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Electricity Sector Reform in Lebanon: Political Consensus in Waiting

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EXECUTIVE SUMMARY

Electricity reform is one of Lebanon's greatest challenges. The failure to ensure reliable electricity supply is a symbol of the Lebanese state's long-standing crisis, and is closely linked to the shortcomings of its political system. An improvement in electricity services would send a strong message that the state is able to support the economic development of the country and positively impact the everyday life of its citizens. Electricity reform is a multi-dimensional process. In addition to technical solutions, reform requires building support coalitions among the country's political leadership and civil society. Considerable investments are necessary and would require the involvement of the state, private sector, and international donors. An ambitious reform program could set an example for the rest of the region, also tackling electricity challenges.

WHY DOES ELECTRICITY REFORM MATTER?

Electricity reform is a crucial part of Lebanon's economic, social, and political stability. The lack of reliable electricity acts as a constraint on business and prevents economic diversification. The state-owned Electricité du Liban (EDL) is heavily subsidized, claiming 20% of the annual state budget. Reducing state transfers would therefore free expenditures for other government priorities, such as education, social security, and debt servicing. A better electricity supply would considerably improve the daily life of citizens. It would also avoid deepening the social inequalities that the failing electricity system exacerbates. Finally, a meaningful reform would reduce oil dependence and put the country on a more environmentally sustainable path. Improving the electricity supply also has potential political implications. It could help strengthen the credibility of the state and its institutions by delivering a critical public service. It could also be conducive towards political consensus on the future of the country's political and economic reform. The lack of reform could result in unrest similar to that occurring in January 2008, when demonstrators demanded better electricity service.

WHAT IS THE LEBANESE ELECTRICITY DILEMMA?

The costs of an inefficient electricity system are a major burden for the economy, the state, and its citizens. However, the electricity issue is marginalized in the public debate and renders progress of the reform extremely challenging. The level of electricity supply is inadequate for a country classified as being upper-middle income. On average, citizens experience six hours of blackout per day. The state-run EDL provides only part (75%) of the country's electricity needs despite its monopoly on state electricity production. The rest is supplied through a network of private backup generators. EDL collects bills for only 60% of electricity production due to illicit practices in its network. Furthermore, the state budget transfers $1.5 billion annually to EDL in order to maintain at least the current level of service, while backup generators cost the consumers $1.3 billion per year.

The status quo benefits a restricted circle of intertwined economic and political interests. These interests further undermine the advancing of a necessary reform that would improve the electricity service for the economic benefit of Lebanon and its citizens. The political situation, clouded by disagreements among Lebanese politicians, does not provide adequate conditions for reform. More importantly, the extreme polarization of Lebanese political life is such that core economic and social issues, such as electricity supply, are marginalized in public debate. Given the primacy of communitarian allegiances of Lebanon's citizens, bottom-up pressure is reduced to a minimum and is insufficient for a substantive change to take place.

WHAT ARE THE OBSTACLES TO BE OVERCOME?

A successful reform needs to address the roots of the failure and suggest technical solutions that will gather the support of all stakeholders. EDL was created in the 1960s from a fragmented system of local and regional electricity concessions. The outbreak of the Civil War in 1975, however, prevented the company's consolidation and resulted in deterioration of its management and infrastructure. Over the past two decades, governments presented several reform plans. External consultants identified technical recommendation. New pieces of legislation were adopted. Despite suggestions, the government properly implemented only few measures. Several obstacles stand in the way of Lebanon's electricity reform. Consensus is necessary but difficult to reach given the permanent state of deal making between politicians. There is a broken link between the political representatives and their constituencies when it comes to understanding and accommodating the necessary elements of reform. Informed public debate about the challenges and issues related to electricity reform, such as privatization, is lacking. Local non-governmental organizations (NGOs), usually very vocal, remain surprisingly timid as Lebanese citizens demonstrate lack of confidence in their government and its proposed measures. Industry representatives are reluctant to get involved in a more intensive dialogue addressing the decision makers. The regional geopolitical situation acts as an aggravating factor for diversification of Lebanon's gas and electricity supplies. Meanwhile, the country's economy and state finances are greatly exposed to volatility of international oil prices.

WHAT IS THE WAY FORWARD?

Any meaningful steps towards practical changes to the Lebanese electricity sector will require a combination of short-term measures and long-term policy planning by the Government of Lebanon; participation of the private sector; involvement by civil society; and assistance from international donors. There is a unique opportunity to build on the agreement reached by the current government based on the 2010 Policy Paper for the Electricity Sector and deliver concrete results in the implementation of the proposed infrastructure projects and reform measures.

In the short term, the scope of the Policy Paper should be reduced to a restricted number of immediate measures that realistically lie within the reach of the government. These should focus on identifying financing options for building up the country's electricity generation capacity over the next four years in line with Law No. 181 of 5 October 2011, bolstering the natural gas supply through pipeline or LNG and implementing supportive measures for energy efficiency, and increasing the use of renewable energy. In parallel, a consultative forum should be created to guarantee an adequate space for broader public consultation on the future energy strategy for the country, including electricity reform.

In the long term, Lebanon requires a comprehensive, national energy strategy. This should encompass electricity, oil, gas, and renewable energy, and be built around the principles of a diversified energy mix, environmental sustainability, and social and economic development. Such a strategy should be based on solid statistical evidence and the assessment of the country's energy landscape. It should outline a comprehensive legislative and regulatory framework and an adequate institutional set-up, identifying medium- to long- term energy policy objectives taking into consideration other sectors' energy needs. The new energy strategy should be developed through a process of public consultation. With respect to electricity, the strategy should address the major factors that have been hampering the electricity reform process while building on the 2010 Policy Paper for the Electricity Sector. In addition to addressing the sector's restructuring and the future of EDL, it should also cover the situation of backup generators, encourage more responsible energy-demand management and improved energy efficiency, and facilitate use of renewable energy as per international trends and standards.

KEY RECOMMENDATIONS

To the Government of Lebanon:

1. Prioritize electricity decisions in its working program and agree on a comprehensive energy strategy for Lebanon with a clear timeline for its implementation.
2. Allocate resources at the level of municipalities to institutional strengthening in the electricity sector.
3. Implement a coherent communication strategy in support of electricity reform targeting the full range of electricity sector players.

To the international donors:

4. Implement a systematic donor coordination mechanism that will commit financial support in the electricity sector to the Government of Lebanon, conditional to its adoption of a detailed reform road map with a concrete timeline.
5. Provide financial assistance for building up knowledge with Lebanese civil society actors about electricity governance and consumer rights protection.

To the civil society:

6. Formulate a coordinated position towards electricity reform focusing on its social and environmental aspects and consumer rights protection while building up local expertise in electricity governance.

To the Government of Lebanon and the civil society:

7. Raise public awareness about the financial and environmental value of energy efficiency and energy savings and increased use of renewable energy sources.

To the private sector:

8. Formulate a coordinated position towards electricity sector reform, focusing on potential business opportunities, and develop new financing models for innovative electricity supply solutions in cooperation with Lebanese banks.

To the Lebanese government, the international donors and the private sector:

9. Develop and implement innovative, private-sector driven projects and financing solutions to promote energy efficiency, energy saving, and use of renewable energy sources across all the sectors of the economy, and including research, development, and deployment activities.

INTRODUCTION

Electricity supply is one of the major political challenges in Lebanon for the decade to come. On average, the country faces six hours of electricity cuts per day. The state-run monopoly Electricité du Liban (EDL) provides only 75% of the country's electricity needs. Additional production comes from privately owned backup generators that are functioning without any regulatory or legislative framework and cost the consumers an estimated $1.3 billion per year. Another $1.5 million are transferred on an annual basis as a subsidy from the state budget to EDL to ensure its continuing operation, given the company's incapacity to create sufficient revenue stream. EDL's failure to ensure a reliable electricity supply has become a symbol of the profound political crisis affecting the Lebanese state and its institutions.

A reliable and stable energy supply is a key factor in economic development. Electricity services are an essential factor for improving economic competitiveness and quality of life in any country. In Lebanon, insufficient provision of electricity services has become a major constraint for businesses. It prevents the country's economic diversification into manufacturing and energy-intensives sectors. It is also a source of daily frustration for Lebanese citizens and a factor exacerbating inequalities within the society. Without a meaningful reform, the country continues to rely on oil in its electricity production, which has devastating environmental consequences along with high financial costs.

The failure to change this status quo is intimately linked to the country's political situation, which is clouded by disagreements among Lebanese political factions. The extreme polarization of Lebanese political life is such that core economic and social issues, such as electricity supply, are marginalized in public debate. There were several attempts to change the present electricity system. Different reform plans have been presented since the beginning of 2000s. New pieces of legislation have been adopted but not properly implemented. Hence, the conditions of the Lebanese electricity sector continue to deteriorate. The outlook points at further electricity rationing unless concrete actions are implemented to improve the state of the sector.

The problem of the Lebanese electricity sector has been addressed by a number of academic and applied studies, which provide technical recommendations for its reform. However, little analysis has been undertaken concerning the reasons behind the failure to reform and the conditions that could facilitate it. Therefore, the present paper attempts to complement the technical studies by drawing some lessons from the history of electricity sector development in Lebanon, assessing the current failures and analyzing the factors hampering the implementation of electricity reform. The paper draws on information gathering and interviews with numerous Lebanese senior public officials, private entrepreneurs, members of academia, non-governmental organizations, and international donors during the period between January 2011 and November 2011. Given the lack of first-hand statistical data, the paper uses the available academic and applied studies along with the official data made available by Lebanese public institutions. The study should present a basis for further research on political and governance aspects of electricity sector reform in Lebanon.

I. A SHORT HISTORY OF THE ELECTRICITY SECTOR IN LEBANON

A. THE BUILDING OF A UNIFIED SYSTEM

A historical overview of the electricity sector in Lebanon provides some explanation as to the root causes of its current geographical and systematic fragmentation. The creation of the state-owned company EDL was based on a fragmented system of concessions for electricity production and distribution. The outbreak of the Civil War in 1975, just ten years after the company's creation, prevented its consolidation. The political situation since the end of the conflict in 1990 has not provided adequate conditions for its reform. After 20 years of attempted post-Civil War reconstruction, the country's electricity system is still outmoded and continues to lag behind not only global electricity trends, but also regional attempts for electricity sector restructuring.

From its beginnings, the history of the electricity industry in Lebanon has been plagued by foreign involvement and local dissatisfaction over the quality of service. The first concession for a network of gas lighting in Beirut dates back to 1885, during Ottoman rule. The first company, *La Société Anonyme Ottomane de Gaz de Beyrouth* was established in 1887 with combined French and Belgian ownership.[1] The company succeeded in constructing the necessary infrastructure by 1889. At its peak, it operated a gas lighting system in the city of Beirut with dedicated gas storage, a 20-mile underground pipeline network and more than 600 gas lamps across the city. The company proved to be an unprofitable business, and, from the outset, the Beirut municipality complained about its poor service quality. In 1923, the business was taken over by *La Société d'Éléctricité de Beyrouth* headquartered in Paris, which managed to obtain a license for the operation of Beirut's tramway network, necessitating further electricity supply.[2] Inaugurated in 1909, the tramway operation also encountered a number of difficulties including a three-month boycott of tramway services in 1931 by Beirut residents protesting high-ticket fees.[3]

B. EXPANSION OF CONCESSIONS

The Lebanese electricity network was further developed in the following decades with the award of several local concessions in places like Qadisha, Zahle and Saida.[4] The question of control over concessions became one of the most important areas of confrontation between local Lebanese business circles and the country's leadership under the French mandate. The expansion of the electricity network was closely linked to the development of local industries concentrated around areas with electricity services. For example, the Qadisha Electricity Company developed a network in Northern Lebanon, including the city of Tripoli, where industrial activity flourished.[5] Clearly, such a strategy did not benefit the entire country and is partially responsible for establishing the roots of the current inequalities. In 1948, a report contracted by the UK government concluded: "The resources of the country and the public services have, with few exceptions, been farmed out to private individuals or concessionary organizations. This has led in some cases to inefficient operation of these resources and to their hazardous utilization without consideration for the interests of the country as a whole".[6]

Electricity consumption increased at an accelerated pace following the expansion of Lebanon's generation capacities from 80 GWh in 1948 to 280 GWh in 1957 and 692 GWh in 1964.[7] At the

[1] HANSSEN Jens, Fin de siècle Beirut: The making of an Ottoman provincial capital, Oxford University Press, 2005.
[2] SANLAVILLE Paul, L'électricité au Liban in « Revue de géographie de Lyon », Vol. 40, n°4, 1965, pp. 367-379.
[3] KASSIR Samir, Histoire de Beyrouth, Fayard, 2003.
[4] The concessions awarded covered electricity generation and distribution and included a number of hydropower projects. As a result, Lebanon's hydropower generation was on equal footing with thermal generation capacity by the early 1960s.
[5] SANLAVILLE Paul, L'électricité au Liban in « Revue de géographie de Lyon », Vol. 40, n°4, 1965, pp. 367-379.
[6] The Economic Development of Lebanon, Report by Alexander Gibb & Partners, London, 1948.
[7] SANLAVILLE Paul, L'électricité au Liban in « Revue de géographie de Lyon », Vol. 40, n°4, 1965, pp. 367-379.

beginning of this development, industrial activity was concentrated in Beirut's suburbs and Chekka in the North, as these were the only two regions with electricity supply. Ensuring the extension of electricity access throughout the country became an economic and political necessity with the objective of ensuring regionally balanced economic development. This objective was articulated around a unique state-owned electricity company. It was based on the idea that fragmented and decentralized systems for electricity distribution did not deliver the expected increased electrification and did not allow state to intervene for this purpose.

C. DEVELOPMENT YEARS

The policy of state involvement was orchestrated during Fouad Chehab's presidency (1958-1964) when the electricity system, particularly the improvement of electricity access across the country, was used as a key element in a wider strategy for state- and nation-building.[8] Improved access to electricity services was considered an essential prerequisite for economic and industrial development in rural and remote regions of Lebanon.[9] The strategy was based on the physical expansion of the electricity networks and the introduction of a unified electricity tariff structure to ensure service availability to poor populations. The political importance of the action was highlighted by significant investments. A sum of 72 million Lebanese Pounds (LL) was earmarked for the electricity infrastructure under the government program *Grands Travaux*.[10]

The restructuring of the electricity sector pursued a single-company model. In July 1954, most of the existing electricity concessions, such as those of Jezzine and Saida, merged into one entity, the *Electricity and Public Transport Authority*. In 1961 the Authority was split into two separate entities for electricity and transport, respectively. The electricity entity was later transformed into the current state-owned company, EDL, under Electricity Decree No. 16878 of 10 July 1964. The role of EDL was further reinforced with the passage of Decree No. 4517 of 13 December 1972 on the general system of public institutions. The period following the creation of EDL was a uniquely "constructive" period in its history. Until today, this was the only opportunity the company had to focus on both the consolidation of its functions and development of its infrastructure. Available information regarding access to electricity networks confirms the intensity of the efforts undertaken towards a nation-wide campaign for better electricity access that was politically supported by President Fouad Chehab.[11] In 1962, 500 of 1600 Lebanese villages were connected to the network; in 1974, only 50 villages still lacked electricity access.[12] Today, the diversity of the initial electricity system prior to centralization is reflected in the existence of several "special entities", such as the distribution concessions in Alley, Jbeil and Zahle[13].

The early period of the Lebanese electricity sector was marked by strong residential use, which represented more than 50% of the total electricity consumption in Lebanon. It is reported that in 1964, 60% of electricity was used by households and for public lighting.[14] The phenomenon of high residential consumption due to limited industrial activities still exists[15], making reform efforts more difficult since energy intensive industries are usually strong supporters of electricity reform in developing countries. In Lebanon, groups interested in improving the sector's performance have

[8] SALIBI Kamal, Lebanon under Fouad Chehab 1958-1964, in "Middle Eastern Studies", Vol. 2, No 3, April 1966.
[9] A similar approach was implemented in Jordan in the 1960s-1970s.
[10] SALIBI Kamal, Lebanon under Fouad Chehab 1958-1964, In "Middle Eastern Studies", Vol. 2, No 3, April 1966.
[11] ibid.
[12] VERDEIL, Eric, Électricité et territoires: un regard sur la crise libanaise in «Revue Tiers Monde», Février 2009.
[13] The concessions are: The Electrical Utility of Aley, Jbeil Electrical Company and Electricité de Zahlé.
[14] SANLAVILLE Paul, L'électricité au Liban in « Revue de géographie de Lyon », Vol. 40, n°4, 1965, pp. 367-379.
[15] Estimates for electricity consumption by sector in Lebanon: 38.5% residential, 5.7% commercial, 23.7% industrial, 5.5% public, 3.8% concessions, 16.5% distribution losses, 6.5% power stations. See draft paper entitled "Electric Energy Access in Jordan, Lebanon and Syria", prepared for Energy Access II Working Group, Global Network on Energy for Sustainable Development, 2004.

traditionally belonged to residential and small commercial consumers with limited impact on reform process and its outcomes.

Despite considerable efforts to expand generation capacities, in the period preceding the Civil War, the electricity supply did not keep up with the strong growth in demand. While Lebanon was a net electricity exporter to Syria before the Civil War, electricity outages were already part of everyday life during this period.[16]

D. CIVIL WAR AND ELECTRICITY COLLAPSE

The period of the Lebanese Civil War (1975-1990) had a dramatic impact on the electricity system in the country. Not only did the Civil War cause the physical destruction of the electricity infrastructure, it also undermined the operability, managerial, financial, and technical capacity of EDL. The company, originally established as a vector of national unification, became the symbol of national crisis.[17] The lack of control encouraged fraud, theft, and illegal connections to the electricity network: "The abuses ranged from default on payment of dues to installment of private wires onto the main arteries by individuals and the militias who stole power for their own purposes."[18] These factors undermined the financial and managerial capacities of the state-owned EDL, as it remained responsible for electricity supply and bill collection throughout the entire period. The underlying patterns of fraud still persist, and the informal links that developed during the Civil War period continue to determine EDL's capacity to respond to practical problems.

The difficulty of connecting to electricity networks during the Civil War was directly related to the internal migration of the population.[19] It is estimated that two-thirds of the population temporarily changed their place of residence while the remaining third moved permanently. Since fighting took place on the borders of various areas inhabited by different religious communities, populations would establish temporary residences in areas perceived as safer, which changed the geographical characteristics of electricity demand. Displaced Lebanese populations had limited means to legally connect to the electricity network because official registration required a residency card, which was difficult, if not impossible, to obtain amidst the fighting. Consequently, these "new clients" reverted to illegal means.

The system and procedures in place, coupled with the political realities of the Civil War, did not allow for adequate policy and technical responses. Many EDL employees literally found themselves cut off from the headquarters and, hence, their monthly salaries, because of the ongoing fighting that impeded movement. It is reported that in the 1980s, the salaries of civil servants did not even cover the cost of commuting to work. Consequently, some EDL employees enabled fraudulent situations and helped facilitate illegal connections for needy residents. There are indications that these practices persisted into the post-Civil War period.[20]

The physical destruction of the electricity infrastructure was not the only reason electricity shortages and blackouts occurred, as the electricity supply was often used as a weapon by militia to undermine opposing factions.[21] For example, West Beirut repeatedly suffered from imposed electricity shortages given its lack of direct access to the electricity power plant in Jiyeh.[22] Militias also used the provision of electricity from generators as a compensation for their local supporters. Shortages were furtehr

[16] DIB Kamal, Warlords and Merchants: The Lebanese Business and Political Establishment, Ithaca Press, 2004.
[17] VERDEIL Eric, Électricité et territoires : un regard sur la crise libanaise in « Revue Tiers Monde », Février 2009.
[18] DIB Kamal, Warlords and Merchants: The Lebanese Business and Political Establishment, Ithaca Press, 2004.
[19] VERDEIL, Eric, Électricité et territoires: un regard sur la crise libanaise in «Revue Tiers Monde», Février 2009.
[20] Interview with former EDL contractor, September 2011, Beirut.
[21] PICARD Elizabeth, "The Political Economy of Civil War in Lebanon," in Steven Heydemann (ed), War, Institutions, and Social Change in the Middle East, (Berkeley and Los Angeles: University of California Press, 2000), 298-303.
[22] VERDEIL Eric, Électricité et territoires : un regard sur la crise libanaise in « Revue Tiers Monde », Février 2009.

exacerbated by lack of generation capacity, network deficiencies resulting from unsatisfactory maintenance, and the physical degradation and suspensions in fuel imports when ports were closed for long periods.

E. ROOTS OF THE CURRENT FAILURE

The system failures during the Civil War shed light on some of the ongoing practices in electricity distribution. Firstly, the system failed to adapt to changing patterns of consumption as new consumers appeared in various geographical locations across Lebanon. EDL did not possess the necessary financial means to undertake a major overhaul of its production and distribution infrastructure. Secondly, many official subscribers to EDL neglected to pay for the electricity consumed on a regular basis. Finally, consumers faced with the incapacity of the state monopoly turned to privately owned backup electricity generators that were operating outside the legal framework.

There were several attempts by the government to address some of the above issues, particularly in the early 1980s. A temporary solution allowing consumers without residency cards to register with EDL was introduced.[23] This attempt, however, did not succeed in reversing the growing trend of illegal connections and unbilled consumption. For example, only 15% of non-subscribed households used the opportunity to normalize their situation through a system of single-volume subscriptions called "maqtou'ia" that allowed households to consume fixed amounts of electricity for a given period. Local political allegiances, amongst other factors, played an important role in protecting fraudulent consumers. Given the lack of state authority, EDL was unable to impose its authority to regulate illegal distribution.

The company was facing very difficult choices at the end of 1980s, which were examined by a study undertaken in 1986. It concluded that the collection of dues and related enforcement would cost more than the estimated amounts to be collected, and that EDL could in fact save money by "supplying power at no charge until a meaningful schedule establishment and reinforcement was possible."[24]

Given the incapacity of EDL to ensure continuous supply, the population relied increasingly on generators to produce electricity when the central supply failed. Generators were mostly installed in individual households, residential buildings, and neighborhoods to provide energy during periods of repeated blackouts. It is estimated that near the end of the War, generators covered as much as 40% of overall electricity consumption[25], considering there were power outages that lasted for a cumulative period of 6 months between 1988 and 1990.[26] Despite their initial temporary use, these generators[27] have become permanent fixtures in the Lebanese electricity landscape, given the frequency and the length of outages that continue until today.

F. ATTEMPTED REBUILDING AND REFORM

The restoration of electricity services was a main priority in the post-War reconstruction efforts. From the period of 1992-2009, the sector received $1.658 billion of the $9.688 billion invested in Lebanon through the Council for Development and Reconstruction, as outlined below in Figure 1.

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[23] VERDEIL Eric, Water and Electricity Networks between Stress and Reform: From Post-Civil War Reconstruction to The New Lebanese Wars, in "Conference on the Politics and Planning of Destruction and Reconstruction in Lebanon", Oxford, 13-14 June 2008.
[24] DIB Kamal, Warlords and Merchants: The Lebanese Business and Political Establishment, Ithaca Press, 2004.
[25] VERDEIL Eric, Électricité et territoires : un regard sur la crise libanaise in « Revue tiers monde », Février 2009.
[26] VERDEIL Eric, Water and Electricity Networks between Stress and Reform: From Post- Civil War Reconstruction to The New Lebanese Wars, in "Conference on the Politics and Planning of Destruction and Reconstruction in Lebanon", Oxford, 13-14 June 2008.
[27] Each generator owner administers an area in a given neighborhood, setting both membership prices and delivery conditions. If a building does not possess its own generator, its inhabitants have no other choice but to subscribe to the local neighborhood generator.

FIGURE 1: Electricity reconstruction - Sources of financing 1992-2009

Ratified, signed and approved funds *Millions of USD*				
	Grants	***Loans***	***Total***	***% of total***
World Bank	5	104.73	109.73	6.61
Arab Fund for Economic and Social Development	0.35	450.06	450.41	27.15
EIB	0	87.44	87.44	5.27
EU	5.33		5.33	0.32
France	12.23	111.31	123.54	7.45
Germany	0	73.63	73.63	4.44
Islamic Development Bank Group	0	131.46	131.46	7.92
Iran	0	25.8	25.8	1.56
Italy	0	258.04	258.04	15.56
Kuwait/ Kuwait Fund for Arab Economic Development	23.42	60.26	83.68	5.04
Spain	7.17	0.05	7.22	0.44
UN/ United Nations Development Program	0.05		0.05	0.00
Commercial Banks	0	302.53	302.53	18.24
Total	**53.55**	**1605.31**	**1658.86**	**100.00**

Source: Council for Development and Reconstruction, Republic of Lebanon, October 2010

Most of the financing, in the form of grants and loans, originated from foreign donors, including international financial institutions, donor agencies, and individual countries.[28]

At first, the reconstruction seemed to proceed at a satisfactory pace; however, the process was soon fragmented. While the renovation and construction of new power plants managed to provide additional generation capacities, important interconnection projects, such as those for high voltage lines, were not completed. For example, the high voltage interconnection in the Mansouryeh region remains incomplete 20 years after the end of the Civil War due to the resistance of the local population.[29] Moreover, much of the reconstruction work was not accompanied by the necessary legal, regulatory, and institutional reform measures, despite the fact that international donors provided additional technical assistance to Lebanese institutions involved in the electricity sector. Studies have attempted to evaluate technical challenges and suggest the best way to move forward in terms of reforms. One such study contracted by Ministry of Energy and Water (MOEW) in 2007 stated that more than 60 reports were prepared for this specific purpose.[30]

[28] 2010 Progress Report, Council for Development and Reconstruction, Republic of Lebanon, available at: http://www.cdr.gov.lb/eng/progress_reports/pr102010/Efinan.pdf

[29] Mansouryeh residents rally against high-voltage electricity lines with roadblock, sit-in, 6th October 2011, The Daily Star.

[30] Strengthening the Capacity of the Ministry of Energy and Water to Implement Power Sector Policy Reforms, Inception Report for Consulting Services, Ministry of Energy and Water, Republic of Lebanon, December 2007.

At the end of the 1990s, when political momentum favored the liberalization of the Lebanese economy and privatization of the state-run public services, the government adopted a new approach in an attempt to secure additional investment for the sector. EDL was included on the list of public institutions open for privatization. The objective was to increase the efficiency of service delivery and raise additional funds. Electricity Decree N.462 of 2002 provided a legal basis for this process, outlining conditions for full or partial privatization of EDL's assets and the creation of an independent electricity regulator. This decree was supposed to kick-start new investment in the county's production, transport, and distribution networks. The decree's implementation was not accomplished due to mounting political tensions and the wave of domestic protests that followed the assassination of former Prime Minister Rafic Hariri in February 2005. Preparation of implementation measures that should have allowed for a practical execution of the Decree were re-launched and finalized in the first half of 2006. However, the 2006 July War with Israel destroyed parts of the country's electricity infrastructure and caused a political stalemate that interfered with the implementation of reforms during 2007-2008. The new government in 2009 brought promises of progress with a revised paper for electricity sector reform that was published in June 2010, and adopted by the Council of Ministers the following month. The fall of the government in January 2011 ushered in another five-month stalemate that halted the realization of the proposed measures. The newly formed government of June 2011 has expressed its intention to continue with the implementation of the reforms. As proof of its commitment, the government has highlighted that the energy portfolio has stayed under the supervision of the same Minister, Gibran Bassil.

II. ELECTRICITY DILEMMA

A. LEBANON'S ELECTRICITY SECTOR: STATE OF PLAY

The sector's structure is built around the state-owned company EDL, which is responsible for electricity production, transmission, and distribution based on Decree No. 16878 of 10 July 1964. The company retains the status of a public institution[31] despite the fact that Electricity Decree No. 462 of 2002 provided a legal basis for its corporatization into entities that provide electricity production, transmission, and distribution and its consequent privatization.[32] A Director General who is also the Chairman of the Board of Directors heads EDL. The Director General and the seven Members of the Board of Directors are appointed by the Council of Ministers. The current Director General, Kamal Hayek, has held this position since January 2002. EDL's close relationship with the state is reflected in its management. Kamal Hayek is also an Acting Managing Director of the General Directorate of Petroleum at MOEW.[33]

Other actors in the sector are companies operating on a system of concessions, such as the Litani River for electricity generation, and Zahle, Jbeil, Alley, and Bhamdoun for electricity distribution. The Ministry of Energy and Water is responsible for the entire electricity sector, including the operation of EDL.[34] Additionally, given the significant financial dependence of EDL on transfers from the state budget, the Ministry of Finance holds important leverage regarding how and when investment decisions are made. There is currently no electricity regulatory authority, though its legal basis is provided for in the 2002 Electricity Decree. However, the latest piece of electricity legislation, the Electricity Act No. 181 of 5 October 2011, commits to the creation of a regulatory authority within a period of three months.

[31] Based on Decree No. 4517 of 1972.
[32] Decree No. 228 of 2000 also deals with privatization.
[33] Based on: http://www.edl.gov.lb/cvdetailed.pdf
[34] The Ministry is divided into three Directorates: Electrical and Hydraulic Resources, Investment and Petroleum. The Ministry sets and approves electricity tariffs that are also submitted to the endorsement of the Council of Ministers.

Reliance on electricity in Lebanon is very high, with a stated electrification rate of almost 99%. Most households rely on electricity for heating and cooling given that a gas distribution network is non-existent and solar water-heater penetration is low. Even if coupled with electricity imports from Syria and Egypt, EDL is in no position to satisfy all of Lebanon's electricity demand with the country's current generation capacities.[35] EDL supplies approximately 77% of the country's electricity needs while private generators provide the rest. The current state of EDL's financial and human resources prevent it from improving its capacities. Even worse, with the country's growing electricity demand and deteriorating infrastructure, the share of EDL's production has been falling.[36]

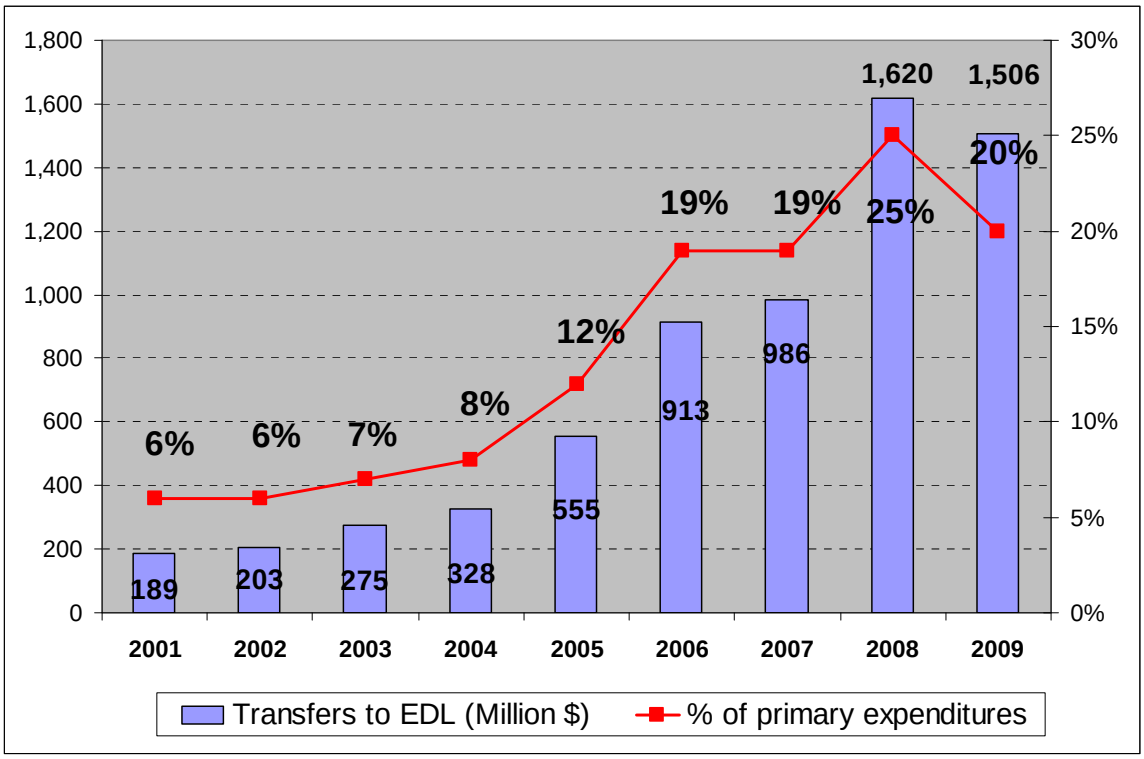
The fragile state of the company is a result of several factors pertaining to technical and political failures. In order to understand the critical situation, it is important to examine the background of the crisis and the current state of EDL. Details of the sectorial performance have been examined by several technical studies.[37] This paper provides a concise overview tailored to the purpose of the present analysis.

B. AT THE HEART OF THE PROBLEM

Despite its technical and financial incapacities, EDL continues to be solely responsible for Lebanon's electricity production, transmission, and distribution. This position places it at the heart of the current dilemma and in an extremely sensitive political position.[38] EDL's continuing incapacity to provide a reliable electricity supply is closely linked to its financial situation: it is unable to secure sufficient revenues to cover its operational costs and relies heavily on annual government transfers. The amount of these transfers increased from $189 million in 2001 to $1.506 billion in 2009, reaching 20 % of the state budget as shown in Figure 2.[39] The above statistic represents the second largest budget item after debt servicing[40], due primarily to the high level of fuel costs for electricity production, which have rapidly increased since 2008 with the rising prices of imported oil. It is also the byproduct of the state's failure to review electricity tariffs since 1994. The tariffs were based on an oil price of 25$ per barrel, though in 2010 the price oscillated between $80 and $90. Other factors have also played a role, namely the suboptimal utilization of EDL's power plants,[41] high operation and maintenance costs, technical and financial losses encountered due to non-payment of bills, and illegal connections to EDL's network inherited from the Civil War period.[42]

[35] Electricity production relies on three different energy sources: hydropower, oil, and gas, with oil covering at least 90%. Generation capacity includes seven thermal (Zouk, Beddawi, Zahrani, Jieh, Hreicheh, Baalbeck, Tyr) and six hydro (Awali, Joun, Abed Al, Bared 1, Bared 2, Safa) power plants that are operated by EDL. Additional hydro-power plants are operated under concessions. The total installed capacity of thermal power plants is 2038 MW and the actual capacity is 1685 MW. The total installed capacity of hydropower plants is 274 MW and the actual generation capacity is 190 MW. For further information, see: Policy Paper for the Electricity Sector, Ministry of Energy and Water of the Republic of Lebanon, June 2010.
[36] Interviews with industry representatives, June-September 2011, Beirut.
[37] Confidential studies contracted by the Lebanese state administration (MOEW, Higher Council for Privatisation, etc.) and publicly accessible studies such as Electricity Sector Public Expenditure Review, the World Bank, 2008.
[38] A number of individuals involved with EDL refused to be interviewed for the purpose of this study.
[39] Electricité du Liban: A Fiscal Perspective, Ministry of Finance, Republic of Lebanon, March 2010.
[40] Debt servicing represents more than 40% of the state annual budget.
[41] For example, two of the thermal power plants, Beddawi and Zahrani, were designed to run on natural gas or gas-oil, but their current operation on gas-oil is un-economical due to the high price of gas-oil. Only one turbine in Beddawi has been operated on natural gas delivered from Egypt since 2009.
[42] MAKDISI Samir, Lessons of Lebanon: The Economics of War and Development, I.B. Taurus, 2004.

FIGURE 2: Transfers from state budget to EDL (percentage of primary expenditures in million $)



Source: Ministry of Finance, Republic of Lebanon

C. THE CONSEQUENCES OF PHYSICAL DESTRUCTION

The Civil War inflicted multiple damages upon Lebanon's electricity sector. These are hard to evaluate because, in addition to physical destruction, the electricity system was subjected to a number of managerial and financial problems. The sector received 17% of the $9.688 billion invested in the post-Civil War reconstruction of Lebanon's infrastructure.[43] This amount was not enough to modernize and expand generation capacities to satisfy the increasing electricity demand. It is worth noting that a similar amount ($1.3-1.5 billion) of the state budget is transferred to EDL yearly in order to cover its operating costs.

The country's infrastructure also suffered from repeated physical destruction during the post-Civil War period. The costs associated with the 2006 July War, when Israel targeted the country's electricity plants and fuel storages[44], were estimated at $244 million[45], resulting in increased rationing throughout country. For the first time since 1998, organized rationing measures were imposed on the Beirut area; the three-hour a day blackouts are still ongoing. In the summer of 2007, the Beddawi power plant was partially destroyed by the fighting in Nahr al Bared camp, reducing electricity supply in the area around Tripoli in Northern Lebanon.[46]

[43] 2010 Progress Report of the Council for Reconstruction and Development available at: http://www.cdr.gov.lb/eng/progress_reports/pr102010/Egeneral.pdf
[44] These events brought accompanying environmental burden given that the destruction of a fuel storage unit at the coastal town of Jieyh power plant in the South Lebanon resulted in one of the most severe oils spills on the Eastern Mediterranean coast in decades.
[45] The estimates of the Council for Development and Reconstruction is available at: www.rebuildlebanon.gov.lb
[46] The Beddawi power plant was partially destroyed and electricity supply subsequently reduced in the area around Tripoli.

D. THE CHALLENGE OF ELECTRICITY SUPPLY

The Lebanese electricity system is unable to ensure sufficient electricity supply. The last time additional generation capacity was added to the system was in the 1990s when the Beddawi and Zahrani power plants were built. Imports from Syria compensate for part of the lacking production. However, the system of electricity rationing[47] is applied throughout the country according to pre-defined periods of blackouts ranging from 3 hours a day in Beirut to 12 hours a day in rural areas. The majority of the population is left with no choice but to secure the missing supply from private generators that run on costly and highly pollutant fuels. According to the World Bank, reliance on generators is growing; currently, 58% of all households used some form of self-generation in 2008, whereas in 2004, only 36% of households did.[48] For a short period of time pre-2006, EDL managed to ensure regular 24-hour electricity supply to a few neighborhoods in Beirut, where generators stopped being used. However, once the blackouts started again after the 2006 War, generators were immediately brought back to cover the shortages.

E. CONTINUING RELIANCE ON OIL

Lebanon is not an oil-producing country, but the Lebanese electricity generation is highly dependent on various forms of imported oil. Fuel oil and gas oil, the most expensive and pollutant fuels used for electricity generation, dominate Lebanon's energy mix.[49] Oil dependency brings important exposure to the volatility in world oil prices, strongly felt since their rapid increase in 2005. Such a development has a double repercussion. Given the significant level of state subsidies offered to EDL, the surge in the price of oil is a heavy burden for the state budget. The amount of government transfers reached its peak with the spike in oil prices in 2008-9, with approximately 4% of the country's GDP being spent on electricity subsidy.[50] This increase puts Lebanon on equal footing with oil and gas producing countries such as Algeria, Qatar, the United Arab Emirates, and Venezuela, where energy subsidies amount to roughly 4–5% of GDP.[51]

High oil prices also have direct repercussions on the price of generator rental, since tariffs are not state regulated. The increase is immediately transferred to the consumer. The price for 5 amperes currently stands at 65,000 LL ($43) while in 2004 it was approximately 40,000 LL ($27). In some regions, such as Batroun, a household can pay up to 150,000 LL ($100) per month for generator use given the number of blackouts in the region.

F. GROWING ENVIRONMENTAL CONCERNS

Lebanon's heavy reliance on oil is mostly analyzed in financial and economic terms, overlooking environmental ramifications. Lebanon, like most Arab countries, will be greatly affected by the consequences of climate change.[52] It is particularly worrying that, due to the structure of its electricity generation by both EDL and backup generation, Lebanon's electricity sector is a major contributor to the total amount of the country's CO2 emissions—a leading factor in climate change. A study undertaken by the American University of Beirut (AUB) states that the energy sector in Lebanon produced 74% of the country's overall CO2 emissions, of which 33% were related to electricity.[53] The same study projected, based on the 2006 baseline, that CO2 emissions from the non-regulated sector of backup

[47] For more information on electricity rationing see: Implementing Power Rationing in a Sensible Way: Lessons Learned and International Best Practices, The World Bank, ESMAP, Report 305/05, August 2005.
[48] Social Impact Analysis – Electricity and Water Sectors, The World Bank, March 2009.
[49] Thermal and hydropower generation initially developed at the same rate. However thermal oil fuelled generation prevailed after the Civil War as an easy source of fuel for electricity generation.
[50] This item is labelled as a "transfer to EDL" in Lebanese state budget.
[51] The World Energy Outlook 2010, International Energy Agency.
[52] Impact of Climate Change on the Arab Countries, Report of the Arab Forum on Environment and Development, 2009.
[53] DAGHER Leila, RUBLE Isabella, The environmental impact of the off-grid backup electricity generating sector in Lebanon, American University of Beirut, undated.

generators will represent "more than 50% of total CO2 emissions from the power sector just in few years" provided the current trend of increasing generator use is not reversed. Considering the lack of heavy industry in the country, large part of future reductions in CO2 emissions[54] will have to come from the energy sector, including electricity.

Other environmental impacts of electricity generation in Lebanon have not been systematically studied. Some specific research was undertaken at the local level, drawing worrying conclusions. A small survey undertaken in the Hamra neighborhood in Beirut concludes that the level of particulate matter emissions by generators is "1.86 times more than that generated by cars passing though the street during peak hour."[55] This has important implications, particularly for densely populated urban areas with a high rate of back-up generator use.

G. TROUBLED GAS SUPPLY

Another shortcoming within the current system is the failure to secure cheaper and cleaner gas for electricity generation. Even though natural gas was introduced to the country in the 1930s with the development of street lighting, a strategic decision to introduce gas-fired power generation was taken more recently in the 1990s during the period of post-war reconstruction. At that time, a natural gas pipeline or liquefied natural gas imports were being considered to supply two new power plants located in Beddawi and Zahrani. The final decision gave preference to the pipeline, which would link Lebanon to the Syrian gas network and open up the possibility of using gas supplies from the Arab Gas Pipeline running from Egypt to Jordan and Syria. Given the geopolitical circumstances of that period, it was assumed that natural gas would be supplied based on an agreement signed between Lebanon and Syria in 2003. However, the supply originally planned to reach Lebanon by mid-2004 did not arrive, leaving EDL with only one option: fueling the Beddawi and Zahrani power plants with the more expensive gas oil. Supply of natural gas from Egypt was delivered in the autumn of 2009 in order to compensate for the lack of gas from Syria.[56] Yet the supplied volume only allowed for the partial operation of the Beddawi plant, with one of two turbines running on natural gas. Since 2009, the supply from Egypt has been suspended on several occasions due to delays in payment, and, more recently, due to the numerous explosions on the pipeline in Egypt following the revolution in January 2011.

External consultants identified the diversification of fuel options as a top priority for Lebanon in studies undertaken during 2000s. Several options were envisaged and considered by the Ministry, including constructing a liquefied natural gas (LNG)[57] terminal, bringing compressed natural gas (CNG)[58] and building an offshore pipeline to supply the Zahrani plant. So far, their implementation has slowed down due to the political developments since 2005 and the consequent deadlock, preventing the government from giving the green light to the tender for the construction of an LNG terminal in Lebanon.

H. ELECTRICITY TARIFFS

The structure of Lebanese electricity tariffs is a major challenge. The present tariff formula does not reflect the full cost of EDL's claimed electricity production. At the same time, the tariff for residential and small commercial consumers disadvantages those with low usage because it includes a high fixed element along with a variable cost based on the actual consumption. This is especially pertinent to poorer households that end up paying more per kWh than households with higher consumption and

[54] CO2 emissions by sector: Energy: 74%, Industrial processes: 12%, Forestry and land use change: 1%, Agriculture 7% and Waste management: 6%.
[55] JABER Sara, SALAHIEH Zahra, AALAEDDINE Nader, CHIIT Maher, IBRAHIM Elias, Survey, analysis and map of diesel generators' history and operation in a sample area in the Hamra neighbourhood of Beirut, Lebanon, Department of Mechanical Engineering, American University of Beirut, Lebanon, Undated.
[56] Provided more gas is available in the future, the supply to the Zahrani power plant in the south of Lebanon would require the construction of a new gas interconnection country from the Beddawi plant.
[57] Natural gas is converted temporarily to liquid form and is transported by boat.
[58] Natural gas that is compressed to a smaller volume.

higher income.[59]

In the overall context of electricity, the tariffs issue is sensitive. Tariff policy is generally one of the determining factors for potential private investors. At the same time, phasing out state subsidies and increasing electricity tariffs have an important social impact. This is particularly relevant for countries with a sensitive social balance. A possible consequence of higher electricity tariffs is the increase of illicit practices, already a worrying phenomenon in Lebanon.

In the 2000s, several announcements were made as to the Lebanese government's intentions to reform the tariff structure for which external consultants designed concrete proposals.[60] There is a general awareness among politicians that an increase in electricity prices needs to be tackled.[61] However, for the moment, when the raise will occur is uncertain, as there is growing discourse that linking the increase in tariffs to improvement of services will justify the additional financial burden on the consumer. In the meantime, one of the worrying consequences of the failure to reform tariffs is the increased share of electricity subsidy in the state budget.

In the context of future electricity reform, it is interesting to note three important observations that could be determinant for future tariffs reform in Lebanon. On the one hand, Lebanese households are willing to pay more for improved electricity services.[62] The reasons behind this willingness are related to the expected improvements on the levels of comfort, economic opportunities, and financial savings, especially for those who shift from costly generators to central electricity supply. Moreover, the share of electricity (supplied by both EDL and private generators) in overall household spending is relatively low[63]; it ranges between 3.3 to 7.3 % depending on household income and time of year, far from the 10-15% usually recognized as the critical limit for energy poverty. This important indicator could act as a facilitating factor in future efforts to increase electricity tariffs. [64] On the other hand, most consumers do not trust EDL or the bills they are served. The population is generally wary of EDL's management and the government's strategy with respect to the company. There are doubts amongst consumers regarding equality of treatment when it comes to punitive measures for unpaid bills. For example, cutting off the electricity supply if bills are not paid is perceived as arbitrary—some household are affected while others are not. The widespread attitude is that EDL's efforts to improve bill collection target low-income populations rather than businesses with political backing.[65]

I. ELECTRICITY LOSSES

EDL's disastrous financial situation is partly based on the high level of technical and non-technical losses[66] in its network and the related losses in profit. In 2010, the MOEW's *Policy Paper for the Electricity Sector* stated that the overall losses in EDL's system reached 40%, meaning that only 60% of the electricity produced by EDL is actually paid for[67]; the loss percentage includes 20% for stolen electricity, 5% for uncollected bills and 15% for technical losses.[68] These numbers put Lebanon in a group of countries with a "serious problem" of electricity theft.[69] Other countries incurring losses in

[59] Based on Social Impact Analysis – Electricity and Water Sectors, The World Bank, March 2009.
[60] For example NERA 2006 tariff study, MVV 2004 study, NERA 2002 study and EDF/NERA study in 1999.
[61] See the 2010 Policy Paper which announces the intention to "Gradually increase the tariff in conjunction with improvements in the electric service provision until reaching the goal of a sustainable 24/24 electric service hence eliminating the need for private generators and abolishing the financial deficit".
[62] Social Impact Analysis – Electricity and Water Sectors, The World Bank, March 2009.
[63] ibid.
[64] Electricity tariff in Lebanon is one of the highest among MENA countries; however it is only 31% off the benchmark tariffs of France, Greece, Italy, Portugal, Spain and Turkey, countries with similar climatic conditions.
[65] Interviews with inhabitants in Beirut, May-September 2011.
[66] Technical losses occur naturally during electricity transmission. Non-technical losses are caused by actions external to the power system and consist primarily of electricity theft, non-payment by customers, and errors in accounting and record-keeping.
[67] Policy Paper for the Electricity Sector, Ministry of Energy and Water of the Republic of Lebanon, June 2010.
[68] Electricity theft can be estimated but is difficult to measure for obvious reasons. These figures therefore describe the overall trend rather than exact state of play. Efficient power systems usually incur losses that amount to approximately 6% including 1-2% of electricity theft.
[69] SMITH Thomas. B., Electricity theft: A comparative analysis, Energy Policy, 32, 2004.

their distribution networks that are higher than 30% include: Albania, Haiti, Myanmar, Kyrgyzstan, Nigeria, and Bangladesh. However, their level of economic development is not comparable to Lebanon's, where GDP per capita was more than $9,000 in 2010[70]. It is interesting to mention that Egypt encounters losses estimated at 15%[71] and Jordan 13.1%.[72]

The regional division of losses within Lebanon is unclear considering the unavailability of reliable data. Given the absence of electronic meters and irregular collection of metered data from consumers, it is reported that EDL itself is not fully aware of the situation at hand.[73] Some estimates exist that are based on data collected by consultants working on policy recommendations for MOEW.[74] These estimates suggest that the situation with respect to bill collection and payments was better in Beirut and Mount Lebanon (around 20% losses in 2005) than in rural areas (up to 65% losses). However, installation of reliable metering at the actual place of electricity consumption is necessary for the gathering of reliable data; it should take place within the framework of service provider contracts for electricity distribution, which was in the tender phase at the time of writing.[75] The private companies that will be awarded management of the distribution system will be able to build on some positive experiences in reducing losses in distribution. These occurred in the context of projects contracted by MOEW[76] and were also achieved by private concessions.[77]

J. FURTHER COMPLICATIONS ON THE WAY

Further challenges could be on the horizon regarding the prospects of Lebanon's offshore oil and gas reserves. In 2007, a seismic survey confirmed that Lebanon's offshore areas might hold significant volumes of oil and natural gas reserves—potential good news for the much-needed diversification of Lebanon's fuel supply, and relief for EDL's budget. However, the prognostics need to be mitigated. First, the quantity of the reserves still needs to be proven. Once this is confirmed, production would probably begin within a ten-year frame[78]. Second, the exact size of the reserves is yet to be determined and will be subject to a trade-off between domestic consumption and exports. Third, it has been globally attested that oil and gas production may be a curse rather than a blessing.[79] In the context of a weak legislative and regulatory framework, oil and gas revenues may end up inflicting additional damage on country's governance and economy. Functioning of state institutions and social inequalities could be particularly challenged. There is a real possibility that such developments could take place in Lebanon if the appropriate legislation and regulation for oil and gas exploration and production are not implemented. The recommendations to develop and implement a strong framework for Lebanon's energy sector appear even stronger against the backdrop of these potential oil and gas developments.

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[70] Albania ($3,678 GDP per capita), Haiti ($671), Myanmar (N/A), Kyrgyzstan ($ 860), Nigeria ($1,222) and Bangladesh ($673) based on the World Bank indicators available at http://data.worldbank.org/indicator/NY.GDP.PCAP.CD

[71] SUDING Paul H., Struggling between Resources-based and Sustainable Development Schemes – An Analysis of Egypt's Recent Energy Policy in "Energy Policy", No 39, 2011.

[72] Jordan Electric Power, Report by Jordan Invest, March 2011.

[73] Interviews with experts familiar with Lebanon's distribution network, May - September 2011.

[74] Such as the "Closing the financial gap" study prepared by Charles River Associates in 2006.

[75] Electricity: Crumbling Behind the Country, The Executive Magazine, October 2011.

[76] The project was implemented by EDF. For details see page 24.

[77] Interviews with experts familiar with Lebanon's distribution network, May - September 2011.

[78] Based on estimations of industry insiders, this is the timeframe necessary to proceed with the implementation of the legal and institutional framework, followed by exploration and development activity and finally production of oil and gas.

[79] On resource curse, see: KARL Terry Lynn, Understanding the Resource Curse, In "Covering Oil: A Guide to Energy and Development", Open Society Foundation, 2005.

III. EDL: MEETING A CRITICAL CHALLENGE

A. EDL'S FUTURE

EDL's future has been high on the political agenda since the beginning of the millennium. The company's critical financial situation and its consequences on the electricity infrastructure are well known, and have been clearly identified in a number of studies mostly financed by international donors and financial institutions. Most recently, between 2007 and 2009, EDL, the High Council for Privatization, and the Ministry of Energy and Water worked with their assigned consultants on three separate studies in which concrete steps were identified towards the restructuring of EDL and the development of an adequate legislative and regulatory framework. Though the details of the outlined options and sequencing of the reforms vary, most of the proposed policy recommendations focus on five general elements: the unbundling[80] and corporatization[81] of EDL; the updating of the 2002 Electricity Decree; the establishment of an electricity regulator; the diversification of fuel sources for electricity generation; and involvement of the private sector.[82]

Despite these recommendations, the company still suffers from the lack of a clear political mandate regarding its reform. There were political disagreements regarding the proposed methods for achieving corporatization, unbundling, and potential participation of the private sector. As one senior government advisor remarked, "there is always a group for and a group against [privatization] and some people still believe that utilities are the business of the government."[83] The position of political leaders does not always coincide with their allegiances, as well illustrated by divergent approaches within both the March 8 and March 14 political blocs.[84] Mohammed Fneish, former Minister of Energy and Water, and member of Hezbollah, supported the privatization of EDL while in office.[85] The current Minister, Gibran Bassil, from the Free Patriotic Movement that belongs to the same March 8 political bloc as Fneish, supports the idea of private sector participation through specific contracts though he does not use privatization arguments in his discourse. Within the March 14 bloc, the Kataeb party supports the partial privatization of EDL[86] while the Future Movement has traditionally expressed stronger support for privatization as a major element of EDL's future. The absence of clear political support towards privatization has contributed to stunting any changes to EDL's status quo. Discussions held in September 2011 brought hope of some change; the government agreed to appoint a new Board of Directors and amend the 2002 Electricity Decree based on wording to be agreed through an inter-ministerial committee.[87]

B. PROBLEM OF HUMAN RESOURCES

The lack of political agreement also explains EDL's disastrous human resources policy. In 1990, at the end of the Civil War, EDL employed around 5,000 individuals. Today, its organizational chart requires 5,027 full time employees. However, according to the Ministry of Energy and Water, 63% of these positions were unfilled in June 2010, and the average age of existing employees was 52,[88] an estimate somewhat lower than the 57-59 referred to in most other available publications.[89] Given the

[80] The separation of electricity production, transport and distribution activities.
[81] The transformation from public institution to corporate entity status.
[82] Namely increasing the role of natural gas and renewable energy in Lebanon.
[83] Interview with senior government advisor, August 2011, Beirut.
[84] VERDEIL Eric, Water and Electricity Networks between Stress and Reform: From Post Civil War Reconstruction to The New Lebanese Wars, in "Conference on the Politics and Planning of Destruction and Reconstruction in Lebanon", Oxford, 13-14 June 2008.
[85] On one occasion Minister called for the full privatization of the electricity production stating that experience showed that the "state is an unsuccessful merchant." See: Fneish wants to spark electricity revival, The Daily Star, 12 June 2008.
[86] Q&A with Samy Gemayel, The Executive Magazine, May 2009.
[87] The Committee is headed by the Prime Minister and consists of Ministers of Health, Finance, Social Affairs, Administrative Reform, Energy and Water, Labor, Justice, Economy and Trade.
[88] Policy Paper for the Electricity Sector, Ministry of Energy and Water of the Republic of Lebanon, June 2010.
[89] Refer to the interview with Ziad Hayek in Now Lebanon dated February 2008.

unavailability of information on this issue, it is difficult to evaluate whether this is a real improvement based on a targeted strategy by the company's management.

The number of actual EDL employees might be even less than mentioned due to the fact that some are "phantom personnel", registered in the company's accounts but who do not show up for work.[90] The MOEW is well aware of the situation as its own policy paper states: "EDL employs around 2000 contractual and daily workers, many of whom are *political appointees and unqualified workers*."[91] EDL employees are also regularly subject to accusations of nontransparent commercial practices and are reportedly aware of or participate in the ongoing practices of illegal electricity connections and billing inaccuracies.[92]

The lack of staff further undermines the company's capacity to implement technical improvements. In order to address this apparent resources gap, EDL outsources a large part of its activities, which includes employing a large number of contractual workers to deal with meter reading and bill collection.[93] EDL also sub-contracts private companies to ensure the proper maintenance and operation of its power plants. For example, KELECo, a cooperation between Korean and Lebanese contractors, operates the Zahrani and Deir Ammar power plants. The cost of these contracts is not completely clear. Based on a World Bank report[94], the KELECo contract, worth $86 million, was signed in 2005 over a period of 5 years. EDL's union statement, however, estimated the annual amount to be $40 million in 2010.[95]

EDL's employees are increasingly vocal about their own grievances. Disagreements exist between EDL management and employees, the later represented by the "EDL Workers' Association." The contentious issues include, for example, the pay scale and the modalities of EDL's restructuring and possible privatization. Work conditions, including the employees' personal security, are also raised on a regular basis, given that EDL employees are regularly subject to physical attacks from the local population when on the clock.[96] The conflicts between employees and management periodically emerge in the public spotlight. Such was the case in June 2009 when EDL unions publicly rejected the plans for EDL's privatization, and in October 2011 when the unions threatened to hold a strike if no progress concerning the revision of their pay scale was made. So far, however, EDL's employees have not been a major deterrent to electricity reform as was sometimes the case in other developing countries.[97]

As a result of the human resources issue, EDL is unable to ensure full control over its electricity network, which is reflected in the high level of losses. Campaigns are being launched to tackle the issue of fraud and illicit practices such as the one announced in August 2011.[98] The campaigns did decrease the overall percentage of losses[99], but did not achieve a substantive eradication of fraud.

Even more worrisome is the fact that the company's human resources at present are not sufficient to develop and implement the complex reforms and restructuring measures needed. A senior official experienced in electricity reform described the problem rather bluntly: "Money is not enough, the country needs to have the capacity and the know-how".[100] The experiences of energy sector reform in a

[90] Interview with former senior Lebanese official, August 2011.
[91] Policy Paper for the Electricity Sector, Ministry of Energy and Water of the Republic of Lebanon, June 2010.
[92] Interviews with industrialists and business owners, May –September 2011.
[93] Interview with an expert familiar with EDL's distribution system, Beirut, September 2011.
[94] Electricity Sector Public Expenditure Review, The World Bank, January 2008.
[95] EDL unions reject attempts to privatize electricity sector, Daily Star, 9 June 2010.
[96] For example see: EDL union to strike over violent attack on member, Daily Star, 29 April 2011
[97] For example in Ghana and South Africa as described in DUBASH Navroz, Power Politics: Equity and Environment in Electricity Reform, World Resources Institute, 2002.
[98] EDL launches crackdown campaign against violators, The Daily Star, 25 August 2011.
[99] In the early 1990s EDL encountered more than 60% losses on its network, comparing to 40% today.
[100] Interview with senior officer, international donor institution, Washington, September 2011.

number of developing countries confirm that implementation and follow up, of often very elaborate transformations, by local employees and officials is, an important part of the reform process.[101]

EDL's difficulty with hiring additional employees is linked to the wider issue of appointments in the Lebanese public administration that has been holding the public service hostage to the political stalemate. [102] This link suggests that any possible solution is conditional to a wider political agreement on the issue of administrative appointments or its separation from other politicized issues. While proposals to restructure EDL and its unbundling have been presented, little attention has been given to its human resources policy, presumably because the issue was supposed to be addressed by the companies that should have replaced EDL based on the 2002 Electricity Decree. Privately owned concessions, such as Electrical Utility of Aley, have learnt some lessons regarding improved economies and increased efficiency based on improvced human resources policy.[103] For now though, an exchange of best practices between the concessions and EDL has not occurred, since disagreements probably persist on other issues.[104]

Nevertheless, there is most likely an increasing realization that no meaningful reform can be implemented without adequate staff. The problem was clearly brought to public attention in the 2010 Policy Paper for the Electricity Sector presented by the Ministry of Energy and Water. The newly re-appointed Minister for Energy and Water also mentioned the problem less than one week after the announcement of the new government was made in June 2011.[105] The appointment of a new Director General at the MOEW in August 2011 could be a positive move forward, though it is somehow overshadowed by the fact that further appointments have been put on hold.[106]

C. PRIVATE SECTOR INVOLVEMENT

Given the size of the public debt and estimated investment needs within the sector,[107] private participation, in some form, will be inevitable to ensure that the expansion of the electricity infrastructure takes place. However an understaffed and mismanaged company—resulting in its progressive deterioration over the past two decades—is not attractive to private investment.

International donors are aware that EDL's privatization plans could be difficult to implement in the short-to-medium term. A senior official from the international donor community stated: "improvement of EDL's operational and managerial capacities will be necessary in the coming years before participation of private investors is possible."[108] A World Bank study clearly notes: "Electricité de Liban's investment needs are widely acknowledged, but reform inertia has kept investors away."[109] Some analysts also raise the issues of arbitration mechanisms and the protection of potential investors perceived as too weak to provide the necessary guarantees for private investors.[110]

In parallel, de-facto privatization of Lebanon's electricity sector is already underway, as more than 20% of the country's electricity needs are covered by private generation. Moreover, the distribution segment of EDL was being tendered in the autumn of 2011 under a scheme that should bring in private

[101] BACON, R, BESANT-JONES, J, Global electric power reform, privatisation and liberalisation of power industry in developing countries, Energy and Environment Annual Reviews, The World Bank, 2001.
[102] It was reported in 2010 that 79 administrative positions were empty and a number of others are temporarily filled by those whose terms in office officially ended. See: Parties to tangle over administrative appointments, The Daily Star, 5 January 2010.
[103] The management of this utility is stressing the role of performance-based management in the success of their company's restructuring. The company used to be in a situation similar to that of EDL a decade ago.
[104] Concessions are keen to produce electricity themselves as they have already mastered their distribution networks. For the moment, the right of connection to the grid or sale of electricity directly to the consumers pertains only to EDL.
[105] Bassil: EDL needs staff to run properly, 22 June 2011, Daily Star.
[106] Cabinet to address territorial waters, Metn power grid, Daily Star, 2 August 2011
[107] $5.4 Billion over 4 to 5 years according to: Policy Paper for the Electricity Sector, Ministry of Energy and Water of the Republic of Lebanon, June 2010.
[108] Interview with senior official, international donor, Washington, September 2011
[109] Social Impact Analysis – Electricity and Water Sectors, the World Bank, March 2009.
[110] Lebanon's other struggle for power, The Financial Times, 8 September 2010.

companies through service provider contracts to ensure the management of three distribution regions. Other options besides full privatization are also on the table, such as public-private partnerships that have been studied with the help of international donors. [111]

Finally, the involvement of the Lebanese banking sector in the electricity sector reform has not been fully considered. Given their strength, Lebanese banks are already heavily involved in the financing of the Lebanese state deficit and hence indirectly contribute to EDL financing through transfers from the state budget. Their direct involvement in the electricity reform and the future of EDL deserves further study.

D. GENERATORS: SOLUTION OR IMPEDIMENT?

Private generators lack official standards, taxes, or tariff regulation and operate despite EDL's monopoly on state electricity production. Given the unreliability of the electricity supplied by EDL, however, private generation is often the only option for those requiring continuous electricity supply. This reality provides generator businesses with significant leverage, both in terms of setting prices for their service and influencing future policy changes; it also places them in a position of de facto monopoly in relation to their clients, given that each neighborhood usually has one generator operator or several generators that offer a fixed, agreed upon price. Generation is a lucrative business[112] and is estimated to represent an annual amount of $1.3 billion[113], hence the reluctance of some generator operators to give up their line of work. In the context of the Lebanese petroleum-pricing model[114], the oweners of back-up electricity generators remain financially exposed, as any increase in world oil prices has direct repercussions on their operational costs and profit margins. However, increases in EDL's supply interruptions do not necessarily work against their interests, as the electricity subscriptions for generators are based on available capacity (voltage) rather than actual consumption. Therefore, some increases in electricity supply from EDL are favorable to generator owners because they would continue to receive the same payment for supplying less amounts electricity.

The issue of back-up generation has not been directly addressed by major technical studies or policy initiatives.[115] Political leaders periodically discuss the issue and suggestions are made to regulate the pricing imposed by generators. However, no comprehensive measures have yet been identified on a state level, probably due to the fact that no viable alternatives to back-up generators exist. The Policy Paper for the Electricity Sector presented by the Ministry of Energy and Water in June 2010 mentioned the issue, but fell short of proposing a strategy for regulating generator operations and practices.

The existence of private generators has a crucial influence on potential reforms. On the one hand, it protects the country's electricity consumers from complete outages and allows for a minimum level of service to those that can afford it. On the other hand, the provision of minimum service reduces the urgency of reform, particularly for those who can afford generator use and can hence get along without reliable public service. Such is the case for Lebanese political and business elites who benefit from privileges that are usually inaccessible to most of the population.

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[111] In June 2007, a contract was signed with the International Finance Corporation to appoint it as an advisor for licensing Independent Power Producers.
[112] Policy powers gray market in generators, Daily Star, 12 September 2011.
[113] Policy Paper for the Electricity Sector, Ministry of Energy and Water, Republic of Lebanon, June 2010.
[114] Lebanese oil prices are relatively high comparing to other countries in the region. MOEW sets the prices on a weekly basis reflecting the developments in world oil prices.
[115] One exception is a policy paper prepared by the Anti-Bribery Network in collaboration with LTA and CIPE in October 2009, which is entitled "Lebanese Electricity Sector: Needs for Reform, a Way to Move Forward" and to some extent the World Bank's study Social Impacts Analysis – Electricity and Water Sectors.

E. INTERVENTION BY MUNICIPALITIES

Given the lack of support from all political parties for measures at the state level, suggestions were made for the municipalities to act in order to regulate operation of back-up generators. The Parliamentary Committee for Public Works and Energy made an attempt in January 2008 to address the issue of private back-up generators and regulate their tariffs.[116] Its proposal was prepared jointly with the Directorate for Consumer Protection of the Ministry of Economy. A policy paper prepared by the Anti-Bribery Network of the Lebanese Transparency Association (LTA) in October 2009 expressed support of interventions by local municipalities. Though these initiatives did not result in the adoption of concrete measures, several municipalities are reportedly attempting to regulate either the pricing or operation of generators on their respective territories.

A study[117], which examines generator subscriptions in both Bourj Hammoud and the city of Jbeil, provides an interesting insight into the various methods adopted by local authorities regarding the regulation of private generation. In Bourj Hammoud, a suburb of Beirut, subscriptions to electricity generation have been regulated since the 1980s with the support of the prevailing local political party, Tachnak. The local municipality is involved in regulating tariffs, which are set on a monthly basis and communicated through a local television channel, in addition to controlling the installation and connection to the generator network. In Jbeil, on the other hand, the local electricity distribution company, "Electricité de Jbeil", with the support of the local municipality, has become a key actor, in an attempt to regulate the generator business. A newly created company, "Byblos Entreprise Electrique", was given a local mandate to stop private generator activities and centralize the provision of electricity from back-up generation sources. This undertaking was based on lengthy negotiations with the generator owners and involved compensation payments.

Though these regulatory attempts are taking place without a specific legal base, they provide examples of relatively successful initiatives to improve the quality of electricity service for the local population. The acceptance of these initiatives by citizens indicates the existence of a public demand for electricity regulation; it also suggests that it is beneficial to involve local authorities that are knowledgeable of the situation on the ground. Notwithstanding the potential positive impact on the quality of service, the absence of accountability and legality by generator electricity suppliers could challenge the authority of the state in the long term if a larger legislative and regulatory framework is not provided. The MOEW seems to be aware of the high stakes involved if it fails to act upon the high prices imposed by electricity generators. In a recent attempt to act upon the issue, MOEW published a statement on October 20, 2011 on its website that calls the back-up generators to comply with its proposed maximum generator fee.[118] It clearly states that MOEW is not in a position to enforce such regulation and requires that municipalities ensure the proposed price is respected. It is interesting to note that the statement fails to mention that municipalities lack any prerogative to proceed with the enforcement. As a result, a number of disagreements have occurred between the municipalities and the generator providers operating on their territories.

[116] GABILLET Pauline, Le commerce des abonnements aux générateurs électriques au Liban : Des modes de régulation locaux diversifiés in Géocarrefour, 2010/2 Vol. 85, p. 153-163.
[117] ibid.
[118] 440 LL (29 cents) per hour per capacity of 5 amperes.

FIGURE 3: Statement by the Ministry of Energy and Water, 24 October 2011 (unofficial translation)

Statement issued by the Ministry of Energy and Water on the pricing of private generators

Beirut, 24 October 2011: The Ministry of Energy and Water would like to clarify to the citizens that the pricing for private generators' electricity does not fall within its legal powers at all. However, and in light of the injustice taking place against the citizens due to very high generator electricity prices, the Ministry is providing guidelines for average price. A fair average price for generator subscribers for every hour of electricity supplies is 440 L.L. for 5 amperes. And also 440 L.L. for every kWh, and this is based on the price of 28,500 L.L. for 20 liters of fuel oil. This average price is subject to no more than 10% increase or decrease depending on the generator's size. Based on the above, municipalities are required to apply the average price guideline or otherwise stop the generator owners from working. The Ministry would also like to remind generator operators that using the EDL infrastructure is illegal. However, the need for electricity supplies makes this situation a "fait accompli" and the Ministry is working to change this situation. Therefore, the Ministry requests that generators follow the price guidelines and stop justifying price increases based on changing oil prices. The Ministry has put at the disposal of municipalities a comparative study on the pricing of private generators and their operational costs of running on fuel oil. The concerned bodies should follow the contravening generator operators.

Source: Website of the Ministry for Energy and Water, Republic of Lebanon, http://www.energyandwater.gov.lb/default.asp, retrieved on 1 November 2011.

IV. BOTCHED PLANS FOR REFORM

A. NEW ELECTRICITY LAW

The restructuring of the electricity sector has featured on the Lebanese government's agenda since 1998 when the first draft of a revised electricity law was proposed. The delay in attending to the electricity sector was partly due to the complexity of the electricity issue and the potential difficulties it could entail for the advancement of other needed reforms. The political leadership at the time feared that possible disagreement over electricity sector reforms could hamper progress on other political files and prevent the advancement of the reconstruction. As a result, the electricity reform was left pending by a number of consecutive governments.[119] When the discussion was finally launched, and a new decree adopted in 2002, implementation proved to be difficult to achieve afterwards.

The Cabinet of Ministers approved the first outline of a new Electricity Decree in 2000; but it was not until two years later that the Parliament adopted the final text of the Decree, which outlined key elements of electricity sector reform centered on EDL, including the company's restructuring, corporatization, unbundling of its activities, partial privatization, and creation of a regulatory authority. Based on the Decree, MOEW should be in charge of policy and expansion plans, and an independent authority should be set up to deal with the regulatory issues, including the issue of licenses. These continue to be the building blocks of any future reform, even if the Decree itself requires some updating based on studies undertaken by external consultants.[120] The underlying principles of the Decree emphasized privatization, which was generally favored as an overall approach to economic reform by the government at the time.[121] The measures proposed also reflected the commitments undertaken by the government at the Paris I Conference (February 2001), which mobilized financial assistance for the

[119] Interview with former senior Lebanese government official, August 2011, Beirut.
[120] Several studies contracted by the Ministry of Electricity and Water proposed the necessary amendments to the law. In an attempt to reach a political agreement on wording, discussions are being held in an inter-ministerial committee as part of the deal accompanying the Electricity Act of 5 October 2011.
[121] Outlined in the Privatization Law of 2000.

country. The Paris II Conference (November 2002) further affirmed the government's commitment to electricity reform based on the privatization of EDL. [122]

The relatively long delay between the first proposal of the Decree in 1998 and its final adoption by the parliament in 2002 provides some indication as to the difficulties encountered in the process of its adoption.[123] The political agreement, which enshrined the principles of EDL privatization and unbundling in the text, did not prove strong enough to ensure its implementation. Achieving political agreement on the measures to achieve EDL's restructuring proved exceedingly challenging in the Lebanese political environment following former Prime Minister Hariri's assassination in February 2005.

B. DIFFICULT IMPLEMENTATION

The implementation of concrete measures was significantly delayed due to the radical political changes since February 2005, including the withdrawal of Syrian forces from Lebanon later that year. Political negotiations on reform implementation proved to be equally challenging. The negotiations on implementing measures resumed with the formation of a new coalition government in July 2005. The government supported a political consensus on the issue of EDL privatization and adopted an outline for its implementation. Unfortunately, the long-awaited agreement coincided with the beginning of the July 2006 War, which resulted in significant physical damage to Lebanon's electricity infrastructure, consequently downgrading the sector's reform on the list of government priorities. Finally, the war exacerbated political tensions between Lebanese political factions, causing renewed disagreement on the subjects of EDL privatization and unbundling, as well as other provisions of the 2002 Electricity Sector Law despite offers of financial and technical support from several international donors.[124] EDL's privatization continues to be a major point of contention amongst political negotiators.

The Paris III international donors' conference in support of Lebanon convened in January 2007, providing some incentives for the resumption of work on electricity reform. On this occasion, the government of Lebanon formally re-affirmed its commitment to sector reform according to the principles outlined in the 2002 Electricity Sector Law. It acknowledged the importance of the electricity and water sectors in achieving the overall economic objectives of stimulating growth, creating employment and reducing poverty. The government committed to the creation of a regulatory authority, the unbundling of EDL and the incorporation of new entities under commercial law. The government also recognized the need for new investment to improve electricity provision and system efficiency. At the time, it appeared that the Paris III framework might provide a good basis for the advancement of electricity reform.

During this period, some attempts were made to improve the performance of EDL with respect to electricity distribution. EDL contracted a project managed by Electricité de France (EDF) in order to improve electricity collection and billing. EDF worked with the assistance of local companies and achieved variable results across many regions.[125] A private consultant also undertook a study in 2005-2006 with the objective of assessing the losses in the distribution segment. Subsequently, the

[122] The period after the adoption of the 2002 Electricity Decree witnessed efforts to diversify Lebanon's fuel supply, with particular emphasis on natural gas. Construction of the gas pipeline between Beddawi power plant and the Syrian gas network was completed in 2003; it was expected to be operational by mid-2004. During this period, the Ministry of Energy and Water worked closely with the World Bank to develop a hydrocarbon strategy for the country. The World Bank submitted a study assessing the viability of large-scale expansion of natural gas in 2004. Its recommendations were similar to those previously outlined for the electricity sector, namely: unbundling of the electricity transportation, ensuring third party access to the transportation network and establishing a regulatory authority for gas. Most of these recommendations have never been translated into legislative proposals or implemented.

[123] For example, in March 2001, then Minister of Energy and Water Mohammed Abdel Hamid Beydoun claimed that privatisation would take place by the end of the year.

[124] The law provides a legal basis for the establishment of electricity regulatory authority. The World Bank and the EU provided technical assistance in drafting the Decree for its creation and structural preparation. Its establishment, however, was put on hold.

[125] A 50% increase in the amount of billed electricity in Greater Beirut was instated. In rural areas, however, the situation of billed and paid electricity consumption slightly deteriorated during this period.

government was preparing "tenders for the provision, installation and management of 1.2 million remote-controlled power meters."[126] However, the implementation of the project was delayed until the general idea was revived in 2010 in a form of service provider contracts for the distribution network.

In order to address issues of coordination and stakeholder consultation, an Inter-Ministerial Infrastructure and Privatization Committee chaired by the Prime Minister was established in 2007. The Committee was mandated to supervise electricity sector reforms, identify concrete steps to reform, and build consensus between key stakeholders.[127] Even though the government recognized "the Committee's added value in gathering concerned power-sector stakeholders"[128], the Committee has not convened since January 2008, and hence has not fulfilled this role.

The ambitious agenda agreed upon in Paris III did not proceed as planned. The difficult political context in 2007-2008, which included a series of political assassinations, a violent street conflict in May 2008, and consequent repeated government deadlocks, largely contributed to the continuous failure to implement the planned commitments. The international donor community often mentions the lack of broad political support for reform and the failure to achieve political consensus among the country's political leadership as root causes of the failure. These factors are also referred to by the Lebanese Ministry of Finance in the 6th progress report of the Paris III Conference issued in June 2008.[129]

C. TOWARDS NEW POLICY

The emergence of a national unity government after the 2009 parliamentary elections created favorable conditions for the advancement of electricity reform. The newly appointed Minister for Energy and Water, Gibran Bassil, presented a blueprint for action in June 2010, one year after his appointment. The proposed Policy Paper for the Electricity Sector has been given credit for building on previous policy initiatives and studies, and outlining a number of investment projects to bolster Lebanon's electricity generation capacity from the currently available 1500 MW to 5000 MW by 2015. According to the paper, the reform would require $4.87 billion worth of investment of which $2.37 billion should come from private investors, $1 billion from international donors, and the remaining $1.4 billion from the state budget. The paper also outlines steps in support of energy efficiency and the use of renewable energy. The proposal received approval from the Council of Ministers, but the financing required for implementation has been delayed by deliberations over the state budget.[130] The fall of the government in January 2011 brought yet another setback to the implementation of the announced measures—political circumstances again botching plans for reform like in 2006 and 2007.

With the new government headed by Najib Mikati in place come July 2011, electricity issues were brought to the attention of the wider public and media in both August and September of 2011. The modalities for the implementation of reform outlined in the 2010 policy paper became the subject of a major disagreement amongst the political parties of the government coalition. A last-minute deal prevented the government's division on this issue. $1.2 billion of state financing over a period of four years was earmarked to support part of the awaited investment in electricity infrastructure.[131] For the first time in Lebanon's post-Civil War history, the government endorsed a policy paper prepared by the precedent government. There is an indication that some sense of urgency to reform exists among the policymakers within the government, especially those involved in economic issues. However, practical

[126] Recovery, Reconstruction, and Reform, Document prepared by the Lebanese government for the International Conference for Support to Lebanon, 25 January 2007, Paris.
[127] Implementation, completion and results, Report on a loan in the amount of $100 million to the Government of Lebanon, The World Bank. 23 October 2009.
[128] ibid.
[129] ibid.
[130] The Council of Ministers discussed but never approved the proposal to lease ships that produce electricity as a temporary solution.
[131] The next elections are planned for 2013.

implementation on the ground will require some politically unpopular steps and may be hindered by interests benefitting from the current status quo.

D. FAR-FLEDGED ECONOMIC AND FINANCIAL CONSEQUENCES

Financial implications need to be addressed as they have a direct impact on the electricity sector's failure to reform. EDL represents a heavy financial burden for the state budget as mentioned above. The transfers to EDL, totaling 20% of the overall budget, hinder spending on other crucial items such as social security and education. For example, government transfers to EDL in the 2010 budget proposal equaled the amount planned for health and education expenditure combined.

The burden of electricity outages negatively impacts the competitiveness of the Lebanese economy. In the Global Competitiveness Index 2011-2012, Lebanon ranks 89th, surpassing only Egypt (94th), Syria (98th), and Yemen (138th) amongst other Middle East/North Africa (MENA) countries. The accompanying report lists underdeveloped infrastructure, including electricity supply, as one of the key challenges to improving Lebanese competitiveness.[132] The unreliable electricity supply and relatively high tariffs for industrial consumers require businesses to spend significant amounts on electricity supply, including additional expenditures for the purchase and operation of generators. According to the Association of Lebanese Industrialists, "Subscription fees for Lebanese industries in converters are considered one of the most expensive worldwide. This is why new industries don't register with the EDL and existing industries don't renew their subscriptions."[133] Companies prefer to rely on their own large-scale electricity generators and avoid subscribing with EDL.[134]

The Investment Climate Assessment of 2006 reported that the average firm loses 7% of its sales value due to electricity interruptions. The percentage is even higher in areas outside of Beirut where electricity rationing is much higher. The lack of reliable electricity prevents the development of major manufacturing industries in which energy supply is a critical pre-condition. The July 2008 closure of the production plant of Uniceramic, Lebanon's largest ceramics factory, is often quoted as an example. Established in 1973, Uniceramic was forced to close its operations in Lebanon and lay off most of its 450 employees based on mounting costs of energy, amongst other factors. Despite this example, some Lebanese businesses reportedly benefit from the lack of transparency.[135] They are claimed to use practices such as incomplete electricity bills and illegal connections to the network, which considerably reduce operational costs for small and medium-sized enterprises.

The need for generators represents a significant social and economic burden for Lebanese households, as they are obliged to cover two electricity bills each month, with the electricity produced by generators being more expensive than that supplied by EDL.[136] The burden is greater in poorer households as they end up with long hours of blackouts since they do not have the necessary means to cover the generator costs. A World Bank study states, "Some households forgo paying for a generator because they don't want to cut into higher priority items (such as children's essential expenditures)."[137] The unreliability of electricity is also a strong deterrent and a disadvantage for a number of rural economic activities, such as handcrafts, repair works, and farming.

Shortages in electricity supply and electricity subsidies present obstacles to the development of cleaner, renewable energy sources and to increasing energy efficiency. The need for backup electricity capacity

[132] Arab World Competitiveness Report 2011-2012, World Economic Forum, October 2011
[133] Industry and the jeopardized job opportunities, The Association of Lebanese Industrialists' brief to Georges Frem, Minister of Industry (not dated), Document available at: http://www.opportunities.com.lb.
[134] Interview with Lebanese industrialist, Beirut, September 2011.
[135] Input received from interviews held in Beirut between May and September 2011.
[136] Social Impact Analysis – Electricity and Water Sectors, the World Bank, March 2009.
[137] ibid.

makes many projects based on renewable energy sources economically unfeasible. Companies that are active in this new line of business are thus calling for an improved electricity supply and cost-reflective electricity tariffs to support the development of solar and wind energy sources in Lebanon.[138]

E. ELEMENTS OF SOCIAL FRAGMENTATION

In the Lebanese context of weakened state authority, the failings of the electricity system exacerbate the fragmentation of Lebanese society along socio-economic, geographical and sectarian lines, since access to electricity services varies according to one's place of residence and socio-economic status. The level of access to electricity is determined by four key elements.

The first factor is the schedule of electricity rationing in a given area. The overall schedule of electricity blackouts is not publicly available. However, based on information from available studies, Beirut has three hours of blackouts per day. The exact timing is known to the habitants of the concerned neighborhoods and takes place between 6 am and 6 pm. In rural and remote areas, the blackouts can last for up to 12 hours a day and are randomly distributed throughout the day. The rationing system is thus characterized by great inequality between the rural areas and country's capital. In addition, even though the hours of electricity rationing are set out by a computerized system at EDL, certain areas benefit from preferential treatment. "Preferred customers" are individuals, businesses, or institutions that benefit from guaranteed electricity supply at certain moments of the day. A habitant of one of Beirut's neighborhoods explains that "the street where my building is located gets cut off when a high level official living in a parallel street needs to use an elevator in his building." It is also reported that some neighborhoods in Beirut, normally subject to three hours of electricity blackouts per day, benefit from continuous 24-hour access to electricity since they house high-profile residents.[139]

The second factor relates to the structure of the electricity tariff, which disadvantages low-income populations because the effective tariff (electricity bill divided by kWh consumed) is higher for those with lower electricity consumption.[140] The difference in unit price is due to the high administrative costs included in actual electricity bills independently from the amount consumed.

Third, as the price and quality of EDL's supply greatly varies across Lebanon, so do the supply and accessibility of supply by private generators. The reliability of the service is reportedly better in Beirut. Low-income populations are easily exposed given they cannot afford private generation or are not in a position to contest the quality of the service provided.

Finally, electricity access is a vector of fraud and corruption[141] due to lack of public control. When a state-owned company or other public authority is not in a position to prevent, monitor, or punish illegal connections to the grid or unpaid consumption, the rules are easily bended in exchange for other favors. Some studies point at the linkages between problems of electricity theft and nonpayment and political leaders in local communities—a typical element of Lebanese society.[142] Given their leverage in the communities they represent, the support or opposition of these leaders can be a decisive factor in whether electricity reform plans go ahead or not. For example, support by local leaders was assumed to be an important factor in implementing measures seeking to regulate illegal electricity connections in 2001-2005. When a project was undertaken to improve bill collection in different regions of Lebanon, the final results varied depending on the region. The project brought noticeable improvements in terms

[138] Interviews with business owners, Beirut, September 2011
[139] Based on interviews with Beirut residents, May - September 2011.
[140] See for example Social Impact Analysis – Electricity and Water Sectors, the World Bank, March 2009.
[141] On corruption in Lebanon, see LEENDERS, Reinoud, Spoils of Truce, The Politics of Corruption and State-Building in Post-War Lebanon, Cornell University Press, Forthcoming.
[142] VERDEIL Eric, Water and Electricity Networks between Stress and Reform: From Post-Civil War Reconstruction to The New Lebanese Wars, in "Conference on the Politics and Planning of Destruction and Reconstruction in Lebanon", Oxford , 13-14 June 2008.

of bill collection and billed consumption in the Beirut suburbs where local representatives were supportive; however, the implementation of the same measures in Northern Lebanon was not as effective. Unfortunately, the background information on the causes of such variations is difficult to obtain given the sensitivity of the issue and the lack of reliable statistical data. But there are indications that malpractices occur within all segments of the population. It is reported that buildings located in wealthier areas of Beirut do not pay for the electricity services they receive from EDL.[143]

The above factors determine access to electricity, which is characterized by a high level of inequality across the Lebanese territory. Such inequality further exacerbates the already existing social and inter-communal tensions. The potential dangers and the gravity of frustrations among the Lebanese population regarding the lack of electricity have already been exposed on several occasions. Clashes occurred during protests against electricity blackouts in December 2007-January 2008, resulting in several casualties. Riots also broke out in August and November of 2010 and August 2011 for similar reasons.[144]

V. WHAT MAKES LEBANON'S CASE SO CHALLENGING?

Based on the experience of key developing countries in electricity sector reform[145], it is necessary to build and maintain political coalitions that favor change in the system.[146] Such coalitions need to take into consideration the characteristics of the country and its politics. Political forces must be aligned behind the reform agenda, and the concerns of all competing interests in the electricity sector need to be addressed. There are several implications for the Lebanese case. First, lessons from other countries confirm that governments with weak institutions tend to have poor records of implementation, even if they have an ambitious agenda for reform. Second, the timing of the phases of electricity reform is of critical importance, especially when the issues of privatization and increase in tariffs are addressed.[147] The timeframe for a comprehensive sector reform usually runs long, 5 to 10 years,[148] and generally takes longer in the Middle East region. Third, experience with electricity sector reform is limited in the MENA region when compared to developments on the same front in Latin America and Asia.[149]Against this background, the reasons as to the failure of past attempts to reform Lebanon's electricity sector become clearer.

At first glance, the country's electricity sector appears to suitable for reform because it is "underperforming in some crucial way both in terms of the delivery of energy to important groups of users and in terms of its financial claims on the central budget."[150] However, the political reality does not allow for grievances to find their way through the political system. As the World Bank concluded in its latest Partnership Strategy for Lebanon, "The main reasons for the failure to implement (electricity) reform are not technical, since the sector has benefited from a wealth of engineering and technical assessment reports providing recommendations for sector improvement and an agenda for sector

[143] Based on interviews with Beirut residents, May - September 2011.
[144] Politicians fear protests could destabilize country, Daily Star, August 23, 2010
Zahle students decry electricity outages, demand continuous power, Daily Star, 20 November 2010.
Sidon residents protest water and power outages for 3rd day, The Daily Star, 11 August 2011.
[145] These countries include: Brazil, China, India, Mexico, South Africa.
[146] VICTOR David G., HELLER Thomas C., The Political Economy of Power Sector Reform: The Experiences of Five Major Developing Countries, Cambridge University Press, 2007.
[147] BESANT-JONES John, Reforming Power Markets in Developing Countries: What Have We Learned, The World Bank, 2006.
[148] Interview with a World Bank consultant, Washington, September 2011.
[149] VERDEL Eric, Les services urbains en réseau dans les pays arabes : diversité des réformes libérales et de leurs effets territoriaux in « Géocarrefour », Vol.85-2, 2010.
[150] BACON, R, BESANT-JONES, J, Global electric power reform, privatisation and liberalisation of power industry in developing countries, Energy and Environment Annual Reviews, The World Bank, 2001.

reform."[151] The failure is in fact linked to Lebanese political conditions, which are not favorable to the formulation and implementation of a long-term reform process, particularly with policy formulation having political consensus as its prerequisite. Lebanon is described as an example of "consociational democracy" based on the distribution of political power among its confessional communities. Such a system should in theory favor formulation of consensual solutions. In the Lebanese case though, the system has proven to be "more of a barricade thwarting the system's evolution than a method of careful consociational pooling."[152]

Maintaining of the electricity status quo benefits a restricted circle of intertwined economic and political interests. It prevents advancing a necessary reform that would improve the electricity service for the benefit of the country's economic growth and citizens' wellbeing. More importantly, the extreme polarization of Lebanese political life is such that core economic and social issues, such as electricity supply, are marginalized in public debate. Given the polarized communitarian allegiances of Lebanese citizens, bottom-up pressure is reduced to a minimum and is insufficient for a substantive change to take place.

In the case of electricity reform, one could argue that coalition building in support of reform would have to take place across the Lebanese confessional divides, and include promise of economic bargaining for all the parties concerned. Moreover, the close relation between politics and electricity issues makes reform in this sector subject to overall improvements in governance and rule of law in Lebanon, which are more complex to achieve.

A post-Civil War era of over 20 years paints a rather challenging picture of present and future prospects. Twelve different ministers have tackled the electricity portfolio between 1990-2011, several of whom have proposed their own plan for the sector's development.[153] The list of personalities shown in Figure 4 below is representative of a large part of the Lebanese political spectrum.

FIGURE 4: Ministers of Energy, Republic of Lebanon (1990-2011)

Ministers of Energy and Water	
2009 - 2011	Gibran Bassil
2008 – 2009	Alain Tabourian
2006 – 2008	position vacant
2005 – 2006	Mohammad Fneich
2005 - 2005	Bassam Yammine
2004 - 2005	Maurice Sehnaoui
2003 - 2004	Ayoub Humayed
2000 – 2003	Mohammad Abdel Hamid Beydoun
Ministers of Hydraulic and Electric Resources	
1998 – 2000	Souleiman Traboulsi
1993 – 1998	Elie Hobeika
1992 – 1993	Georges Frem
1992 - 1992	Abdel Hamid Beydoun
1990 – 1992	Mohammad Youssef Beydoun

Source: Data gathering by the author

[151] International Bank for Reconstruction And Development and International Finance Corporation, Country Partnership Strategy for Lebanese Republic for The Period Fy11-Fy14.
[152] MÜHLBACHER Tamirace Fakhoury, Democracy and Power-Sharing in Stormy Weather, The Case of Lebanon, Dissertation Universität Freiburg, 2007.
[153] The consultants involved in the studies include reputed companies such as MVV, Thales, EDF, BNP Paribas and NERA.

Nevertheless, the resulting legislation from the various initiatives presented over the past two decades has rarely been enacted, and the quality of electricity service provision continues to decrease across the country. This is despite the fact that Lebanon's situation is technically no different from that of other developing countries and a long list of technical recommendations that has been developed and put at the disposal of the Ministers. Yet, several factors render the task of electricity reform implementation more difficult.

A. THE ABSENCE OF POLITICAL CONSENSUS

Electricity reform requires political consensus, which is difficult to attain in Lebanon since any decision is subject to further negotiation. Policymaking in Lebanon is affected by the short duration of governments, averaging two years. This factor strongly influences the outcomes of electricity reform, as the insufficient political mandate does not allow for the development of ambitious and thorough plans that take 5 to 10 years to implement. In order to bring in the necessary private capital, continuity in the government policy is needed.[154] However, the nature of politics in short-term horizons favors strategies of political survival rather than long-term visions.[155]

Over the past decade, in 2002, 2006, and 2010, several successful attempts by the Council of Ministers were made to adopt a policy document pertinent to the electricity sector. These achievements took place against the background of government unity and relative political stability. However, as soon as the political conditions changed, the implementation of agreed-to measures invariably stalled. Such was the case, for example, after the assassination of Prime Minister Hariri in February 2005, the July 2006 War, the May 2008 conflict and the fall of the government in January 2011.

Another problem is Lebanon's complex system of political deal making, which results in existing agreements constantly being called into question and thus requiring lengthy negotiations on small items and obstructing progress on complex policy issues. Even if the cabinet of ministers and parliament secure agreement on the adoption of a law, the details of how to implement legislation can fail to gain a similar endorsement and block the reformation process. Such was the case with the 2002 Electricity Sector Decree and could potentially ensue with the more recent 2010 Offshore Petroleum Resources Law.

Finally, the difficulties of the policymaking process are further underlined by the characteristics of Lebanese legislation. Framework law would typically require a number of implementing decrees in order to make practical changes on the ground, providing yet another opportunity for political deal making between the Ministry, Council of Ministers, and Parliament. The Electricity Decree of 2002 provided a legal basis for the creation of an independent electricity regulator, which has never been established due to political disagreements that prevented adoption of the necessary implementing measures.

B. INDUSTRIAL INTERESTS

Lebanese industries lack the incentive to lobby for electricity reform and engage in more intensive campaigns addressing decision makers. The distribution of political power in Lebanon is intimately linked to the distribution of economic interests. The oil importing business is an example of such an organization, with "strong links [that] exist between importing business actors and politicians—both in terms of ownership patterns and via strong alliances between entrepreneurs and politicians, or both."[156]

[154] The 2010 Policy Paper states that an amount of $5.4 Billion over a period of 4 to 5 years is needed. The amounts could be considerably higher given the moaunt of suppressed demand. Interviews with industry representatives, May-September 2011, Beirut.
[155] LEWIS Peter, Growing Apart: Oil, Change and Economic Change in Indonesia and Nigeria, The University of Michigan Press, 2007.
[156] LEENDERS R., 2004, Nobody Having too Much to Answer for: Laissez-faire, Networks and Post war reconstruction in Lebanon, In HEYDEMANN S. (ed.), Networks of Privilege in the Middle East, The Politics of Economic Reform Revisited, Palgrave MacMillan, New York and Basingstoke.

The strong dependency of electricity generation on oil has implications regarding the organization of the electricity sector and the possibility of coalition building in support of reforms. Undoubtedly, any future reform of the sector will seek to reduce the country's oil dependence.[157] Naturally, companies involved with oil trade do not find added value in such prospects.

Typically, energy-intensive industries and companies affected by electricity shortages have a financial interest in electricity sector reform and represent a powerful lobbying group.[158] However, the Lebanese economy is strongly services based with a low share of energy-intensive industries. Consequently, the push for reform is diffused amongst small and medium size businesses with a limited impact on decision makers.

C. LACK OF PUBLIC DEBATE

An informed public debate about the challenges and issues related to electricity sector reform is largely absent from the Lebanese public sphere. This is a result of limited access to details about proposed policy measures and lack of understanding of those among citizens. Citizens effectively lack direct, first hand information about the objectives and details of the electricity reform. The relevant legislation is not available in electronic form[159], the website of the Ministry of Energy and Water is not updated, and the information provided through the media does not encompass all the details of the proposed initiatives. There are no institutionalized channels for public consultation and it does not take place on a regular basis.

Lebanese citizens demonstrate a lack of support for measures proposed by the government for improving electricity provision. Several professionals involved in the Lebanese electricity sector suggest that this is because the public does not necessarily understand the proposed actions of corporatization, privatization, unbundling, and improvements in bill collection.[160] The corporatization and privatization of EDL are often considered identical measures despite the fact that only privatization effectively transfers ownership rights from the public to the private sector.[161]

D. A DIVIDED CIVIL SOCIETY

Civil society remains divided on the issue of electricity along political lines, similar to the divisions among environmental non-governmental organizations (NGO)[162]. There is a lack of cooperation among them and of common civil society position on the issue of electricity reform. Lebanese NGOs that are very active in other areas remain surprisingly timid on the issue of electricity[163]. Most ongoing NGO activities focus on the environmental aspects of electricity production and consumption, rather than governance. [164] They compete with one other for the limited amount of available funding. This limited amount of activity could be due to several factors. Most Lebanese non-governmental organizations focus on issues for which funding from international donors is available, meaning that the issues are selected

[157] The 2010 Policy Paper announced plans to ensure two thirds of feedstock for electricity generation from natural gas, 12% from renewables and the rest from other sources.
[158] For a number of years now, Egypt has been facing pressure from its industries for more reliable electricity services
[159] The 2010 policy paper is available on the website of MOEW, but other documents related to its implementation are missing.
[160] Interviews conducted with the representatives of the Lebanese ministries, international donors and academia in May and June 2011 in Beirut.
[161] Another example of a misperception is the ongoing disagreement between MOEW and the population of Mansouryeh concerning the finalization of high-voltage lines in the area. From a technical point if view, the project should improve electricity delivery by upgrading the transmission network in the country. However, the local population continues to express concerns about the possible health impacts of high voltage lines and opposes the completion of the works. The fact that the state lawmakers changed their position on the project without giving a better explanation to the local public contributes to the continuing public opposition. Moreover, until his nomination, the current Minister of Energy and Water was opposed to the project. See: High tension over power project, Daily Star, 20 August 2011, Beirut.
[162] KINGSTON Paul, Patrons, Clients and Civil Society: A Case Study of Environmental Politics in Postwar Lebanon, In Arab Studies Quarterly, Vol 23, No 1, Winter 2001.
[163] The website of United National Development program list 58 NGOs operating in Lebanon. Only one among them deals indirectly with electricity related issues (Green Line). See http://portal.undp.org.lb/ngo/ngoindex.cfm Information extracted 22 November 2011.
[164] Non-governmental organisations such as the Lebanese Association for Energy Saving and for Environment (ALMEE), the Lebanese Solar Energy Society (LSES) or Green Line promote use of renewable energy and encourage energy efficiency measures.

by those donors and not necessarily driven by local needs or the agenda of the local NGOs. Also, NGO activities are concentrated in Beirut, when those who suffer the most from electricity shortages are dispersed in Lebanon's rural areas. Therefore, citizens who could be the driving force behind NGO activities are geographically diffused among less influential segments of the population. Finally, there is a lack of knowledge and experience amongst NGOs regarding electricity reform, governance, and policy in general, as most expertise is concentrated on technical issues.

E. THE BROKEN LINK BETWEEN POLITICAL LEADERSHIP AND CONSTITUENCIES

There is a broken link between the political leadership and its constituency when it comes to understanding and accommodating the necessary elements of electricity sector reform. The lack of accountability of both Lebanese decision makers and voters makes it difficult to channel grievances of failed reform.[165] Several factors encourage this attitude. One factor is that well-off Lebanese possess the necessary financial means to protect themselves from electricity outages by subscribing to private generators. As one senior ex-public official mentions: "if there is a major electricity blackout in the country, no one would notice."[166] Those who are penalized by the lack of progress in electricity reform are the potential mass voters; a large part of the potential electorate is affected by shortage of electricity supply, with 58% of Lebanese households using generators. However, they tend to elect their representatives based on their communal allegiances rather than elements of their political program. Only two Lebanese political parties, the Free Patriotic Movement and Future Movement, included electricity reform in their programs prior to the 2009 parliamentary elections. Moreover, the polarized nature of Lebanese politics shifts the attention of potential voters from economic and social problems such as electricity supply to questions of political and communitarian allegiances. The missing focus on concrete deliverables by the political leaders is hence favorable to maintaining the current status quo rather than to substantive change in the sector.

The trust of Lebanese citizens in the state's capability to ensure stable and reliable electricity supplies runs low. Given the failure to ensure a reliable supply of electricity more than 20 years after the end of the Civil War, Lebanese citizens do not trust the government's promises to rectify the current situation. Instead, they prefer to rely on solutions provided by the private sector and do not actively engage in identifying new policy measures, which probably explains the absence of civil society associations dealing with electricity issues. The lack of trust is also reflected in the pragmatic approach adopted by some municipalities who implement initiatives addressing, for example, the price regulation of generators without a clear mandate from the state.

Finally, the political leadership is not often in the position to deliver on its reform commitments, as state institutions do not have the necessary capacity to implement and enforce legislation in the electricity sector. The delay in implementing the 2002 Electricity Decree and the difficulties in eradicating illicit practices in electricity distribution reflect this reality. Therefore a more general improvement in the capacity of the Lebanese state to ensure better governance and guarantee the rule of law could have a positive impact on the functioning of the electricity sector.

F. GEOPOLITICAL FACTORS

The geopolitical situation is an aggravating factor for the Lebanese electricity sector. Lebanon is currently a net importer of electricity from Syria and Egypt. The amounts are rather limited and, in 2009, represented less than 10% of the country's electricity demand. The Lebanese government is seeking

[165] When elites that govern take interest in the existing system, public pressure is necessary to bring out the reform. See DIAMOND Larry, Developing Democracy, Toward Consolidation, The John Hopkins University Press, 1999

[166] Interview held in Beirut in August 2011.

additional imports from Turkey and possibly Iran. However, these plans are affected by increasing domestic electricity needs in the respective countries, which diminishes their availability to supply Lebanon.[167] Molreover, the surge in world oil prices since the late 2000s has resulted in an increased burden for the state budget. The hike has also reinforced the position of oil-related businesses within Lebanon since trade in oil products has become a more profitable business.

Nonetheless, natural gas supplies remain the biggest geopolitical challenge. The initial plans for supplying the Beddawi and Zahrani power plants were delayed for almost a decade since a 2003 deal with Syria fell through. Egyptian supplies, which were arranged as a replacement, satisfy only a small portion of Lebanese gas needs. The shortage of natural gas in the region has made signing additional gas supply agreements more difficult. Egypt and Syria experienced shortages, and Iraq's natural gas production remains limited. The security of supplies is also challenging given the volatile situation in the region; flows were repeatedly interrupted in 2011 due to explosions targeting Egyptian gas pipelines. As a result, the government is looking at the LNG option, which offers greater flexibility of sources given its transport of electricity supply by ship.[168]

VI. THE WAY FORWARD

A. ATTRACTING INVESTMENT AND IMPROVING SUPPLIES

Access to energy is a basic need for ensuring economic growth and combating poverty. However, access is not sufficient if the electricity generation capacity and the state of the electricity network do not allow for continuous supply. Despite an electrification rate of 99%, Lebanon's citizens still face the national average of six hours of blackouts per day. Such conditions clearly put into question the long-term sustainability of Lebanese economic growth and social development. Ensuring improvements in the provision of electricity services is an absolute necessity for the future of the Lebanese economy and improved welfare of its citizens. The urgency to reform is higher than ever.

At the basis of the problem is the fact that the implementation of reforms constitutes an inherently political process. The reform measures provide a platform for the confrontation of varied political and economic interests. For this reason, only identifying technical elements for electricity reform is just part of the solution. It needs to be complemented by an appropriate political approach to establish an integrated energy strategy for the country that outlines future trends for energy production and use, including electricity. The process of defining the various technical options for electricity reform has already been accomplished. The process of translating these options into politically acceptable measures is underway in a restricted circle of decision makers, which takes place without an agreement on the overall strategic direction and the objectives of the reform. Occasionally, some issues surrounding the ongoing political struggle resurface in the public spotlight, as was the case in September 2011. Political elites remain divided along confessional lines and it is difficult to establish and maintain stable coalitions in support of the reform efforts. A central organization to provide a basis for national consensus on the vital electricity issue has yet to emerge. The lack of practical implementation on the ground is indicative of the lack of political agreement on the strategic direction of change to the sector. Some technical elements render the process of policy identification and development more difficult. For example, the lack of reliable statistical data from the electricity sector makes long-term strategic planning very challenging because the future trends are difficult to predict.

[167] Cabinet considers leasing electricity-generating ships, Daily Star, 27 October 2011.
[168] It is interesting to note that the LNG option is being implemented in Israel. It was announced that by the end of 2012 an LNG terminal will be completed in the northern coastal town of Hadera.

Despite apparent difficulties, there are elements that could provide some initial support for the reform efforts. First, there is a relatively high percentage of the population willing to pay increased costs of electricity services provided the quality of service improves. Only 16% of the population refuses to pay more than their current bill, so states a World Bank survey from 2008. Those ready to bear the higher cost of electricity could offer necessary support for the future reform, provided a political agreement is reached on the way forward; this is an encouraging sign for the reform measures to come, particularly with respect to the modification of EDL's tariff structure, and the phasing out of the current subsidies.

Lebanon's industrialists and business owners are aware of the potential benefits of an improved electricity service, and continue to call for stronger government action in the sector. The current level of expectations is so low that even a small, but lasting, improvement could potentially leverage strong support for further measures provided business opportunities are part of the package. Government action should focus on the fact that improved access to reliable electricity supply will increase Lebanon's competitiveness, facilitate development of cleaner renewable energy, and make a more compelling business case for energy efficiency and energy savings measures in different sectors of the economy.[169] Even though some businesses might benefit from the status quo and illicit practices[170], the overall benefits of improved electricity supply could outweigh the potential costs. Given the dynamism of Lebanon's private sector, it could potentially be a regional leader in renewable energy and energy efficiency if a substantive change takes place in electricity policy.

For the first time in the post-Civil War period, an electricity policy document outlining an investment plan for ensuring 24-hour supply was endorsed by two consecutive governments: first in July 2010 by the government headed by Former Prime Minister Saad Hariri, and more recently in September 2011 by Prime Minister Najib Mikati's government. Financing of LL 414 Billion (or $276 Million) from the 2011 state budget was earmarked for implementing most urgent actions, namely increasing electricity production (LL 385 billion or $256 million), improving distribution (LL 19 billion or $12.7 million), and accompanying studies and contracts (LL 10 billion or $6.7 million). Overall, the government has committed to invest $1.2 billion in the electricity sector over 4 years, an amount to be secured from different sources, including state borrowing and foreign donors. The government has also committed to proceeding with administrative and reform measures. The deadline for establishing a regulatory authority and agreeing on amendments to the 2002 Electricity Decree will expire by the end of 2011. Nonetheless, this agreement could provide the needed basis to build on in the coming months or by future governments.

Continued deterioration or improvement in electricity delivery certainly bear important political consequences. Increasing problems in electricity provision could bring social unrest similar to demonstrations occurring in January 2008. At the time of writing, sit-ins were being organized by the short-term contractors of EDL to demand social benefits, following smaller protests against the quality of the electricity service in several regions. On the other hand, improvement in electricity supply could leverage important benefits for the citizens and for building political consensus on the future of the reform. Still, a realistic solution to Lebanon's electricity problem will need to incorporate political concerns and the expectation of the various actors, while presenting economic feasibility for alternative solutions, to attract the private sector. It will also need to be anchored in a systematic improvement of governance and the reinforcement of government institutions in order to guarantee effective and lasting improvements in electricity services. Any meaningful steps towards practical changes to the Lebanese electricity system will require a combination of short-term measures and long-term policy planning from the Lebanese government to frame the process.

[169] These sectors include: buildings, transport, manufacturing, industrial process, etc.

[170] There is no details study available concerning the illicit practices in electricity distribution. Based on information gathered through interviews, both SME's and large industries benefit from either reduced electricity bills or illegal connections to the EDL grid.

B. SHORT-TERM MEASURES

In order to quickly progress in practical implementation of the reform, the scope of the 2010 Policy Paper for the Electricity Sector should be reduced to a minimum number of immediate, emergency measures that are realistically within the reach of the current government. These measures should primarily focus on: identifying financing options for building up the country's electricity generation capacity over the coming four years in line with Law No. 181 of 5 October 2011; bolstering the supply of natural gas through any available option, pipeline or LNG; implementing supportive measures to boost energy efficiency; and increasing the share of solar and wind energy in the country's energy mix. Such an approach should allow MOEW and EDL to make more efficient use of their available financial, technical, and human resources capacities, while awaiting an agreement on a comprehensive energy strategy with a detailed road map and a concrete timeline.

Building national consensus and public acceptance of the planned measures around the objectives of electricity reform should be undertaken immediately. To this end, a suitable platform should be created to provide an adequate space for public discussion and consultation on new legislative and regulatory measures. This could take the form of a consultative forum under the auspices of the Government of Lebanon. The forum should cover electricity reform along with other energy issues (oil, natural gas, etc.) in order to provide a more comprehensive approach. Membership should be representative of Lebanon's political spectrum with the objective to build shared responsibility and ownership of the country's energy future as a basic precondition for Lebanon's successful economic development. The forum should include, inter alia, the public administration[171], private sector[172], civil society organizations, and academia. As a practical solution, the Government of Lebanon could initiate its establishment by MOEW on a voluntary basis, awaiting a suitable opportunity to legally anchor its mandate.

Should an initial consensus emerge through this work on the next steps for reform, a permanent Inter-Ministerial Committee for energy issues should be set up to ensure monthly follow up of the implementation of the agreed upon measures and to guarantee a prompt response in case possible obstacles emerge. The Committee, consisting of at least the Ministers of Economy, Energy, Environment, Finance, Interior, Social Affairs, and Administrative Reform[173], could take over the role of ad-hoc inter-ministerial committees such as the one currently working on the amendments to the 2002 Electricity Decree.

The proceedings of the meetings and recommendations made by the consultative forum and the Inter-Ministerial committee should be made public in order to leverage their impact and provide better access to information for the wider public.

RECOMMENDATIONS

To the Government of Lebanon:

1. Prioritize the adoption of electricity-related decisions in its working program on an ad-hoc basis until a more detailed road map is available.
2. Proceed with appointments of officials in MOEW, EDL and the future regulatory authority independently from other pending administrative appointments and create a permanent core expert

[171] Including concerned Ministries, High Council for Privatization, Council for Development and Reconstruction, EDL, Parliament. Participation should be open to the representatives of municipalities, as they have a wealth of experience in dealing with electricity issues, in particular with respect to private generators.
[172] Individual companies, industry and business associations.
[173] The Council for Development and Reconstruction, the High Council for Privatization should be invited to participate as observers.

team that will assist the Government of Lebanon in following up the technical implementation of the agreed reform measures.

3. Establish a consultative forum for energy, including electricity reform, to enhance engagement of all sector players and increase transparency of the reform process.

To the international donors:

4. Commit financial support assisting MOEW, EDL and the future regulatory authority on technical aspects, conditional to adoption by the government of a detailed road map of the electricity reform process with a concrete medium- to long-term timeline.

5. Provide financial assistance for building up knowledge about electricity governance and consumer rights protection through cooperation with Lebanese civil society actors.

To the civil society:

6. Formulate a coordinated position towards electricity sector reform focusing on the social and environmental aspects and consumer rights protection, and build up its expertise in electricity governance.

To the Government of Lebanon and the civil society:

7. Raise public awareness about the financial and environmental value of energy efficiency and energy savings and increased use of renewable energy sources and leverage the impact of the already ongoing initiatives[174].

To the private sector:

8. Formulate a coordinated position towards electricity sector reform, focusing on potential business opportunities, and develop innovative financing models for investment in electricity generation in cooperation with Lebanese banks.

C. LONG-TERM STRATEGY

Successful electricity reform is closely linked to a comprehensive national energy strategy. Such strategy should be built around the principles of a diversified energy mix, environmental sustainability, and social and economic development, and based on solid statistical evidence and assessment of the country's energy landscape. The heading of "energy" would encompass electricity, along with oil, gas, energy efficiency, renewable energy, and the use of energy in the transport sector. The new strategy should outline a comprehensive legislative and regulatory framework and an adequate institutional set-up, and identify medium- to long- term policy objectives and measures for their implementation, taking into consideration national energy needs across various sectors of the economy. The new energy strategy should be developed through a process of public consultation via the above-mentioned consultative forum. Such consultation should take place with deadlines that allow the interested parties to react and comment in a constructive manner. With respect to electricity, the strategy should address the major factors that have been hampering the reform process and provide an outline of a stable, reliable electricity supply for Lebanese citizens. In addition to addressing the sector's restructuring and the future of EDL, it should also encourage a more responsible energy-demand management and improved energy efficiency, and facilitate use of renewable energy as per international trends and standards.

[174] Including the National Energy Efficiency Action Plan (NEREA), the National Energy Efficiency and Renewable Energy Account (NEEREA), the Lebanese Center for Energy Conservation, and the Arz Building Rating System.

RECOMMENDATIONS

To the Government of Lebanon:

1. Develop and agree on a comprehensive energy strategy for Lebanon based on a stable and transparent legal and regulatory framework, which includes a reform road map with a clear timeline that focuses on:
    a) Deadlines for policy actions that have been discussed and endorsed by a consultative forum;
    b) Key elements of the electricity reform that include, inter alia:
        - Establishing and strengthening of an electricity regulatory authority;
        - Adopting an amended Electricity Decree;
        - Setting a timeline for the corporatization[175] of EDL;
        - Identifying options for private sector involvement in the electricity sector;
        - Adopting and implementing framework laws for renewable energy and energy efficiency.
2. Give absolute priority to institutional strengthening in the electricity sector based on a network of technical experts to be created within the concerned departments of MOEW, EDL and other Ministries and Lebanese state institutions involved with electricity sector.
3. Develop and implement a coherent communication strategy that targets the full range of electricity sector players, and focuses on:
    a. Promoting better understanding of reform measures and their participation in the reform process;
    b. Highlighting planned improvements in the quality of the electricity service, and the potential environmental, health, and social implications of electricity reform;
    c. Explaining the different steps leading to the reform of EDL's tariffication structure, in particular towards residential consumers;
    d. Publishing the relevant electricity legislation, details of the electricity reform plan, and its timeline on a dedicated website.[176]
4. Agree upon and implement regulatory measures for backup generation that focus, inter alia, on:
    a. Developing a registry of the existing private backup generators, building on the experience and knowledge of the local municipalities;
    b. Developing a list of maintenance and operating standards and ensuring their implementation by the generators owners.
5. Adopt one of the options for transiting towards a cost-based model for electricity tariffication while addressing the potential social impact by developing a scheme focused on the most vulnerable, low-income populations.

[175] Transformation from public institution to corporate entity status.
[176] For example using the model used for the first licensing round for hydrocarbon exploration within the Lebanese offshore: http://lebanon-exploration.com/.

To the international donors:

6. Make any additional financial assistance in the electricity sector conditional to the progress of planned reforms steps as outlined in the roadmap and use of public consultation in the process.
7. Optimize allocation of available financial resources through a donor coordination mechanism such as the already existing donor group on energy.
8. Provide support for capacity building and transfer of know-how on developing an integrated energy policy in Lebanon based on lessons learnt from both industrialized and developing countries.
9. Provide financial support for Lebanese universities to improve their research and educational capacities in electricity-related areas, including policy aspects, energy efficiency, and renewable energy.

To the civil society:

10. Establish specialized civil society groups and organizations to follow electricity reform and its timely implementation by the Lebanese government based on participation of local residents.
11. Assess environmental and health impacts of backup generation and the associated social and economic costs.

To the Lebanese government, the international donors and the private sector:

12. Develop and implement innovative, private-sector driven projects and financing solutions to promote energy efficiency, energy savings and use of renewable energy sources across all the sectors of the economy and include research, development and deployment activities.

ANNEX: MAP OF LEBANON