



MINISTRY OF ENERGY
AND MINERAL RESOURCES

THE HASHEMITE KINGDOM OF JORDAN

Renewables Readiness Assessment

February 2021

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About IRENA

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation that supports countries in their transition to a sustainable energy future and serves as the principal platform for international co-operation, a centre of excellence and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy – including bioenergy, geothermal, hydropower, ocean, solar and wind energy – in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

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THE HASHEMITE KINGDOM OF JORDAN

Renewables
Readiness
Assessment



Foreword

from the Minister of Energy and Mineral Resources

The contribution of renewables to Jordan's electricity mix has grown impressively in recent years, rising from just 1% in 2014 to 13% in 2019. Renewable energy systems feeding into the national power grid reached 1 558 megawatts (MW) by 2019 and have since swelled to some 2 200 MW, or 20% of our overall electricity mix.

The integration of renewables reflects extensive preparation via the legislative and procedural framework, coupled with the progressive strengthening of human capacity and formation of partnerships with the private sector. Jordan's recently launched National Energy Strategy for 2020-2030 aims to ensure energy security, affordability and sustainability, along with increased use of domestic energy resources.

After close consideration of various possible scenarios for 2030, the strategy promotes a high independence scenario as the most compatible with achieving broader strategic objectives. These include diversifying our energy sources, boosting the use of domestic energy resources, increasing energy efficiency and reducing energy costs throughout the national economy, and continuing to develop the Jordanian energy system. The strategy calls for increasing renewables to 21% of power generation within the year and 31% by the end of the decade.

The National Energy Efficiency Action Plan, adopted in 2014, created the Jordan Renewable Energy & Energy Efficiency Fund (JREEEF), which helps farmers, households, industries, hotels, mosques, churches, schools and communities optimise their energy consumption and use more renewable power.

The International Renewable Energy Agency (IRENA) has helped us evaluate our current position, including successes and achievements, as well as our challenges. The resulting Renewables Readiness Assessment outlines key measures and solutions to enable us to move forward and meet our renewable energy targets. The recommendations are consistent with our 2020-2030 energy strategy. Moreover, the groundwork behind this report is reflected in our latest implementation plans.

Our ambitious targets for the energy sector require a strong partnership between the public and private sectors. We are eager, also, to work with international friends and partners to make renewables a prominent pillar of Jordan's energy system.

Hala Zawati
Minister of Energy and
Mineral Resources, Jordan



Foreword

from the
IRENA Director-General

As governments plan for the post-COVID future, the transition to renewable energy offers the prospect of rapid job creation, intensified economic development and enhanced social equity and welfare. For Jordan, diversifying the energy mix and reducing energy costs with renewables promises to strengthen long-term socio-economic and industrial development, without putting added strains on public finance.

For a country with abundant renewable energy resources, the envisaged transition would improve energy security and reduce costs to consumers, as well as improving environmental preservation. Jordan's energy strategy for the decade reinforces the diversification policy with an updated target of 31% renewable power capacity by 2030. Renewables Readiness Assessment: Jordan, prepared in collaboration with the Ministry of Energy and Mineral Resources (MEMR), identifies key challenges as the country pursues environmentally and economically sustainable power and heat. It offers recommendations in seven key action areas, aiming to scale up renewables for power generation, transport, industrial uses and the heating and cooling of buildings. The net result would be greatly increased renewable energy use, improved energy security and lower costs.

While Jordan made major strides over the past decade, the linkages and synergies could be strengthened between renewables and efficiency measures, as well as with grid upgrades, domestic industrial development, and the diversification of energy sources for transport and mobility. National financing institutions and project developers need their capacity built up to unlock faster investment in renewables.

Since 2011, nearly 40 countries, spanning the Middle East, Africa, Asia and the Pacific, Latin America and the Caribbean, have undertaken similar assessments, exchanging knowledge and fostering international co-operation to accelerate the deployment of renewables. Each process has been country-led, with IRENA providing technical expertise, highlighting regional and global insights, and facilitating consultations among a range of national stakeholders.

IRENA appreciates the vital input and engagement of the MEMR team on this study. Numerous national stakeholders and international partners also made valuable contributions. I sincerely hope the present report helps to accelerate Jordan's shift to a sustainable energy future.

Francesco La Camera
Director-General, IRENA

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Abbreviations

°C	Degree Celsius
CBJ	Central Bank of Jordan
CBO	Community based organisation
CEGCO	Central Electricity Generating Company
CO₂	Carbon dioxide
CSH	Concentrated solar heat
CSP	Concentrated solar power
DEG	German Development Bank
DLS	Department of Land and Survey
EBRD	European Bank of Reconstruction and Development
EDCO	Electricity Distribution Company
EESCO	Energy efficiency service company
EMRC	Energy and Minerals Regulatory Commission
EPC	Engineering, procurement and construction
ESCO	Energy service company
EU	European Union
FMO	Netherlands Development Finance Company
GAM	Greater Amman Municipality
GDP	Gross domestic product
GEF	Global Environmental Finance
GIS	Grid impact study
GWh	Gigawatt-hour
IDECO	Irbid District Distribution Company
IFC	International Finance Corporation
IPP	Independent power producer
IRENA	International Renewable Energy Agency
JCI	Jordan Chamber of Industry
JEDCO	Jordan Enterprise Development Corporation
JEPCO	Jordan Electric Power Company
JGBG	Jordan Green Building Guide
JICA	Japan International Cooperation Agency
JISM	Jordanian Institution for Standards and Metrology
JNBC	Jordan National Building Council