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By Invitation:

Mr Azhari is an independent researcher. The views expressed in the spotlight are his and do not necessarily reflect the views of BLOMINVEST Bank.

There are few things in economics that the Lebanese agree on, but one thing that seems to attract consensus from all is the sorry state of the energy sector; and, by extension, the wasteful, corrupt spending that surrounded this sector and that constituted a big part of the national debt. That is because the sector – and primarily EDL – absorbed expenditures close to \$40 billion if one takes into account compound interest, but it has very little to show for it. In fact, today the state of the sector is so miserable that households get at most 2 hours of electricity a day and have to rely instead on the high-cost source of private generators. This implies that a lot poor households that can't afford private generators are left out with hardly any electricity each day, thus worsening their already painful living conditions. As a result, and to a large extent, the energy crisis has turned into a human crisis.

But, of course, it does not have to be this way. And the reason is very simple: there are alternative energy sources that are both available and affordable. Prime among these is solar energy, which is luckily witnessing a mini boom these days especially in mountainous areas where there are more empty spaces to place the solar panels; however, still more people need to be aware of its benefits – especially poor households – so as to help solve the crisis and to ease living conditions on a wider scale.

So, what are these benefits? There are actually several, and they can easily emerge from the ensuing discussion. The off-grid capital cost to install a solar system of 7 Kilo Watt Peak in capacity that can provide to the representative household adequate electric power of about 945 Kilo Watt Hour (KWH) per month is around \$9,500. Given that the cost of electricity from private generators is about \$0.5 per KWH, then if the representative household uses this source it will spend the 9,500 to get electricity for 20 months only!. But if it installs solar instead, then it can with the \$9,500 have the same flow of electricity per month for the entire 25 years' lifetime of the solar system. That is why it is estimated that the cost of one KWH using solar is only 7.8 cents compared to a cost of \$0.5 (50 cents) using private generators – in other words, solar is about 7 times cheaper. So we can establish the

following benefits for Solar: it has a relatively low capital cost; it involves tremendous savings per KWH; and it has a long service life.

But that is not all. The carbon footprint from using solar is 0.05 kg of CO₂ per KWH compared to 0.85 kg of CO₂ per KWH from diesel generators. This is a huge difference in carbon footprint that implies a huge impact environmentally. In addition, with enough storage capacity, the solar system will be operational all year round, most importantly in this respect in winter, as the country receives almost 300 days of full sun in the year with an average of 8 hours of sunshine daily. Not only that, for on-grid solar systems with net-metering, any excess of electricity can be offset by recording bidirectional energy flows with the national network. Though net metering has been introduced in Lebanon, its wider adoption in agreement with EDL will enable consumers to sell their excess electricity to EDL and have their bills reduced without the transferring of any cash. As a result, we can augment the benefits of Solar by the following: it is a lot cleaner and greener; it is functional all-year round; and it can actually make you money, which is very helpful to low-income household.

Given the exceptional benefits of solar energy, it makes economic sense on both fairness and efficiency grounds to encourage or even subsidize its use, especially in relation to its positive environmental spillovers. We will propose here several policies and measures that can achieve that. First, and keeping in mind the importance of increasing awareness regarding the benefits of solar, are nudging initiatives that can push people towards adopting “rational decisions” . Actually, one such initiative already exists as in RESTART, where trained specialists visit houses and give free advice on how best to install solar. Another initiative that we propose is to establish “solar houses” in major cities and towns in the country, that are lit by solar and that provide all the relevant information on solar systems, and that can be funded by NGOs and/or Solar Energy Companies. Aside from nudging initiatives, a direct policy measure that targets the poor is to provide monitored financial support that covers the capital cost for solar to low-income households selected on a means-test basis. Concessional funding could come from international financial institutions (like the World Bank), as the government can’t afford to fund such a measure given its very high indebtedness. Another measure that aims at reducing the capital cost for solar indirectly is to eliminate all tariffs on the solar technology set, primarily on solar panels, (lithium) batteries, and inverters, the main three components.

One thing that we have to keep in mind is that the use of solar is not confined to households only, but it includes businesses and industries. So a suitable measure that could encourage business to adopt solar in this respect would be tax credit given on the total or partial amount of solar investments by companies, as it usually does with their other investments on equipment and technology. Lastly, an important measure that would be especially directed at low-income households is subsidized loans administered by banks and provided by BDL. The government had provided such loans through BDL before the crisis, but they have been discontinued. So a re-activation of such scheme would add momentum and urgency to solar use, and would be a huge step in the right direction as it

would prioritize the economic well-being of low-income earners, and would be additionally justified by the social gains from cleaner air. The upshot from the above is that there are workable measures using fiscal and commercial incentives, along with concessional funding, that can make solar affordable and widen its use, in the process maximizing solar benefits to the country, its environment, and its people, most notably poor people.

In conclusion, we would like to emphasize that the resort to solar energy should be viewed largely as a stop-gap solution. That is because it can't be considered as a substitute to reforming the energy sector, but as a necessary complement. As such, reforming the energy sector by deregulating it, or even privatizing it, is essential to bring a stop to the corruption and inefficiency that plagued the sector for a long time, in addition to regularize the 24-hour supply of electricity and to put public finances on a sustainable path. As important, it would act as model for public sector and governance reform that the country badly needs. It is even better if the measures to encourage the use of solar energy were part of a comprehensive program to reform and structurally change the Lebanese economy as that would make their impact and the benefits from solar come sooner, bigger, and better.

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