



Pathways and Pitfalls

The International Politics of Lebanon's Energy Crisis

Oliver McPherson-Smith

The deadly explosion at the Port of Beirut in the late summer of 2020 drew the world's attention to Lebanon's ongoing crisis. In what began as a financial crisis, the country's ensuing economic turmoil has touched nearly every aspect of life in Lebanon. At the heart of this crisis is the Lebanese energy industry and, in particular, the state-owned electricity monopoly, *Électricité du Liban* (EDL). While decades of chronic mismanagement at EDL have helped to drain the public purse, the continuing crisis has further limited consumer access to fuel and electricity. Without access to fossil fuel feedstocks, well-functioning electricity generation facilities, or the funds to acquire either, the Lebanese energy industry remains mired in a vicious cycle of fiscal precarity and underperformance.

In an effort to chart a path toward a sustainable and stable provision of electricity, various analysts and scholars have suggested numerous different technical solutions. These solutions are diverse, from extracting natural gas from Lebanon's offshore territory to prioritizing the development of renewable power. Meanwhile, other scholars have also considered the domestic politics of Lebanon's energy crisis, as well as potential domestic electricity market designs that could function effectively within the country's complex political system, and the broader political dynamics of Lebanon's economic crisis.¹

Seeking to complement these analyses, this essay approaches the potential reform of the Lebanese energy sector from the perspective of international politics. In doing so, it advances three primary arguments. First, the modern Lebanese energy industry has been intensely shaped by international political influences since its inception in the late nineteenth century. Tracing the industry from its Ottoman origins reveals that Lebanon's energy industry and, in particular, the generation of electricity have never been detached from the regional political landscape. Second, the proposed technical solutions for Lebanon's energy crisis each carry unique ramifications for the country's contemporary

international relations. Informed by the history of Lebanon's energy industry, these political consequences in their own right represent potential future challenges to consumer energy access in Lebanon. Third, by virtue of the United States' interest in the peace and stability of Lebanon, Washington should be judicious about which technical solutions it actively supports. Lebanon's future should be the democratic choice of the Lebanese people. That, however, does not compel the United States' support for ostensible solutions that invite further civilian suffering. US support for any solution should be consistent with the principle of "first, do no harm."

This essay proceeds as follows. The first section provides an overview of the political history of the Lebanese energy industry, from the colonial period until the contemporary crisis. Addressing potential pathways out of the crisis, the second section surveys the politics of a potential greater reliance upon imported diesel and petroleum products. The third section explores the regional politics of natural gas—both imported and domestically produced—to remedy the crisis. A fourth section outlines the political challenges associated with a greater reliance upon wind or solar power. The concluding section reflects upon what Lebanon's varying pathways out of the crisis mean for US foreign policy.

FROM DEVELOPMENT TO DESTRUCTION

Modern Lebanon's energy sector underwent a dramatic development around the advent of the twentieth century. While this development involved indispensable local demand for utility-scale electricity and transportation, its evolution was closely intertwined with the international politics of the then-colonial era. In 1885, Ottoman sultan Abdul Hamid II granted a concession to produce and sell manufactured gas for lighting in Beirut.² The eventual concessionaire, the Société Anonyme du Gaz de Beyrouth, was founded in 1887 and, by 1889, the company had installed six hundred gas lamps across Beirut, replete with twenty miles of underground piping.³ In 1907 the company merged with the Société Anonyme Ottomane des Tramways et de l'Électricité de Beyrouth, and in 1908 the company gained a concession to supply the city's electricity.⁴

Following the First World War and the creation of a French mandate across much of the Levant, the concession was assumed in 1923 by the Paris-based Société Tramways et Éclairage de Beyrouth.⁵ Between 1925 and 1929, the company secured five unique concessions that would allow it, among other rights, to construct an electric tram network, to build a hydroelectric power station on the Safa River near the town of Rechmaya, and to distribute electricity to various parts of the country.⁶ In 1935, after a series of consumer protests over prices in 1922 and 1931, the company renamed itself Société Électricité de Beyrouth (commonly abbreviated to EdB).⁷ Following the end of the Second World War, and just a few short decades since its modern inception, the Lebanese energy industry had grown significantly in geographic scope and scale. By 1948 there were thirteen electricity-generating companies across Lebanon, among which Électricité de Beyrouth was the largest, followed by the Kadisha Electricity Company.⁸

While the expansion of the industry continued, so too did dissatisfaction over consumer electricity prices. By virtue of the foreign domination of the Lebanese energy sector, particularly after Lebanese independence in 1943, this discontent took a distinctly international turn. Following a wave of protests over prices and consumer nonpayments, in July 1952 the Lebanese government decreed that the maximum prices for EdB's electricity would be reduced by 21 percent and that the new tariffs would be applied retroactively for the preceding six months.⁹ This decision, according to the company and the French government, contravened a 1948 agreement that price changes would be negotiated between the company and the Lebanese government. Further reductions were mandated by the Lebanese government in August and September of 1952.¹⁰ As Abu-Rish notes, the movement protesting EdB made frequent mention of Mohammad Mosaddeq in Pahlavi Iran and his nationalization of the oil industry.¹¹ Following protracted negotiations between the Lebanese government and EdB, in March 1953 the Chamoun government claimed provisional control over the company's concessions concerning the production and distribution of electricity in Beirut and its immediate surroundings, but not those it held over transmission to various mountain towns or the Safa River hydroelectric plant near Rechmaya.¹² In April 1953, the government further seized all of EdB's remaining electricity concessions and all of its facilities. Subsequently, on behalf of EdB, in August 1953 France filed a case against Lebanon at the International Court of Justice.¹³ The case was settled outside the Court less than a year later, with compensation paid to EdB by the Lebanese government.¹⁴

Following the state's acquisition of EdB's assets, a public Office of Electricity and Common Transport was established. In 1961, the Office of Railways assumed the remit over transportation affairs, leaving a stand-alone Office of Electricity remaining. Shortly thereafter, in 1964, this office was replaced with a state-owned monopoly, *Électricité du Liban* (EDL), which has since been responsible for the generation and supply of electricity across the country.¹⁵ To effect its monopoly, EDL progressively acquired smaller existing producers, while the creation of new electricity companies was banned. Since this period, one private electricity producer has persisted: *Électricité de Zahlé* (EDZ), which traces its origins to the 1920s and supplies the city of Zahlé and nearby villages. Similarly, in 1964, a single, nationwide electricity tariff was adopted.¹⁶ Despite the political and institutional upheaval of this period, the Lebanese electricity sector nonetheless underwent rapid development and expansion. Indeed, compared to its peers, Lebanon's electricity generation and consumption were significantly higher. In 1963, for example, annual Lebanese electricity consumption was three times higher than in Syria.¹⁷

WAR AND ITS LEGACY

Lasting more than fifteen years, the Lebanese Civil War (1975–90) brought destruction upon the country's infrastructure, including that used for energy generation, transmission, and distribution.¹⁸ The exact causes of the disintegration of the energy industry across the country are context specific. However, physical damage, a diminished state capacity to collect tariffs, and noninvestment and neglect each played a ruinous role.¹⁹

Despite the protracted destruction witnessed during this period, it is imperative to note efforts to facilitate Lebanon's integration into the nascent regional electricity framework. Before the war in 1973, and after its onset in 1977, transmission lines across the Syrian-Lebanese border were commissioned.²⁰ In 1988, Egypt, Iraq, Jordan, Syria, and Turkey signed an agreement to further integrate cross-border electricity transmission.²¹ Lebanon subsequently ratified its participation in 2001 and, joined by Libya and the Palestinian Authority, brought the regional interconnection to eight parties.²² However, a lack of regulatory and technical cohesion has hindered the full use of this integration.²³

Yet, the end of the Lebanese Civil War did not facilitate the rejuvenation of the energy sector. Electricity tariffs were capped and subsidized from 1994 onward.²⁴ This latter development is, in part, due to the aging generation facilities that have raised the cost of electricity production.²⁵ Oversight of the energy sector also remained compromised; at various points in the 1990s, senior officials within the then-named Ministry of Industry and Oil were accused of disregarding quality assessments for imported petroleum products for use by both consumers and EDL.²⁶ The tendering and procurement process for EDL's feedstock was similarly subject to accusations of noncompetitive manipulation during this period. Efforts to effect change at that time fell flat due to a lack of political will. An electricity reform law was ratified in 2002, but not implemented.²⁷ The 2006 war with Israel once again wrought devastation on the country's electrical infrastructure and set back efforts to rehabilitate the industry.²⁸

The destruction associated with the conflicts and the ensuing institutional challenges resulted in an ad hoc mélange of electricity-generating infrastructure that has been insufficient to meet consumer demand. By 2018, EDL had seven conventional utility-scale power plants (with an effective generating capacity of 1,849 megawatts), five hydroelectric facilities (88 MW), and two barges provided by a private Turkish company (390 MW).²⁹ Ahmad et al. estimate the country's installed capacity to be 3,000 MW.³⁰ Despite this capacity, a 1.5 gigawatt shortfall between peak supply and demand has persisted in recent years.³¹ The brunt of this shortfall has disproportionately been borne by the country's inland regions, where half-day blackouts predated the acute crisis that began in 2019.³²

The inability of EDL to supply round-the-clock electricity has resulted in a reliance upon neighborhood or private diesel generators to fill the gap.³³ Functioning as part of an informal and loosely regulated parallel market for electricity, these generators meet around 37 percent of Lebanon's electricity demand.³⁴ While regulations on air pollution associated with these generators have been implemented, they often remain unenforced. The market structure of the fuel that powers these generators is similarly loosely regulated. Prior to the country's economic crisis, thirteen companies were officially licensed to import and distribute oil.³⁵ Although 2,200 licensed distribution or service stations existed on paper, another thousand were believed to be in operation.

THE CRISIS

In late 2019, growing indications of economic failure within the Lebanese state evolved into a full-fledged economic crisis. By 2021, due to a 40 percent reduction in the country's gross domestic product per capita, the World Bank assessed Lebanon's economic crisis to be among the most severe the world had seen since the mid-nineteenth century.³⁶ The World Bank notes that the severity of Lebanon's crisis is akin to those seen during civil conflict or war.

Various scholars diagnose a common cast of issues as the cause of Lebanon's economic crisis—within which the country's energy crisis is situated. For example, Bisat, Cassard, and Diwan attribute the crisis to a high public sector debt, a functionally bankrupt banking sector, the absence of productive economic growth across the preceding decade, and an intractable political quagmire.³⁷ Similarly, others trace the crisis to unsustainable public spending and an ensuing balance of payments crisis.³⁸ Fears over the government's solvency, and that of its domestic institutional creditors, led to a run on deposits and the dramatic depreciation of the Lebanese lira. In short, some commentators have summarized this situation as "a nationally regulated Ponzi scheme."³⁹

While EDL was not the primary cause of the wide-ranging economic and political crisis, its own insolvency is indicative of the blight afflicting the breadth of the Lebanese state. The electricity sector and the public spending that underpins it have been described as "inefficient, wasteful, and vulnerable to corruption."⁴⁰ Between 1993 and 2020, the company received an accumulative \$24 billion in transfers, which were funded through public debt.⁴¹ Fixed, low-price tariffs, high fuel-oil input costs, and an institutional inability to collect payments have all deteriorated EDL's finances. Adding insult to injury, the August 2020 Beirut port explosion completely destroyed EDL's headquarters in the nation's capital.⁴²

The effect of the crisis upon the already-fragile EDL resulted in an even greater reduction in electricity supply. In July 2020, electricity provision to residents in Beirut was reduced to two hours each day.⁴³ The minimal provision of electricity—totaling hours in the single digits—has persisted since.⁴⁴ At the nadir of the energy crisis in October 2021, the national grid endured a complete twenty-four-hour blackout as EDL's provision of public electricity ground to a halt.⁴⁵ The relative absence of electricity precipitated additional challenges, such as an inability to pump water, disruptions to internet access, and a risk to critically ill patients who require electrically powered medical devices.⁴⁶

In light of the crippling crisis, Lebanese authorities have sought to chart an expeditious path toward a stable and sustainable provision of electricity. These efforts have met with mixed results. In September 2021, consumer fuel subsidies were abolished, thus ending a vibrant trade of discounted oil across the Syrian border.⁴⁷ More comprehensive reforms have remained elusive. In March 2022, the Lebanese cabinet approved an electricity reform plan, which established an electricity regulatory authority.⁴⁸ The World Bank had made the plan's approval a condition for its financial support for

a regional energy program. Envisioning the provision of seventeen daily hours of electricity by 2023, the plan anticipates sourcing natural gas from Jordan, Egypt, and Iraq, as well as the expansion of solar and wind generation.⁴⁹ One of the World Bank's requirements included the increase in electricity tariffs, which was successfully implemented in November 2022.⁵⁰ However, without the required electricity regulatory authority, and with questions around the political feasibility of transmission lines crossing Syrian territory, the World Bank's deal has yet to be fully realized.

Lebanon may eventually realize its agreement with the World Bank—replete with imported natural gas. However, as the time between the deal's signing and the present has illustrated, this is not a given. Nor is it assured that these sources of electricity generation will be politically or economically feasible, in either the short or long term (as explored in due course). Consequently, the following sections consider the international political implications of various technical solutions to Lebanon's crisis. In order, they progress from solutions that require the least technical overhaul of the Lebanese energy industry (imported fossil fuels) to those that would be the most disruptive (utility-scale solar photovoltaic and wind).

MORE OF THE SAME: DIESEL AND PETROLEUM?

The majority of Lebanon's public and private electricity generation is sourced from petroleum products. This reliance upon petroleum products is not an inherent reason for Lebanon's electricity woes. For example, EDL primarily relies upon heavy fuel oils or diesel for electricity generation, while Électricité de Zahlé similarly utilizes diesel as a feedstock. As a subnationally-focused generating company that produces electricity when EDL fails, EDZ has been described by various scholars as a model success story for providing round-the-clock electricity.⁵¹

Lebanon's near-complete absence of commercially recoverable oil resources has led the country to rely on imported fuels. Within the broader Middle East, the proximity of hydrocarbon-poor and hydrocarbon-rich nations has given rise to petro-patronage, where the provision or denial of discount petroleum products is used to advance regional foreign policies. For example, Saudi Arabia has supported the internationally recognized government in Yemen through the provision of diesel and heavy fuel oil in 2018, 2019, and 2021, despite the fact that electricity is sold below the cost of production and payment collection is poorly enforced.⁵²

Lebanon has its own history of energy pseudopatronage, albeit as an enforced result of Syria's enduring domination of the country after the civil war. According to Leenders, "Because of Syrian interests and importers' alliances with Syrian partners, Lebanon's energy supplies had come to depend to a large extent on fuel imports from Syria."⁵³ This supply of petroleum products to Lebanon constituted the last link in the politicized provision of energy across the Levant and Mesopotamia. Even as Syrian oil production declined around the turn of the millennium, Iraqi exports of fuel to Syria in contravention

of the United Nations' embargo were subsequently reexported to Lebanon.⁵⁴ This chain disintegrated in 2003 with the advent of the Second Gulf War, which resulted in further blackouts in Lebanon and the subsequent diversification of supply routes beyond Syria.

This dynamic was once again replicated in Lebanon in September of 2021, when the Islamic Republic of Iran provided diesel via Syria.⁵⁵ The arrival of eighty trucks laden with 1.1 million gallons of diesel was coordinated by Hezbollah.⁵⁶ Hezbollah's secretary-general, Hassan Nasrallah, publicly suggested that importing the fuel through Lebanese ports would be problematic, and thus it was routed via Syria—alluding to the fact that the purchase of Iranian petroleum products would likely be in contravention of American sanctions.⁵⁷ The then energy minister, Raymond Ghajar, confirmed at the time that Hezbollah's importation had bypassed the typical permitting process.⁵⁸ It remains unclear whether the fuel was provided gratis or it was sold and, if so, at what price relative to the then market rate. The Iranian foreign ministry stated that the fuel was sold to a Lebanese businessman.⁵⁹

Nonetheless, a reliance upon imported petroleum products does not necessarily have to take the form of politically laden patronage. For example, in July 2021 the Lebanese government concluded an agreement to import one million tons of Iraqi heavy fuel oil for use in its utility-scale power plants. Due to Lebanon's fiscal challenges, the fuel was bartered for medical services in Iraqi hospitals.⁶⁰ Unlike the Iranian diesel, the high-sulphur Iraqi fuel oil was incompatible with EDL's generators, and thus needed to be bartered with third parties for the appropriate fuel. In August 2022, this agreement was extended for another year.⁶¹ While circuitous and reliant upon bartering, the Iraqi fuel deal demonstrates that Lebanon is not exclusively beholden to the patronage of petro-wealthy neighboring states.

NATURAL GAS: REGIONAL OR DOMESTIC?

The greater use of natural gas also represents an alternative pathway toward the stable provision of electricity. Unlike Lebanon's absence of oil resources, there is a relative abundance of natural gas nearby—across the eastern Mediterranean and potentially within Lebanon's territorial waters. Whether Lebanon seeks to rely on the more developed natural gas industries of neighboring states, develop its own resources, or both invites a unique assortment of political ramifications.

In June 2022, Lebanon signed an agreement with Egypt and Syria to import 22.95 billion cubic feet of natural gas per year, for use in its power plant at Deir Ammar. With conditional financial support from the World Bank, the deal seeks to source gas through the regional Arab gas pipeline, originating in Egypt and ultimately traversing Syrian territory before reaching northern Lebanon. This agreement was parallel to a January 2022 deal to import Jordanian electricity via Syrian territory that would similarly enjoy initial funding from the World Bank.⁶²

The Biden administration has voiced support for the gas and electricity agreements. Various observers have attributed this support to an effort to counter the Iranian provision of fuel patronage via Hezbollah, as well as to dim accusations that the United States' sanctions regime is a barrier to Lebanese economic recovery and development.⁶³ However, there remains uncertainty over the agreement's compliance with sanctions embodied within the United States' Caesar Syria Civilian Protection Act. The act compels the US government to sanction entities that enrich the Assad regime in Syria. While the Biden administration's special presidential coordinator for international energy affairs, Amos Hochstein, has suggested that sanctions would not hinder the agreement, Senate and House Republicans have sought to inhibit the deal through the Caesar Act.⁶⁴ Amid the uncertainty and the need to create an electricity regulatory commission, both the gas and electricity agreements have remained stalled.⁶⁵

Despite the Biden administration's support for the deal, natural gas sourced from neighboring countries risks providing them with further leverage over Lebanon. This is not solely a hypothetical scenario. Following the decline of Syrian oil production from 1997 onward, and the inability to source crude from Iraq in 2003, the Lebanese government forged a plan to use Syrian natural gas for electricity production. Concluded in October 2003, this scheme sought to convert EDL's generators to accommodate natural gas as a feedstock. According to Leenders, the agreement served as a compromise to resolve Lebanon's then-ongoing electricity crisis without diminishing Syria's domination of the Lebanese energy sector.⁶⁶ The plan stalled and did not reach fruition by the time of Syria's withdrawal in 2005. Nonetheless, the scheme sought to create a captive market for Syrian natural gas exports, while affording Damascus control over Lebanon's access to a vital energy feedstock.

The long-term commercial provision of natural gas from foreign sources also necessitates that the Lebanese state comply with the conventions of international business. Previous experience with natural gas infrastructure illustrates this challenge. In June 2012, the Lebanese government signed an agreement with the Turkish Karpowership company to procure 404 MW of electricity from two floating power barges.⁶⁷ In 2018, the Lebanese government extended the contract for the dual fuel oil- and natural gas-burning barges for an additional three years. A third barge was sent in 2018 for a three-month stint, at no cost, to facilitate the extension.⁶⁸ Although the Lebanese government was able to barter with its Iraqi counterpart for fuel, its options for bartering with the Turkish profit-seeking corporate entity were evidently less flexible. In May 2021, it was announced that the company would power down its barges due to eighteen months of nonpayment by the Lebanese government.⁶⁹ The May power-down proved to be short-lived, and the company continued its supply in what it reportedly described as a gesture of goodwill.⁷⁰ However, the company finally ended its supply of electricity at the conclusion of its contract in October of 2021, facing arrears from the Lebanese state in excess of \$100 million.⁷¹ If the long-term resolution of Lebanon's energy challenges is to involve acquiring natural gas from foreign sources, and beyond the World Bank's support, it will most likely require adherence to fundamental contractual obligations.

SELF-SUFFICIENCY THROUGH NATURAL GAS

The development of Lebanon’s domestic natural gas resources has similarly been identified as a pathway beyond the crisis. In December 2017, the first licenses for offshore natural gas exploration and production were awarded to an international consortium consisting of Total (40 percent, and operator), Eni (40 percent), and Novatek (20 percent).⁷² The French-Italian-Russian consortium was awarded licenses for two offshore “blocks”—the southernmost of which included territory that was claimed by Israel.⁷³

Progress toward developing Lebanon’s natural gas industry was met with unbridled speculation about the country’s potential natural resource wealth. In February 2022, then president Michel Aoun described the imminent drilling of Lebanon’s first offshore well as “a turning point” and “a cornerstone to get out of the abyss” of the country’s enduring crisis.⁷⁴ This speculation was not completely unmerited, in light of the booming natural gas industry in neighboring Israel. Particularly through the development of the Leviathan and Tamar natural gas reservoirs, the Israeli public treasury gained around \$250 million in royalties and revenues in the first six months of 2022.⁷⁵ However, hopes of replicating Israel’s success have initially proven to be premature. The European consortium first drilled in block 4—having eschewed block 9 that neighbors Israel—only to uncover little conclusive evidence of commercially viable reservoirs. The discovery of small pockets of gas was described by commentators as “a huge disappointment” for Lebanon’s hydrocarbon ambitions.⁷⁶

Lebanon’s offshore gas ambitions have faced both geopolitical upsides and downsides in recent months. In September 2022, Minister for Energy and Water Walid Fayad announced that the Lebanese state would assume Novatek’s 20 percent share of block 4.⁷⁷ Novatek’s departure was reportedly due to the risk of Western sanctions amid Russia’s invasion of Ukraine. Total subsequently reported being both the operator and owner of a 60 percent interest in block 9, while Eni’s interest remained at 40 percent.⁷⁸ By January 2023, however, QatarEnergy was reported to have assumed a 30 percent stake in both blocks, leaving Total and Eni with 35 percent each in blocks 4 and 9.⁷⁹ Despite the potential local presence of natural gas resources, the recent experience of this consortium illustrates how Lebanon’s exploitation of these reserves—at least initially—remains subject to global political headwinds.

In contrast with the upheaval that has embroiled the agreement among the consortium members, Lebanon’s potential gas resources near the Israeli border have gained greater political clarity. In October 2022, Lebanon signed a maritime border demarcation agreement with Israel, thus bringing to a close questions around the political stability of Lebanon’s southernmost offshore blocks—including the already-licensed block 9.⁸⁰ Under the agreement, Israel would gain exclusive rights to develop the Karish gas reservoir, which would be located completely within Israeli territory. Lebanon would be able to tap the Qana reservoir, which straddles the newly demarcated border, on the condition that the operator—Total—pay royalties to Israel.⁸¹ Following the agreement’s

conclusion, Total announced that it would commence exploration in block 9.⁸² Hezbollah has tacitly endorsed the agreement. If commercially feasible quantities of gas are found, production may nonetheless take five to six years to come to fruition.⁸³ Meanwhile, the deadline for an additional round of licensing for the remaining blocks has been repeatedly extended, most recently until June 30, 2023.⁸⁴

A RENEWABLE SOLUTION?

While Lebanon's energy sector is predominantly hydrocarbon in nature, the country nonetheless has a long history of renewable energy use. Since the colonial era, the country has operated hydroelectric installations and, by 1974, at least 41 percent of Lebanon's electricity was produced through hydroelectric sources.⁸⁵ In recent years, a combination of irregular rainfall and the depreciation of hydroelectric installations has limited generation.

Among renewable sources of electricity, photovoltaic (PV) solar power has garnered significant interest across the contemporary Middle East.⁸⁶ Initial steps have been taken toward developing Lebanon's own PV capacity, most visibly through the 1 MW "Solar Snake" along 325 meters of the Beirut River in the city's Bourj Hammoud district.⁸⁷ With solar farms across the country producing approximately 60 MW of electricity, Lebanon's Council of Ministers officially tendered eleven more projects in 2022 to develop an additional 165 MW.⁸⁸ The individual projects will most likely require the conclusion of power purchase agreements (PPAs) before construction can begin. Even with PPAs inked, financing large-scale renewable projects remains challenging. For example, in February 2018 the Lebanese government signed PPAs for three wind farms in the Akkar Governorate. Without sufficient financing, these projects have stalled.⁸⁹

Across 2021, Lebanon witnessed an uptick in small-scale solar installations, and select small towns have opted to develop community-level solar installations, such as Bcheale in the North Governorate.⁹⁰ The long-term viability of these projects remains in question. The technology firm that oversaw the project in Bcheale subsequently left the initiative because it lacked the scale to break even. Similarly, household-level solar installations require significant upfront financial investment to produce electricity akin to that sourced from a functioning utility company. An illustrative, parallel example can be found in Yemen. Following the collapse of the electricity industry in areas under Houthi control in 2015, distributed solar power increasingly became an option of last resort for households. As McCulloch notes, the quality of this supply is comparatively poorer than the utility services once enjoyed, leaving some Yemeni households able only to power lights, pump water, and charge cellphones.⁹¹

FURTHER GEOPOLITICAL CHALLENGES

While Lebanon requires external assistance to further develop its renewable energy capacity, this assistance may be complicated by an increasing concern among Western

countries for labor standards within renewable supply chains. Polysilicon is an integral component of solar panels, and the majority of its global supply is produced within the Xinjiang region of the People’s Republic of China. In light of persistent evidence of forced labor within Xinjiang, in December 2021 President Joe Biden signed the Uyghur Forced Labor Prevention Act into law. The law establishes a rebuttable presumption that goods, resources, or components produced within Xinjiang are the product of forced labor and are thus inadmissible to the United States. Earlier versions of the law passed both the US House of Representatives and Senate nearly unanimously.

Concerns about forced labor in energy supply chains are not unique to the United States. In September 2022, the European Commission released a draft proposal to limit the proliferation of goods within the European Union that have been made with forced labor. Per the draft proposal, “Currently there is no Union legislation that empowers Member States’ authorities to directly detain, seize, or order the withdrawal of a product on the basis of a finding that it was made, whether in whole or in part, with forced labour.”⁹² Similarly, at present, the World Bank Group does not have robust mechanisms to inhibit the procurement of solar panels that are manufactured by, or with minerals that are mined by, forced labor. The World Bank’s self-declaration forms pale in comparison to the rigor of the Uyghur Forced Labor Prevention Act. In October 2021, Treasury Secretary Janet Yellen publicly noted the need to ensure that solar components that are made with forced labor are not used in World Bank–funded projects.⁹³ In a parallel development at that time, ranking member of the US Senate Foreign Relations Committee James Risch similarly warned that he would withhold support for solar projects through the US International Development Finance Corporation without guarantees that any Chinese solar components involved were not tainted with forced labor.⁹⁴ Continued Western interest in inhibiting the use of forced labor–tainted solar components may thus ultimately challenge Lebanon’s access to Western or multilateral funding to support the expansion of solar power infrastructure.

AMERICAN FOREIGN POLICY: FIRST, DO NO HARM

The preceding three sections have detailed both proposed technical pathways out of Lebanon’s energy crisis and their international political implications. This final section concludes by considering the interaction between these pathways and the United States’ foreign policy toward Lebanon and the Middle East.

Although Lebanon is a geographically small nation, the United States has a profound interest in the country’s stability, peace, and prosperity. The humanitarian interest of the United States, as a charitable nation with a long history of supporting human welfare, is self-evident; devising a stable and enduring resolution to the energy crisis would bring some measure of alleviation to Lebanon’s acute deterioration of civilian health and well-being. The peace and stability of Lebanon is also within the United States’ strategic interest. The rise and fall of the Islamic State of Iraq and Syria, including a wave of terror attacks across both Western Europe and the United States, illustrates the

global nature of the destruction that an absence of well-being or security can precipitate. Moreover, violence that spills over Lebanese borders poses a most immediate threat to several nearby states that are major non-NATO allies of the United States, such as Israel, Jordan, and Egypt. Indicative of the United States' interest in Lebanon's success is the scale of foreign assistance afforded to the country—more than \$5.5 billion since 2006.⁹⁵

The ultimate decision on which pathway Lebanon follows out of the crisis should be made by a democratically elected Lebanese government. However, this does not preclude the United States from offering or withholding support for select technical options, in light of America's own interests. These interests can be summarized in the maxim *primum non nocere*, or "first, do no harm." For example, this approach can be applied to the proposed regional electricity and natural gas deals that, as currently structured, would stand to materially enrich the Assad regime in Syria. While this arrangement would typically trigger sanctions under the Caesar Syria Civilian Protection Act, the president nonetheless has the authority to waive such sanctions if it is in the United States' interest. Yet, energy deals that alleviate suffering in one country while enriching a well-documented perpetrator of civilian suffering in another country constitute a Pyrrhic victory for American foreign policy. A similar dynamic would be found in American support for the use of solar power components that are likely tainted by forced labor. The resolution of the Lebanese crisis should not be contingent upon turning a blind eye to state sponsorship of terrorism, egregious human rights abuses, or genocide elsewhere.

The aforementioned maxim is also relevant to questions around the fiscal viability of select pathways out of the crisis. Lebanon's energy crisis is ultimately just one element of the country's acute challenges, which are similarly institutional and fiscal in nature. As outlined in the third section of this essay, recent history demonstrates that commercial agreements to purchase electricity or feedstock are infeasible in the long term without reforms to facilitate paying the associated bills. The United States' support for such agreements risks inviting further fiscal stress in the long run. The production of natural gas, for either domestic use or export, serves as a potential pathway forward that evades this problem. If the border-demarkation agreement with Israel proves durable once extraction takes place in nearby waters, and there are opportunities for knowledge transfer among international energy companies and their nascent Lebanese counterparts, the development of Lebanon's offshore gas resources may play a long-term positive role in Lebanon's economic rehabilitation.

Ultimately, the exploration of the international politics of Lebanon's energy crisis is relevant to policy discussions in both Beirut and Washington, DC. Considering the political ramifications of technical energy solutions—and the allied lessons drawn from Lebanon's history—should serve to inform the United States' pursuit of supporting peace, well-being, and stability in Lebanon. Among the many pathways forward, there nonetheless remain numerous pitfalls.

NOTES

1. See, respectively, Laury Haytayan, "The Politics behind Lebanon's Collapsed Energy Sector," Italian Institute for International Political Studies, May 13, 2022, <https://www.ispionline.it/en/pubblicazione/politics-behind-lebanons-collapsed-energy-sector-34962>; 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): 102399, <https://doi.org/10.1016/j.erss.2021.102399>; and Amer Bisat, Marcel Cassard, and Ishac Diwan, "Lebanon's Economic Crisis: A Tragedy in the Making," Middle East Institute, March 29, 2021, <https://www.mei.edu/publications/lebanons-economic-crisis-tragedy-making>.
2. *Annuaire Desfossés: Valeurs Cotées en Banque à la Bourse de Paris* (Paris, France: E. Desfossés & Fabre Frères, 1908), 277, https://images.eurhisfirm.eu/Annales/DESFOSES/1908_BNF.pdf.
3. Jens Hanssen, *Fin de Siècle Beirut: The Making of an Ottoman Provincial Capital*, Oxford Historical Monographs (Oxford, England: Clarendon Press, 2005), 97.
4. Hanssen, *Fin de Siècle Beirut*, 100; and *Annuaire Desfossés: Valeurs Cotées en Banque à la Bourse de Paris* (Paris, France: E. Desfossés & Fabre Frères, 1917), 511, https://dfih.fr/issuers/2729/yearbook-ocr?source=annuaire_df_1917.
5. Ziad Munif Abu-Rish, "Conflict and Institution Building in Lebanon, 1946–1955" (PhD diss., University of California, Los Angeles, 2014), 128, <https://escholarship.org/uc/item/67x11827>.
6. Abu-Rish, 131–32.
7. Abu-Rish, 137.
8. Abu-Rish, 151–52.
9. Abu-Rish, 203–4.
10. Abu-Rish, 205–6.
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ABOUT THE AUTHOR



OLIVER MCPHERSON-SMITH

Oliver McPherson-Smith is a research fellow at the Hoover Institution. His work explores the politics of the private sector in Africa and the Middle East, with a focus on energy and the regulation of entrepreneurship. He holds a PhD in politics from the University of Oxford, an MA in Middle Eastern studies from Harvard University, and a BA in land economy from the University of Cambridge.

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Hoover Institution, Stanford University
434 Galvez Mall
Stanford, CA 94305-6003
650-723-1754

Hoover Institution in Washington
1399 New York Avenue NW, Suite 500
Washington, DC 20005
202-760-3200

