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DEUTSCHLAND - JORDANIEN

# Boost Jordan's clean energy transition through its COVID recovery plan



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## The Jordanian-German Energy Partnership

Jordan has a high potential for renewable energy. In the past years, there has been an impressive build-up, especially of photovoltaics. However, the Jordanian energy supply still mainly relies on the import of fossil fuels. At the same time, a secure, low-cost and sustainable energy supply is an important driving force for innovation, economic development and jobs. In the light of this, Jordan aims to further expand the use of renewable energy, increase local value creation, and boost energy efficiency. Training also plays an important role.

In order to support this goal, Jordan and Germany agreed in 2016 to set up an Energy Dialogue to provide an influential contribution to a sustainable energy system in both countries. In further talks, the two countries decided to expand their cooperation. To this end, Energy Ministers Peter Altmaier and Hala Zawati signed a declaration of intent on the founding of the Jordanian-German Energy Partnership in April 2019.

The work of the Energy Partnership is facilitated by secretariats in Amman and Berlin which are staffed by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH as part of the global project of support of bilateral energy partnerships. The secretariat supports the management of the partnership and serves as the first point of contact in the context of the energy partnership for all interested stakeholders.

**EDAMA** is a Jordanian business association that was founded in 2009. The word EDAMA was derived from the Arabic word, for sustainability. The association envisions Jordan as the regional hub and successful model for green growth, furthermore, it's an NGO recognized for creating a thriving green economy. EDAMA empowers businesses to play a leadership role in transforming Jordan's energy, water, and environment sectors.

**SolarPower Europe** is the voice of the solar industry in Europe, with more than 200 members active along the whole solar PV value chain. Awarded Overall Best European Association at the European Association Awards in 2019, SolarPower Europe's mission is to shape the regulatory environment and enhance business opportunities for solar in Europe and beyond. It develops award winning business intelligence and best practices reports on markets, industry and technologies, informing its members and external stakeholders on the latest trends of the solar PV industry.

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# Boost Jordan's Clean Energy Transition Through Its COVID Recovery Plan

The COVID crisis has had a severe impact on Jordan's renewable energy (RE) sector. More than 60% of the clean energy stakeholders that were surveyed after one year of the pandemic indicated that their revenues had decreased, with 56.6% indicating they are currently unable to collect revenue. Furthermore, 50% indicated their profits decreased by more than 25%. Overall, 90% of the respondents indicated that the demand on RE projects decreased compared to 2019 (pre-pandemic).

The prolonged lockdown, in addition to Friday lockdowns, has delayed ongoing projects and created supply chain disruptions. This has resulted in cash flow disturbances, and additional economic burdens have incurred from fines related to project delays.

The pandemic has negatively impacted Jordan's RE sector further by casting a shadow on the management of Jordan's electricity grid. The system has been exposed to technical challenges, resulting from a decrease in electricity consumption; this has, in turn, motivated NEPCO to disconnect wheeling-based RE systems, which has resulted in significant economic and financial losses for RE companies. In current context, it is essential that Jordan's RE sector is supported through targeted measures to ensure it can fully recover from the COVID crisis.

Jordan's RE sector should be part of the solution in promoting a sustainable and resilient economic recovery. Jordan's COVID recovery plan should support renewables through stimulus packages, favourable taxes, and access to cash, as well as support for expanding project pipelines. This will have a direct impact on the competitiveness of the Jordanian economy by creating sustainable jobs and contributing to decarbonising the economy. In addition to this, Jordan's recovery plan should accelerate the deployment of sufficient flexibility sources and the electrification of the economy; it should promote energy efficiency across all sectors of Jordan's economy, and it should fund Technical and Vocational Education and Training (TVET) in clean energy industries. These actions would ensure Jordan's recovery is in line with the energy sector strategy (2020–2030) and action plan target to reach 3.2 GW of renewables by 2030.

In parallel with unlocking COVID recovery funds for the RE sector, it is essential for Jordan to introduce reforms to its electricity sector. In this regard, it is of the utmost importance to remove the ongoing suspension on large-scale renewable projects, to restructure Jordan's electricity sector by

departing from the single buyer model and moving towards open market, and to eliminate financial and administrative barriers to decentralised renewables.



## 1. Provide support for Jordan's RE sector.

The COVID-19 pandemic has weakened the financial positions and strained balance sheets of several energy companies. As a result, spending has been reduced; project workers have been dismissed; planned investments have been delayed, deferred, or suspended; and supply chains have been disrupted.

The stimulus package must prioritise the provision of support measures to repair the economic damage caused by COVID-19. As indicated by the response to the survey conducted in the context of this paper<sup>1</sup>, the COVID crisis has had a significant impact on Jordan's RE sector. More than 60% of survey respondents indicated they require financial support during the crisis. Approximately 71% of respondents indicated they would prefer the introduction of tax incentives, while 53% of companies indicated they prefer the provision of soft loans, targeting RE companies as well as open to the chance of rescheduling debts. About 72% of the companies have stated that remote working did not help in reducing their costs, while lockdowns severely impacted projects' executions and installations.

The defence laws number 6 (8 April 2020) and number 28 (28 March 2021) must be revoked immediately, as they inflicted severe damage to the economy and negatively affected the private sector. These orders deprived businesses from the ability to manage themselves effectively in the absence of compensation, neither for companies nor for workers, albeit from minor social security support. The government should ensure appropriate safeguards are in place to protect businesses and workers alike.

### 1.1 Introduce specific financing measures and cost-effective incentives for RE companies.

In addition to providing crisis support for RE companies in Jordan, Jordan's recovery plan should introduce measures to ease financial burdens. These measures should include the reduction and rescheduling of income tax and project and corporate licenses, such as generation licenses, company licenses, and profession licenses. Furthermore, the Defense Orders No. 6 and No. 28 should be reviewed.

### 1.2 Compensate the owners of renewable energy systems.

NEPCO disconnected wheeling based RE systems owned by hospitals, telecommunication firms, and other businesses, leaving them vulnerable to production cost increases during the pandemic. Besides that, sectors that were halted due to the pandemic such as schools and hotels, were unable to benefit from the energy generated, as only 10% of their electricity consumption from the grid was added to their balance as per the regulation. It is necessary to devise a mechanism to reimburse them for the energy that they were unable to use, even though their investment was substantial.

## 2. Boost the RE project pipeline.

Promoting RE through Jordan's recovery plan is a cost-effective strategy to create sustainable jobs, promote resilient economic growth, and accelerate the clean-energy transition. According to the International Energy Agency, decentralised rooftop solar PV generates the most jobs per million dollars of capital investments of any power generation technology, while investments into utility-scale solar offer a high level of job creation at very low costs.

### 2.1 Remove the suspension of large-scale RE project approvals.

The ongoing suspension of large-scale RE approvals should be immediately removed. In addition to increasing RE penetration, large-scale RE projects can foster the development of local industries, as well as create jobs, include small and new players, engage communities, and contribute to subnational development<sup>2</sup>.

### 2.2 Remove financial and administrative barriers to decentralised renewables.

The most important avenue to promote decentralised renewables in Jordan is the removal of financial and administrative barriers that currently slow down the deployment of decentralised RE.

Financial	Administrative
<ul style="list-style-type: none"> <li>• Develop tools and mechanisms to facilitate financing in Jordanian Dinars and design financial instruments to mitigate risks from interest rate fluctuations</li> <li>• Provide public financing programs that ensure support provided is sustainable, that are prepared in cooperation with the concerned, and that improve the access to such programs by easing the application process</li> <li>• Create an electronic platform that compiles information on stakeholders involved in financing of RE in Jordan</li> </ul>	<ul style="list-style-type: none"> <li>• Implement a one-stop-shop online application system for the project approval process with the following points: transparency in application-related approvals, applying entities, granted capacities, and open slots on the grid</li> <li>• Provide simplified application procedures for small- and zero-feed-in systems</li> <li>• Include all the procedures, entities, and costs which an applicant is expected to either go through or incur within the EMRC guidelines</li> <li>• Develop practical implementation guidelines of relevant legislation with clear and reasonable deadlines, including coordination with other entities and reduction of the number of permits needed</li> </ul>

### 2.3 Provide Direct Financial Incentives and Tax Exemptions for Prosumers

The recovery plan should encourage prosumers to maximise their self-consumption ratio and incentivise investments into decentralised storage. This should be done by exempting prosumers from charges, fees, and taxes on self-consumed electricity.

Recovery funds should finance a depreciation mechanism that deducts investments into Battery Energy Storage Systems (BESS) from citizens’ income taxes or companies’ corporate taxes. This reduces the administrative burden for the government and investors, as it streamlines the support measure within the existing tax collection exercise. One key example includes Italy’s policy to deduct 50% of the value of the storage system from the annual tax rate.

## 3. Reform the Regulatory Framework and Market Structure to Foster Growth.

Despite significant progress made over recent years, technical, infrastructural, market, policy, and regulatory barriers inhibit renewables to reach their full potential. Removing these barriers will achieve greater cost-competitiveness and improve the integration of renewables into the energy system.

### 3.1 Establish priority dispatch of RE sources over other sources of energy (in order to avoid switch off of solar energy projects in the future).

Establishing priority dispatch would contribute to accelerate a sustainable recovery and contribute to Jordanian competitiveness. Ensuring RE generators have priority access to the grid would maximise the use of decarbonised electricity in the energy system. This would furthermore improve the competitiveness of the Jordanian energy sector, as wind and solar become increasingly competitive against fuel and gas.

### 3.2 Improve RE tendering design to avoid curtailment.

The introduction of price-based strategies, such as the suspension of feed-in premiums during hours when the price falls below a certain threshold (and additional power may not be required) would provide appropriate signals for RE generators. RE tenders could also specify the time periods during which electricity must be delivered. These so-called product-based strategies would incentivise the deployment of innovative solutions to avoid curtailment, for example by coupling RE generation with storage.

### 3.3 Work on the deployment of flexibility sources for the electrical system.

Jordan's recovery plan should finance the deployment of flexibility sources such as smart grid solutions and additional grid interconnection projects. Grid investments create jobs across a variety of roles, including engineers, construction workers, and electricians among others<sup>3</sup>.

These investments will address challenges linked to the management of RE generation variability, reduce uncertainty in the continuous balancing of the system, and contribute to adjust the supply and demand during periods of generation scarcity and surplus.

#### **Introduce a Framework to Integrate Flexibility Sources in the Energy Sector.**

Jordan should develop a network code for storage systems<sup>i</sup> at the transmission and distribution level, and said code should unlock the full potential of smart grid solutions and BESSs.

#### **Develop Smart Grid Solutions.**

Jordan's recovery measures should be complemented by the development of a clear framework for the deployment of smart grid solutions. This framework should promote the use of smart meters and inverters, the deployment of integrated storage solutions (both at grid scale and behind the meter), the use of real-time awareness and management systems, and dynamic line rating<sup>4</sup>. These enable a better forecasting and management of variable RE generation, improve the operating efficiency of the energy system, and increase security of supply.

#### **Accelerate Electrical Connections With Neighbouring Countries**

Another source of flexibility could be untapped by accelerating electricity interconnections with neighbouring countries. This could stimulate demand for Jordanian energy and reduce financial burdens associated with RE generation excesses. Increasing the rate of interconnections will also support NEPCO to honour long-term PPAs and achieve its RE targets.

<sup>i</sup> Although the introduction of this network code was planned to be delivered by the end of 2020, this has yet to be done.

### 3.4 Restructure Jordan's Electricity Sector—From Single-Buyer Model to Competitive Market.

To fully harness the potential for RE to deliver a green recovery, Jordan's electricity sector must be restructured. This market reform would increase the competitiveness of the generation and distribution sectors, and it should both increase flexibility within upcoming contracts and include short-term pricing methodologies. The sector restructuring should be envisioned for the 2020–2030 strategy and should develop an action plan contrary to the current situation.

#### 3.5 Review the electricity tariffs.

The recovery plan should be accompanied by the introduction of time-of-use (TOU) tariffs, so as to incentivise consumers to adapt their electricity demand in response to time-varying electricity prices. TOU tariffs reflect the actual cost of electricity at the time it is being consumed and creates a more flexible and reliable grid. Furthermore, TOU tariffs should be used to promote business incentives for less economically developed regions.

## 4. Support the Sector by Creating New Opportunities Through Electrification and Cross-Sectoral Work

Promoting the electrification of end-use sectors will contribute to decarbonising the transport, industrial, and heating, ventilation, and cooling (HVAC) sectors and to creating new business opportunities in the RE sector. Indirect electrification, through green hydrogen<sup>ii</sup>, may support the decarbonisation of hard to abate sectors, such as heavy industry, and provide seasonal storage capacity.

### 4.1 Provide Incentives to the Electrification of the Transport Sector.

Jordan's transport sector accounts for the largest share of energy consumption in Jordan. Jordan's recovery plan should provide incentives for individuals to purchase electric vehicles, for example by re-establishing the full exemption from customs and registration fees and from sales taxes on electric vehicles. When it was introduced, this measure resulted in a 2800% increase between 2015 and 2018. The removal of the exemption in 2019 resulted in a 57% contraction in the sales of electric vehicles.

The recovery plan should also incentivise companies and public authorities to replace their vehicle fleets with electric

<sup>ii</sup> Green hydrogen refers to hydrogen produced through electrolysis of water, powered with renewable sources.

vehicles and to finance the large-scale deployment of EVs, in addition to expanding Jordan's charging infrastructure.

To encourage wider EV adoption, investments should be complemented by the review of the regulatory regime to provide a tariff regime that encourages private investment in charging infrastructure.

Recovery funds should be channelled towards the development of a reliable, a sustainable, an affordable, and a safe public transportation service. A more balanced and green mobility system will have significant benefits for passengers, but also for the environment and the wider economy, including stimulating demand for green electricity demand and improving energy efficiency.

#### 4.2 Enforce Electrification of the HVAC.

The recovery plan should establish a solid framework to enforce building mandates and codes. Such a framework should include the introduction of a heat bylaw that provides long-term targets for HVAC decarbonisation<sup>5</sup>. Reforms should be accompanied by a long-term plan to provide financing to HVAC users.

#### 4.3 Promote Electrification of industry.

Industry is the third-largest energy user in Jordan and the second-largest consumer of electricity. Promoting its decarbonisation through locally generated renewable-based electricity would improve the competitiveness and sustainability of Jordan's industry.

Most industrial sectors in Jordan have high thermal energy demands which are predominantly supplied through imports of fuel oil, diesel, and coal. In the cement sector, the high cost of energy has prompted some producers to shift away from fuel oil towards coal in order to reduce operating costs; this has caused increased emissions from an already carbon-intensive sector.

RE Power Purchase Agreements (PPAs) are a powerful and cost-competitive tool to stimulate sustainable electrification of large-energy consumers. The Jordanian recovery plan should provide support for industrial players through the provision of state-backed guarantees for PPAs, as was done in Japan<sup>6</sup>.

#### 4.4 Power the Water Sector With Renewable Electricity.

The water sector consumes about 15% of the total electricity generated in Jordan, as energy costs constitute half of the operating costs of the water sector.

The RE and energy efficiency policy in the water sector (2016–2025) aims to reduce the energy consumption of billed water by 15%. This corresponds to a reduction of 0.47 kg of CO<sub>2</sub> emissions per m<sup>3</sup> of water produced and billed. The policy also aims to increase the share of RE in the energy consumption of billed water to 10%. This corresponds to a total saving of 0.31 kg of CO<sub>2</sub> emissions per each billed m<sup>3</sup> of water.

Based on the cost and the consumption of the energy, fulfilling the above mentioned 2025 targets can be achieved by removing the suspensions on large-scale RE projects. Another key policy is to prioritise and reserve capacity and grid allocation for the water sector.

### 5. Promote Energy Efficiency Across All Sectors.

Energy efficiency improvements have been highlighted by the IEA as a key sector on which to focus recovery funds. Integrated building renovations are particularly job intensive and therefore can significantly contribute to economic recovery in Jordan. Additional incentives and enforcement are required to reach the target set by the energy sector strategy of 2020–2030, which is to reduce energy consumption by 9% prior to 2030, relative to the average consumption in the year 2018.

#### Promote Energy Efficiency and On-Site Renewables in Buildings

Integrated energy renovations are among the most job-intensive energy investments. Jordan's recovery plan should promote integrated building renovations that combine energy efficiency, on-site renewables, and demand-side flexibility improvements. Renovations should be promoted by enforcing ambitious building codes that require such structures to be highly energy efficient and powered by on-site renewable electricity sources.

#### Apply the "Energy Efficiency First" Principle.

To promote a cost-effective clean energy transition, Jordan should also ensure the energy efficiency first principle

is applied within decision-making processes for all energy investments. This will ensure the cost-effective deployment of additional grid infrastructure, maximising of RE generation capacity, and the reduction of losses in the energy system.

### **Mandate Solar, Storage, and Smart Meters on All New Buildings.**

The recovery plan should be accompanied by a mandate to deploy solar, storage, and smart meters on all newly constructed buildings. This would ensure that generated electricity is used at a later stage while the grid also remains balanced during times of high production and low consumption.

## **6.Support Technical Vocational Education and Training (TVET) in the clean energy industries.**

Jordan's recovery plan should promote TVET in clean energy industries. For example, Jordan's recovery funds should be used to provide incentives, both administrative and fiscal, for companies looking to expand their workforce. The German government is providing a premium for companies which do not reduce the number of vocational training positions<sup>7</sup>.

The recovery plan should finance the development of national guidelines for PV, solar thermal, and energy efficiency trainings for TVET with private sector participation. These guidelines should be used to establish a framework to develop TVET programmes in the RE & energy efficiency fields and to define skills and competencies as required by private sector stakeholders.

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