr of outage a day, this was highest in Beirut where 57% reported power-cuts of over 12 hr.

Figure 5: Daily hours of electricity supply by source



All governorates, except for the Bekaa, had less than 9 hr of supply from the national grid; the lowest were reported in Akkar (2 hr 35 min) and the North (3 hr 28 min). Due to reduced hours of supply by the grid, refugee families increased their reliance on diesel generators, especially in governorates where the hours of supply from the grid were low.

Figure 6: Hours of electricity by source, per day and per governorate



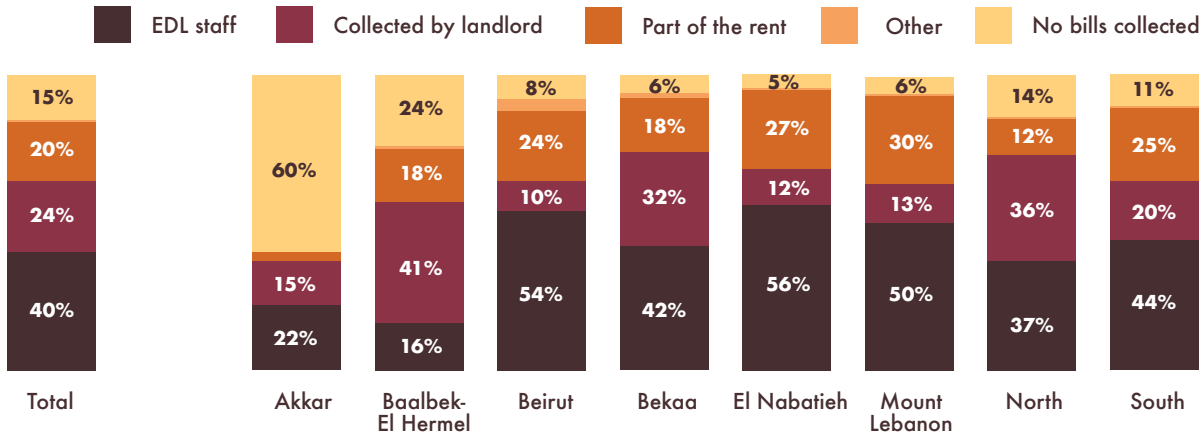
⁴ Average is based on the 95% of households who have access to electricity from the national grid.
⁵ Average is based on the 65% of households who have access to private diesel generators. The average hours of supply also varied regionally.

Electricity bill collection

Collection of bills by EDL remained similar to 2020 with 40% of households reporting that EDL staff collected the bill, and 41% had bills either collected by the landlord (24%) or they were already included as part of the rent (17%). No bills were collected from 15% of households.

Like previous years, the highest rates of EDL collection were reported in El Nabatiyeh (56%), Beirut (54%), and Mount Lebanon (50%) while the lowest were in Baalbek-El Hermel (16%) and Akkar (22%). Collection of bills by EDL in Baalbek-El Hermel dropped significantly from 44% in 2020 to only 16% this year.

Figure 8: Bills collection by governorate



Households living in residential structures were more likely to pay their bills to an EDL staff (45%) compared to those in informal settlements (29%) and non-residential (30%). Households in informal settlements were more likely to pay their EDL bills to their landlord (35%) compared to 21% of those living in residential and non-residential structures.

Figure 7: Electricity bill collections

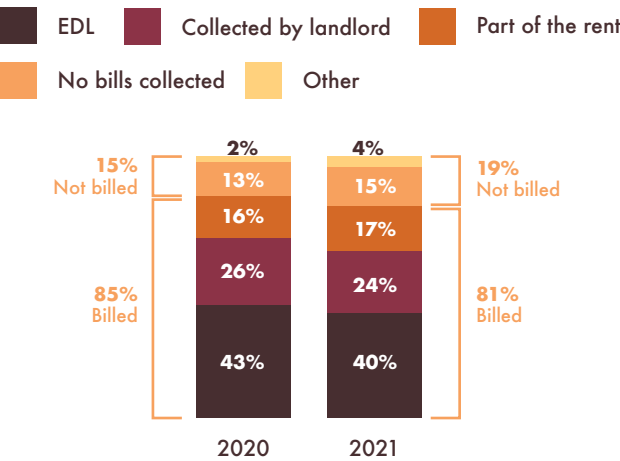
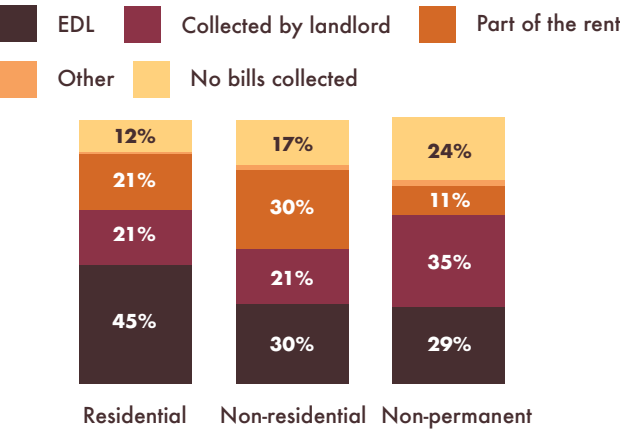


Figure 9: Bills collection by shelter type



Sixty-six percent of households who paid their electricity bill (to EDL staff or landlord) paid it monthly; this was highest among those in non-permanent structures where 87% paid monthly.

Table 1: Electricity grid connection - frequency of payments

	Once per month or more often	Once per every two months	Once per every six months or year
Total	66%	31%	3%
Shelter type			
Residential	60%	37%	3%
Non-residential	61%	34%	5%
Non-permanent	87%	7%	5%
Governorate			
Akkar	65%	9%	26%
Baalbek-El Hermel	82%	16%	2%
Beirut	49%	50%	1%
Bekaa	93%	5%	2%
El Nabatieh	38%	57%	5%
Mount Lebanon	48%	50%	2%
North	59%	40%	1%
South	55%	40%	5%

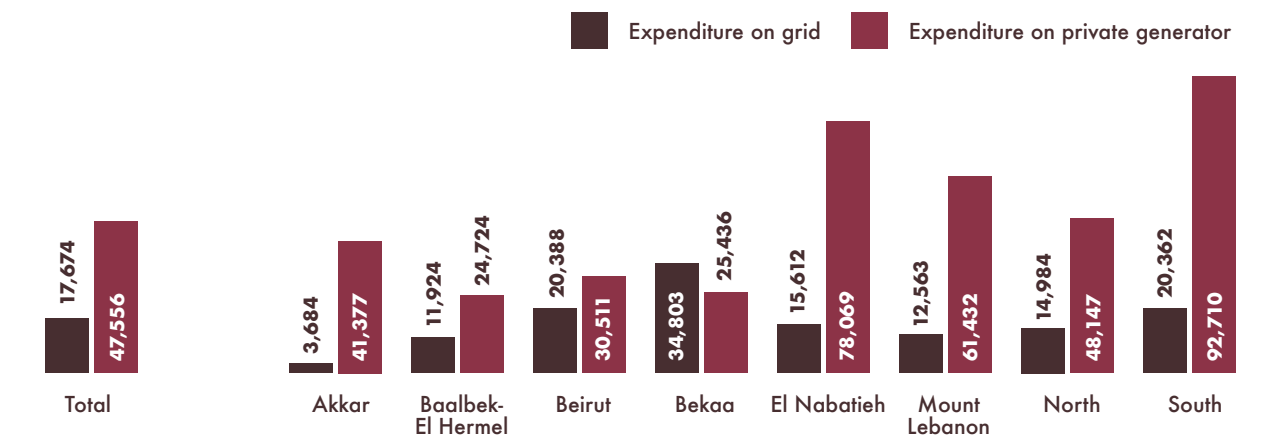
Percentage calculated out of those with access to EDL electricity and bills collected by EDL or landlord.

Expenditure on electricity

Like 2020, out of all households surveyed, 31% reported an expenditure on electricity from the grid in the previous 30 days, whereas 46% had an expenditure on generators (up from 40% in 2020).

Taking into consideration all households, including those without expenditure, the average monthly amount spent on electricity from the grid was LBP 17,674 (LBP 13,737 in 2020) per family, whereas the average monthly amount spent on generators was LBP 47,566 per family (LBP 42,270 in 2020).

Figure 10: Average monthly expenditure on grid and private generators - all households, including those without expenditure (in LBP)



Looking only at households with expenditure on the grid (31%), the average monthly amount was LBP 56,125 (up from LBP 42,440 in 2020) compared to LBP 103,463 (LBP 64,612 in 2020) for households who had expenditure on private generators (46%).

Table 2: Average monthly amount spent on the grid and private generators and percentage of households who reported expenditure on each

	Grid	% households with expenditure on the grid	Private generators	% households with expenditure on private generators
Total	56,125	31%	103,463	46%
Akkar	45,786	8%	75,786	55%
Baalbek-El Hermel	33,483	36%	51,593	48%
Beirut	71,285	29%	139,190	22%
Bekaa	66,919	52%	80,735	32%
El Nabatieh	50,922	31%	123,191	63%
Mount Lebanon	51,802	24%	127,902	48%
North	54,032	28%	107,996	45%
South	61,517	33%	135,125	69%

Energy sources for cooking

The main energy source used for cooking remained gas, as reported by 98% of households.

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

	Gas	Wood	Oil	Other	No source used
2019	98%	2%	2%	1%	0%
2020	98%	2%	1%	0%	0%
2021	99%	3%	0%	0%	0%
Akkar	99%	2%	2%	0%	0%
Baalbek-El Hermel	96%	12%	0%	1%	0%
Beirut	99%	0%	0%	1%	0%
Bekaa	100%	2%	0%	0%	0%
El Nabatieh	98%	8%	0%	0%	0%
Mount Lebanon	99%	0%	0%	1%	1%
North	99%	1%	0%	0%	0%
South	99%	1%	0%	0%	0%
Residential	99%	1%	0%	1%	0%
Non-residential	97%	4%	0%	0%	2%
Non-permanent	97%	8%	0%	0%	0%

Wood was reportedly used for cooking by 12% of households in Baalbek-El Hermel and 8% of families in El Nabatieh. Use of wood for cooking was more common for households living in non-permanent shelters (8%).

Energy sources for heating⁶

Oil (e.g. diesel oil) remained the main source of heating as reported by 41% of refugee households, and was used mostly in informal settlements where it was reported by 67%. The use of wood for heating was mostly used by households living in informal settlements (37%).

⁶ VASyR data collection was conducted during summer (June/July), with households reporting their energy sources used for heating during the previous winter.

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

	Oil (e.g. diesel oil)	Wood	Electric heater/cooker	Gas	None	Other
2019	40%	12%	16%	11%	20%	5%
2020	39%	17%	13%	10%	24%	3%
Total 2021	41%	16%	14%	18%	17%	3%
Residential	32%	8%	19%	23%	20%	3%
Non-residential	43%	24%	9%	14%	19%	2%
Non-permanent	67%	37%	1%	6%	4%	2%
Akkar	58%	19%	3%	8%	14%	2%
Baalbek-El Hermel	77%	30%	2%	6%	0%	2%
Beirut	0%	0%	32%	33%	29%	6%
Bekaa	83%	26%	0%	1%	1%	4%
El Nabatieh	50%	29%	11%	13%	9%	2%
Mount Lebanon	9%	4%	26%	37%	27%	1%
North	17%	13%	25%	20%	29%	1%
South	15%	12%	15%	25%	27%	9%

The use of energy sources for heating varied significantly between governorates. For example, 80% of households in Bekaa and Baalbek-El Hermel reported using oil/diesel for heating compared to only 9% in Mount Lebanon and 0% in Beirut. Almost one third of households in the governorates of Beirut, Mount Lebanon, the North, and the South did not use any source of energy for heating.