

The emergence of hybrid electrical configurations in a complex Lebanese energy landscape

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Since the Civil war, people in Lebanon are suffering from disruption and interruption of the electricity supply with chronic massive power cuts (between 3 and 12 hours a day). The restructuring of the electricity sector, centralized with the near monopoly of Électricité du Liban, has been unsuccessful for more than 20 years. Given the state's failure to provide electricity, a wide range of technologies are blooming throughout the Lebanese territory and are challenging the way electric systems are regulated and managed.

Since the 90s diesel-based electric generators provide a backup to the shortages of the public grid. Firstly, generators were individual backup systems, but in the face of persisting shortages of supply, they gradually became mini grids at the neighbourhood or the municipal scale. Anchored in the practices for more than 30 years, generator systems are totally integrated in the daily life of Lebanese citizens (Abi Ghanem 2017), and informal electricity providers are filling a gap. Despite their illegality, they are considered as a “perpetuated extra-legal system” (Gabillet, 2010), regulated by local institutions but recently also by a national one. On the other hand, driven by the need to secure electricity supply and cut down costs, households, large companies or even municipalities are developing local renewable production systems. It's a way to emancipate themselves from the State but also from the diesel minigrid. Initially, the various fossil or renewable supply devices coexisted side-by-side, but an articulation between them led to the creation of a singular socio-technical object: the hybrid PV-diesel system. Hybrid configurations are technologically more complex and are developed at a wider scale for collective uses.

In this context of diversification and complexification, the main grid is no longer the dominant paradigm, but it is articulated to varying degrees with other configurations whether formal or informal, renewable or fossil, centralized or decentralized. To seize this long-lasting process of technical and political complexification of the energy landscape, we use the concept of electric hybrid and electric hybridisation. The goal is not to stress heterogeneity of infrastructural configurations, but to capture the changing dynamics that are occurring. Through the lens of public policies, we analyze the role of public institutions and energy governance in the solidification of these artefacts. Also, from a geographical perspective, the goal is to understand to what extent electrification configurations are shaped by and shaping the social and urban contexts (socio-economic conditions, urban spaces and local resources, social practices and political powers).