

# ADVANCING RENEWABLES IN DEVELOPING COUNTRIES

Progress of projects supported  
through the IRENA/ADFD Project Facility



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### About IRENA

The International Renewable Energy Agency (IRENA) is the intergovernmental organisation that serves as the principal platform for international co-operation, a centre of excellence and a repository of policy, technology, resource and financial knowledge, and a driver of action on the ground to advance the transformation of the global energy system. 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. [www.irena.org](http://www.irena.org)



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### About ADFD

The Abu Dhabi Fund for Development (ADFD) is a leading national entity tasked with distributing development aid. Established in 1971, it helps emerging countries by providing concessionary loans to finance sustainable development projects. In addition to managing development grants by the Abu Dhabi government, ADFD finances UAE private investments and supports the national economy. Since its inception, ADFD has been instrumental in achieving development milestones in more than 90 countries. Its projects and investments – collectively valued at around AED 92 billion to date – have helped the international community achieve sustainable growth. [www.adfd.ae](http://www.adfd.ae)



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# FOREWORD



**Mohammed Saif Al Suwaidi**

## **Message from the ADFD Director General**

Our 48-year development journey in more than 90 countries has been driven by the tolerant and forward-thinking vision of the founding father of the UAE, the late Sheikh Zayed bin Sultan Al Nahyan, to support, develop and transform communities all around the world.

Abu Dhabi Fund for Development (ADFD) forms strategic partnerships with governments of beneficiary countries to meet national priorities in key sectors and drive the objectives of the United Nations' Sustainable Development Goals (SDGs). To stimulate economic growth, create job opportunities, enhance climate change resilience and electrify rural areas, the Fund has identified vigorous development in the renewable energy sector as a top priority.

Sustainable energy and climate responsibility have increasingly come to the forefront in our investments and allocations. In partnership with IRENA, we committed USD 350 million to support transformative projects in growing numbers of communities.

We are proud of our ongoing collaboration through the IRENA/ADFD Project Facility. Together, we have made innovative projects bankable and demonstrated the benefits of renewable energy for developing countries.



**Francesco La Camera**

### **Message from IRENA Director-General**

Since IRENA's establishment a decade ago, renewable energy has achieved impressive growth worldwide. In large part, this is due to the commitment of governments to support projects on the ground. IRENA's collaboration with ADFD provides an outstanding model.

Partnerships are key to drive the shift to renewables in low-income developing countries. As the IRENA/ADFD Project Facility completes its seventh selection cycle, we see countries starting to reap benefits.

We have gained valuable experience since 2014, from selecting projects to facilitating deployment. Over the past year, several of those projects have started generating clean, sustainable electricity. This report highlights the progress of projects across Africa, Asia, Latin America, the Caribbean and the Pacific that have now reached implementation.

Today's IRENA/ADFD portfolio could deliver renewable energy access to over two million people. Our partnership strengthens livelihoods, ensures clean water and electricity, and achieves transformative impact for local communities.

Investing in renewables is crucial to nurture economies, empower communities and build climate resilience. For developing countries in need of climate-safe energy solutions, access to finance is vital. Together, we can deliver renewables worldwide.

# ملخص تنفيذي

وفي **الدورة التمويلية الثانية**، بدأت الأعمال الإنشائية الأولية لمشروع توليد الطاقة الكهرومائية في الأرجنتين، كما بدأ مشروع الطاقة الشمسية الكهروضوئية في كوبا مرحلة التشغيل التجريبي في عام 2019، ويجري حالياً تنفيذ الأعمال في مشروع الطاقة الحرارية الجوفية في سانت فنسنت وجزر غرينادين.

وتشمل **الدورة التمويلية الثالثة** مشروع محطة هجين لطاقة الرياح والطاقة الشمسية الكهروضوئية في أنتيغوا وبربودا، وهي قيد الإنشاء، ومشروع الطاقة الشمسية الكهروضوئية في بوركينافاسو، وهو في مرحلة التصديق على اتفاقية القرض، وأما مشروع الشبكة المصغرة للطاقة الشمسية الكهروضوئية في السنغال، فقد وصل إلى مرحلة التعاقد مع الاستشاري والمقاول للمشروع.

وضمن **الدورة التمويلية الرابعة** هناك أربعة مشاريع قيد التنفيذ وتشمل مبادرتين للطاقة الشمسية الكهروضوئية في النجر وجزر مارشال، حيث تمت صياغة اتفاقيات القروض ويجري الآن التفاوض بشأنها، ومشروع الطاقة الشمسية الكهروضوئية في سيشل الذي تم استكماله في عام 2019، ومشروع الطاقة الكهرومائية في جزر سليمان الذي من المتوقع أن يتم البدء في مرحلة البناء في عام 2020.

وفي **الدورة التمويلية الخامسة** أكمل المشروع في موريشيوس مرحلته التجريبية التي تشمل تركيب 1000 مجموعة طاقة شمسية كهروضوئية وجاري التعاقد مع مقاولين لتركيب 10,000 مجموعة إضافية.

وفي إطار **الدورة التمويلية السادسة** أجرى صندوق أوبظبي للتنمية وأيرينا تقيماً ميدانياً لمشروعين من أصل ثلاثة مشاريع تم اختيارها، وكلا المشروعين الآن في مرحلة إعداد لاتفاقيات القروض، ومن المقرر إجراء تقييم ميداني للمشروع الثالث خلال عام 2020.

وضمن **الدورة التمويلية السابعة**، فقد اكتمل حالياً عملية الاختيار الخاصة بالمشاريع المتأهلة، وسيتم الإعلان عن النتائج في يناير 2020 خلال الدورة العاشرة للجمعية العامة للوكالة الدولية للطاقة المتجددة أيرينا.

وتهدف الشراكة الاستراتيجية بين صندوق أوبظبي للتنمية والوكالة الدولية للطاقة المتجددة المساهمة في تحقيق أهداف التنمية المستدامة التي اعتمدها الأمم المتحدة لعام 2030 والمتمثلة بنشر الطاقة المتجددة والنظيفة على المستوى العالمي<sup>1</sup>.

أطلق صندوق أوبظبي للتنمية في عام 2013 مبادرة لدعم مشاريع الطاقة المتجددة بالتعاون مع الوكالة الدولية للطاقة المتجددة "أيرينا"، حيث قام الصندوق بتقديم 1.285 مليار درهم (350 مليون دولار أمريكي) على مدار سبع دورات تمويلية. ومنذ انطلاق المبادرة، خصص الصندوق 900 مليون درهم (245 مليون دولار) لتمويل 24 مشروعاً من مشاريع الطاقة المتجددة في ست دورات تمويلية استفادت منها 23 دولة في مختلف القارات حول العالم.

وتقوم الوكالة الدولية للطاقة المتجددة "أيرينا" بتقييم المشاريع المقدمة بناءً على الأسس والمعايير المحددة من قبل لجنة الخبراء والمستشارين ورفع التوصيات وقائمة المشاريع لإدارة صندوق أوبظبي للتنمية للموافقة على تمويلها.

وتساهم المشاريع الممولة من قبل مبادرة الصندوق و"أيرينا" في إنتاج نحو 157 ميغواط من الطاقة المتجددة يستفيد منها أكثر من مليون شخص، كما أنها تعمل على توفير الطاقة بأسعار معقولة للمجتمعات ذات الدخل المنخفض. وتؤثر المشاريع بشكل إيجابي على تحقيق التنمية المستدامة في الدول المستفيدة، لاسيما وأنها ستعمل على تحسين جودة الخدمات الصحية والتعليمية، فضلاً عن تحفيز التنمية الاقتصادية المحلية في تلك الدول، إضافة إلى دورها في تقليل الانبعاثات الكربونية الضارة بالبيئة.

وتشهد المشاريع التي وافق الصندوق على تمويلها خلال الدورات التمويلية الست السابقة والبالغة 24 مشروعاً تقدماً كبيراً في أعمال 18 مشروعاً من خلال عدة مراحل من التنفيذ على النحو المحدد في إجراءات التمويل الخاصة بصندوق أوبظبي للتنمية. ووصلت 8 من هذه المشاريع إلى مرحلة البناء والتركيب و4 منها بدأت التشغيل التجريبي وتوليد الطاقة في عام 2019.

ويستعرض هذا التقرير التقدم الذي تم إحرازه في تنفيذ المشاريع الثمانية عشر ويسلط الضوء على آثارها التنموية المتوقعة.

خلال **الدورة التمويلية الأولى**، تم استكمال إنشاء أول موقع لمشروع الشبكات المصغرة المتعددة للطاقة الشمسية الكهروضوئية في مالي عام 2019، ومن المقرر استكمال الموقع الثاني بحلول نهاية شهر يناير من عام 2020، كما تم البدء بتشغيل محطة تحويل النفايات إلى طاقة في توليد الكهرباء في جزيرة واحدة من جزر المالديف. بالإضافة إلى إحراز تقدم في أعمال الإنشاءات الخاصة بمشروع محطة الطاقة الشمسية الكهروضوئية المتصل بالشبكة الوطنية في سيراليون ومشروع طاقة الرياح في موريتانيا.

# EXECUTIVE SUMMARY

The Abu Dhabi Fund for Development (ADFD) in 2013 undertook to support renewable energy projects through a joint initiative with the International Renewable Energy Agency (IRENA). Through that facility, the fund has dispensed AED 1.285 billion (USD 350 million) over the course of seven cycles. In the first six cycles, ADFD has dedicated AED 900 million (USD 245 million) to fund 24 projects, benefitting 23 countries spanning different continents worldwide.

IRENA evaluates submissions based on standards and criteria applied by a committee of experts and advisors, who submit a list of recommended projects for ADFD management approval.

Projects funded through the IRENA/ADFD Project Facility are now producing about 157 megawatts of renewable power, benefiting more than one million people and ensuring affordable energy access for low-income communities. These projects strengthen sustainable development in beneficiary countries, especially by improving the quality of health and education services and stimulating local economic development. They also help to reduce environmentally harmful carbon-dioxide emissions.

Of the 24 selected projects, 18 have advanced through several stages of implementation, as set by ADFD funding procedures. Eight of these reached the construction/installation stage in 2019, four of which were commissioned in 2019 and are generating power. This report reviews the progress of implementation of the 18 advancing projects and highlights their expected development impacts, as reported by project proponents.

From the **first cycle**, the first site of the solar photovoltaic (PV) mini-grids project in Mali was completed in 2019, with the second scheduled for completion by the end of January 2020. A small-scale waste-to-energy project started generating power for one of the islands in the Maldives. Construction is also progressing for a grid-connected solar PV project in Sierra Leone and a wind power project in Mauritania.

The **second cycle** features a small hydropower project in Argentina, which remained at the tendering stage in 2019; a solar PV project in Cuba that was commissioned in 2019; and a geothermal energy project in Saint Vincent and the Grenadines for which civil works are underway.

The **third cycle** includes a hybrid wind-solar PV project in Antigua and Barbuda, which is continuing with construction; a solar PV project in Burkina Faso, for which the loan agreement is being ratified; and a solar PV mini-grid project in Senegal that has reached the consultant/contractor procurement stage.

Four projects in the **fourth cycle** are ongoing. These include two solar PV initiatives in Niger and the Marshall Islands – for which loan agreements have been drafted and are now being negotiated; a solar PV project in the Seychelles that was completed in 2019; and a hydropower project in the Solomon Islands that is expected to start construction in 2020.

A **fifth cycle** project in Mauritius completed its pilot phase involving 1000 solar PV installations. Procurement of contractors to install the additional 10 000 kits is underway.

ADFD and IRENA conducted onsite appraisals for two of the three projects selected in the **sixth cycle** in 2019 and both advanced to the loan agreement processing stage. The onsite appraisal of the third project is planned for 2020.

The selection process for the **seventh cycle** is now complete; the results will be announced in January 2020 during the tenth session of the IRENA General Assembly.

Through this partnership, IRENA and ADFD continue to contribute to the attainment of the Sustainable Development Goals (SDGs) adopted by the United Nations for 2030 through directly facilitating the deployment of renewable energy in developing countries worldwide.<sup>1</sup>

<sup>1</sup> Adopted unanimously at United Nations General Assembly (A/RES/70/1), 25 September 2015.

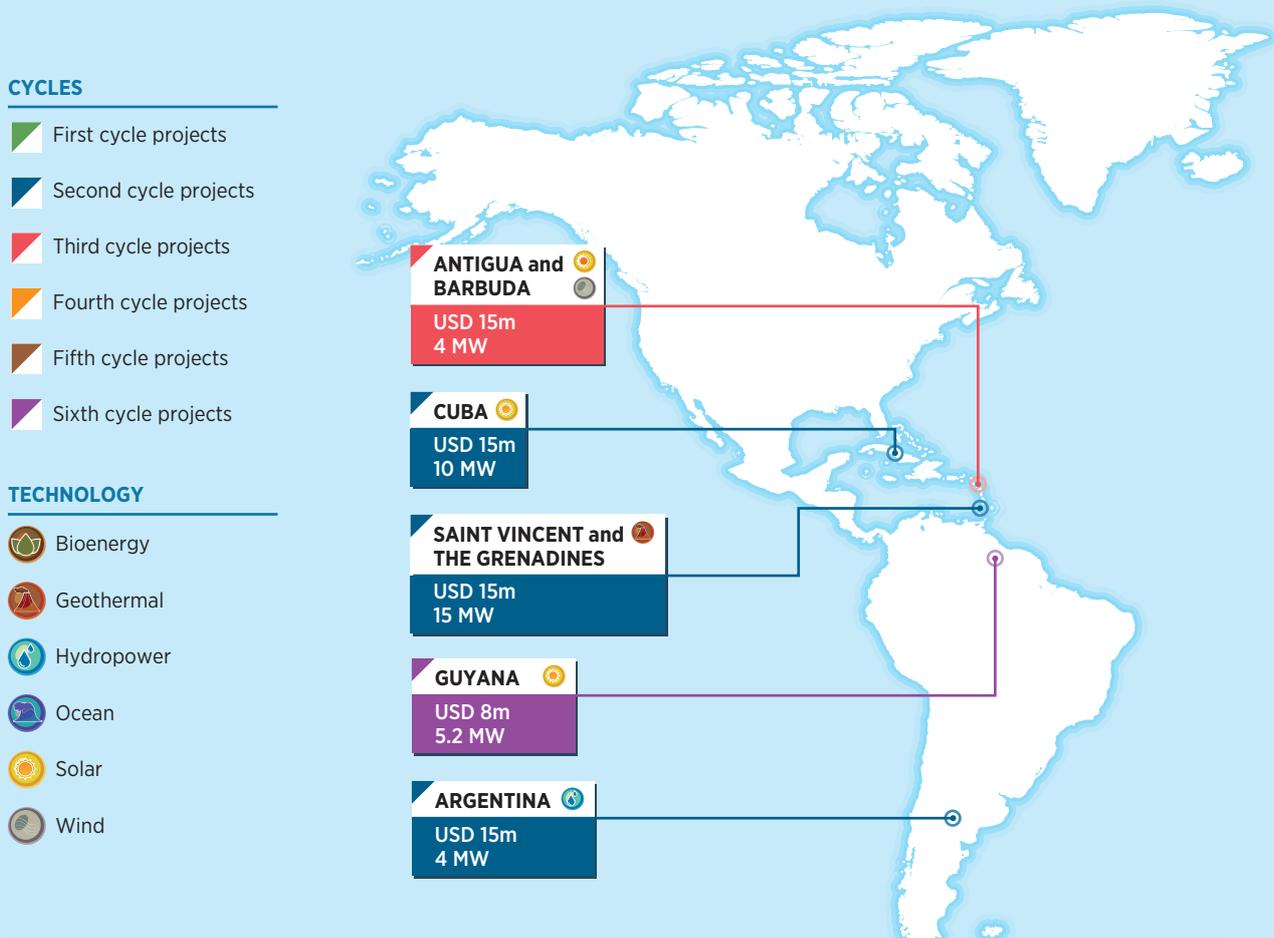
# INTRODUCTION

Six annual selection cycles of the IRENA/ADFD Project Facility were completed by January 2019, resulting in the allocation of USD 245 million by the Abu Dhabi Fund for Development (ADFD) to 24 selected projects. ADFD at the outset committed USD 350 million in the form of concessional loans for the implementation of renewable energy projects in developing countries. ADFD allocates funding to the projects based on an agreed evaluation and selection process, and the resulting recommendations issued by the International Renewable Energy Agency (IRENA).

After announcing the selected projects in each cycle, IRENA connects the project proponents and host government representatives with ADFD to jointly work through five main stages of implementation. IRENA additionally facilitates engagements between ADFD and the various project teams to support communication and monitors the progress of projects and related development impacts.

Figure 1 shows the geographical distribution of ongoing projects.

**Figure 1** Projects progressing from the first six selection cycles



*Disclaimer: Boundaries and names shown on the map do not imply any official endorsement or acceptance by IRENA.*

*The information and presented on the map is as provided by the applicants in their proposals.*

*Note: The seventh cycle was underway at the time this report was prepared. The selected projects were set to be announced during the tenth session of the IRENA General Assembly in January 2020.*

The main post-selection stages are as follows:

**1. Preliminary loan offer, acceptance and onsite project appraisal.**

**2. Agreement signing, ratification and loan declaration.**

This entails processing loan agreement and loan guarantee agreement, where applicable.

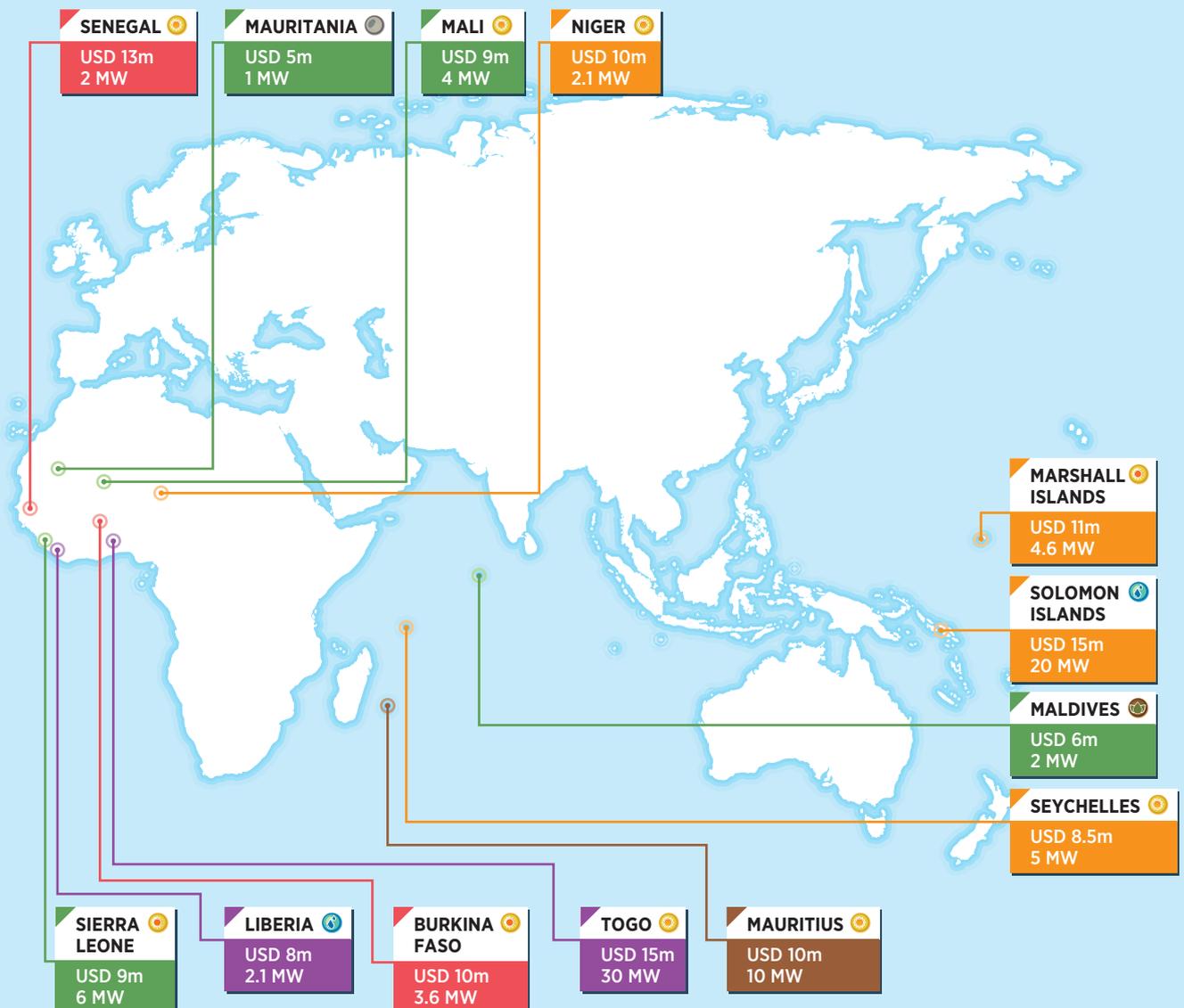
**3. Procurement of consulting engineers.**

Their role is to support the Project Implementation Unit (PIU) in final design and project oversight.

**4. Selection of Engineering Procurement and Construction (EPC) contractor(s).**

**5. Construction and commissioning.**

This stage includes a sequence of disbursements to the project, as per milestones set by the PIU in consultation with ADFD.



### Portfolio progress highlights

Overall portfolio implementation progress has improved compared to the previous year, with more projects reaching the procurement and construction/installation phases.

The improvements in the portfolio were, in part, due to the commencement of electricity generation from the projects in Cuba and Seychelles the Maldives and Mali. The increase in the pace of project implementation in Sierra Leone, Antigua and Barbuda, and Togo, as well as the commencement of drilling for the geothermal project in Saint Vincent and the Grenadines, also contributed to improvements in overall portfolio performance.

Several characteristics influenced the rate of progress of projects, including:

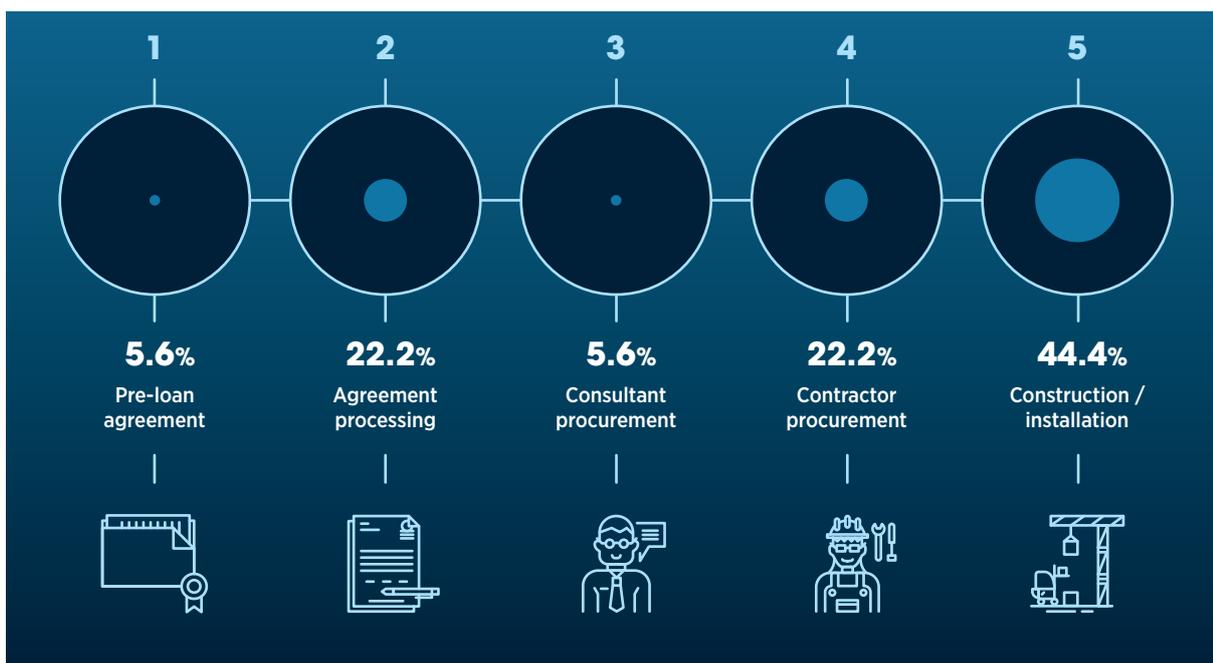
- **Technology options:** Solar photovoltaic (PV) projects advanced faster than wind, hydro, geothermal and waste-to-energy projects.
- **Country policies, political/economic factors:** For example, where host countries have simple loan ratification procedures, the projects advanced faster compared to those countries with lengthy ratification processes.

- **Project complexity:** The complexity of project design and presence of multiple participants (funders, shareholders, government agencies, etc.) has affected the procedural requirements to advance projects through implementation.
- **Climate/environmental factors:** These have undermined the progress of some projects. For example, Sierra Leone suffered floods in 2017 and again in 2019 that affected the project.
- **Project implementation capacity:** The varying implementation capacity among the different project proponents has affected progress; expedited execution has occurred in stages where the implementing parties have dedicated staff to deal with the project.

In 2019 at year-end, 18 projects out of the 24 selected were progressing through the five stages mentioned above. Eight projects were at the construction/commissioning stage (Stage 5); four of these started generating electricity in 2019.

Five projects are working through the procurement stages (Stages 3 and 4); another four are at various stages of loan agreement processing (Stage 2) and the remaining project is still at the preliminary loan offer stage (Stage 1) (see Figure 2).

Figure 2 Portfolio progress



Subsequent sections of this report provide updates on the progress of the projects at various critical milestones and list the challenges faced by each project to date.

**Funding allocation**

Over the completed six cycles, USD 245 million was allocated to 24 projects, leaving some of the funding unallocated. Some of this unallocated funding – together with what was released by projects that have not moved forward with ADFD’s support – has been made available for allocation to projects in the seventh cycle.

**Status of loan agreements**

Thirteen of the 18 progressing projects now have signed loan agreements; 12 of those loan agreements have been ratified and declared effective, paving the way for disbursements. The loan agreements for a further four projects have been drafted and are expected to be signed in early 2020. The last project in the sixth cycle remains at the preliminary loan offer stage and has yet to reach loan agreement processing.

**Projects commissioned in 2019 and being commissioned in 2020**

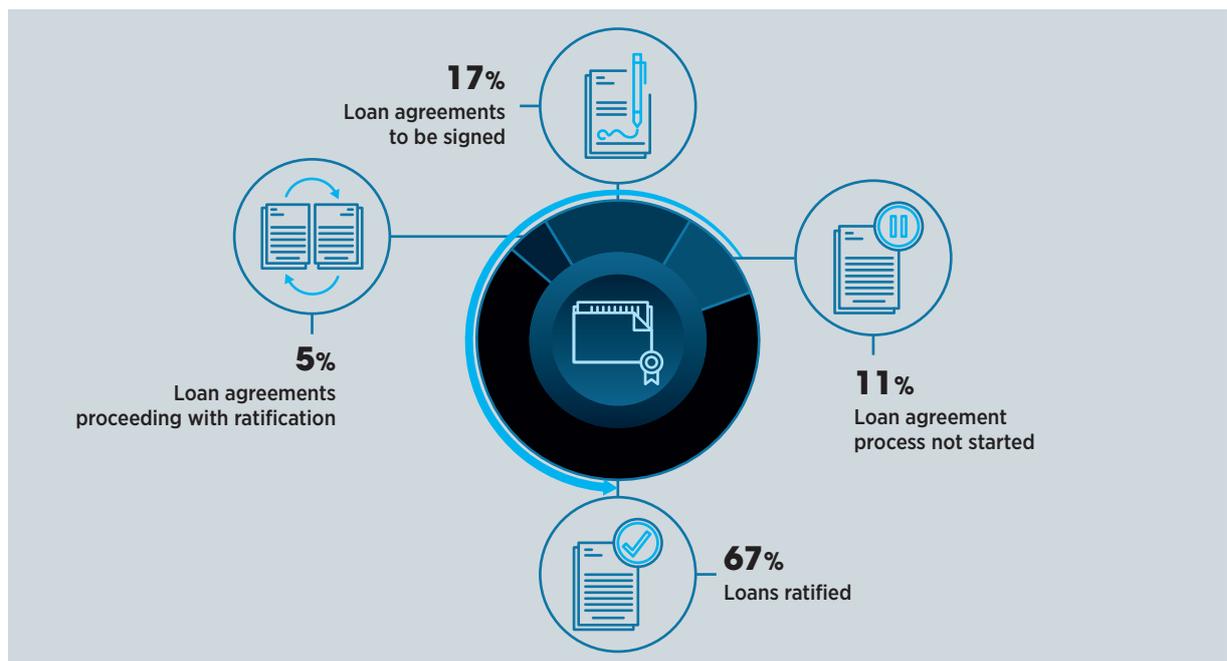
Since the last reporting period, more projects have progressed to the construction stage. In 2019, four projects began generating electricity – three from the first cycle and one from the fourth. Four additional projects will be partially or entirely commissioned in 2020, bringing the total number of projects expected to be generating electricity by 2020 to eight, as shown in Table 1.

**Factors affecting implementation**

In technological terms, projects involving solar PV installations are advancing faster than any other technology type. Geothermal and hydropower projects, on the other hand, are taking much longer to pass through each stage of advancement and are expected to take longer in the installation/construction phase, given their design and implementation complexities.

Implementation delays also stem from challenges in securing co-financing, as well as environment-related factors, described below.

**Figure 3** Status of loan agreement processing



**Table 1** Status of projects currently (or soon to begin) generating electricity

Cycle	Project	Status
1	MALDIVES Small-scale waste-to-energy project	A 500- kilowatt (kW) waste-to-energy plant on Vandhoo Island, part of Raa Atoll, was completed and commissioned. The second facility of 1.5 megawatts (MW) at Addu Island is to be completed by 2021.
1	MALI Hybrid renewable energy systems for rural electrification in 32 villages	Completion of the village mini-grids has started with the first two completed in 2019 and will be commissioned in 2020. The remaining eight are to be commissioned in June 2020. Additional 22 communities will be connected using mini-grids by 2022.
1	SIERRA LEONE Solar Park Freetown	The project was in the final phases of the installation process as of December 2019 – the plant is expected to be commissioned in 2020.
2	CUBA 15 MW grid-connected solar PV	The original project of 10 MW was completed and commissioned in 2019. Savings achieved enabled the Cuban government to increase the capacity to 15 MW. The additional 5 MW installation will be completed in early 2020.
3	ANTIGUA AND BARBUDA Transformation of the Water and Government Sectors using Renewable Energy	Both the solar and wind components of the project are at installation stage and are scheduled for completion in 2020 and 2021 respectively.
4	SEYCHELLES Ile de Romainville Solar Park	This project was completed in 2019.
5	MAURITIUS 10 MW solar PV systems for 10 000 households in Mauritius	The pilot phase comprising the installation of 1 kW grid-connected rooftop solar PV kits for 1 000 low-income households was concluded in 2019. Installation of an additional 2 000 units annually is planned until 2024.
6	TOGO Blitta 30 MW solar PV project	Construction commenced at the end of 2019; the plant will be commissioned in 2020.

### **Co-financing challenges**

The IRENA/ADFD Project Facility enables access to concessional loans that cover up to 50% of total project costs. Notably, once selected, several projects have faced challenges in securing co-financing. In some cases, projects have taken more than two years to close financial shortfalls, leading to delays in their implementation. In two cases, these financial shortfalls were the result of updates in project scope and size.

### **Environmental challenges and considerations**

Environmental factors affect projects in two ways: firstly, extreme weather occurrences such as hurricanes and tropical storms and floods slow down progress – particularly in island states. Secondly, possible exposure to harsh environmental conditions increases project risk levels and consequently affects project costs. In some cases, expensive design options are recommended for environmental-proofing of projects. These additional costs drive up total project budgets and delay their financial close.

### **Implementation and process improvements, 2014–2019**

The IRENA/ADFD Project Facility has achieved notable successes in the six cycles by applying the lessons learned along the way to improve the evaluation and selection process and facilitate project implementation. IRENA and ADFD continue to actively engage with project development teams to support the implementation process and bring the benefits of renewable energy to the developing world. Project advancement has also been facilitated by joint appraisal missions, together with periodic conference calls with project teams and follow-up missions to monitor and document progress.

Improvements in selection and post-selection processes enabled more projects to advance through the post-selection stages faster. Hence, several projects are now reaching their construction/installation phases in record time. These improvements mean that the expected benefits of the projects to communities and host nations will be realised faster.

The remaining funding over the previous six cycles was made available for applicants in the seventh cycle in order to benefit more projects.

### **Workers install PV panels at Ile de Romainville Solar Park, Seychelles**

Photograph: IRENA



# ESTIMATED CUMULATIVE DEVELOPMENT IMPACT BY 2020

## EMISSION REDUCTIONS



**225 700**  
tonnes

Annual emission reductions (CO<sub>2</sub>e)  
mitigated through projects

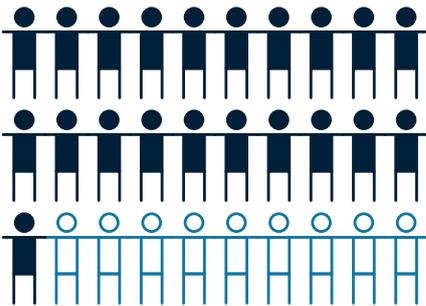
## FINANCIAL SAVINGS



**USD 32.6**  
million

Annual cost savings resulting  
from reductions in fuel imports

## PEOPLE

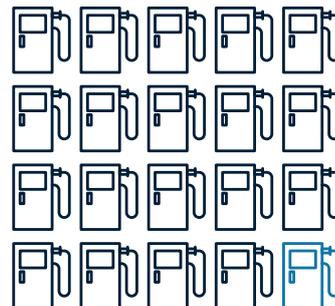


**2.1 million**

People benefitting from  
renewable energy

 = 0.1 million people

## FUEL SAVINGS

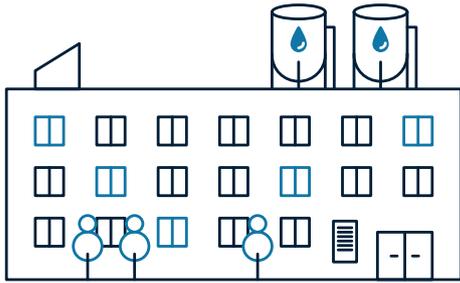


**38 million**  
litres

Annual fuel savings  
(diesel and heavy fuel oils)

 = 2 million litres

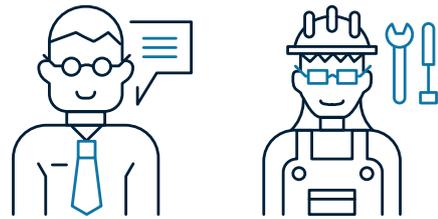
## WATER



**220 million**  
litres

Water provided for domestic  
and productive use annually

## JOBS



**3 320**  
jobs

Direct and indirect jobs  
created by the projects

## OTHER SOCIOECONOMIC BENEFITS

**1 900 institutions, health facilities and SMEs**

Provided with access to electricity for productive uses



# PROJECT-SPECIFIC PROGRESS AND HIGHLIGHTS\*

## FIRST CYCLE

### **MALDIVES (SPOTLIGHT)**

MALI

MAURITANIA

### **SIERRA LEONE (SPOTLIGHT)**

## SECOND CYCLE

ARGENTINA

### **CUBA (SPOTLIGHT)**

SAINT VINCENT

AND THE GRENADINES

## THIRD CYCLE

ANTIGUA AND BARBUDA

BURKINA FASO

SENEGAL

## FOURTH CYCLE

MARSHALL ISLANDS

NIGER

### **SEYCHELLES (SPOTLIGHT)**

SOLOMON ISLANDS

## FIFTH CYCLE

MAURITIUS

## SIXTH CYCLE

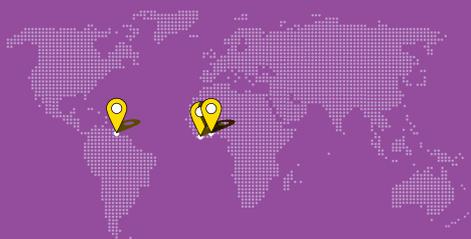
GUYANA

LIBERIA

TOGO

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\* Information in the sections that follow was derived from initial project proposals and subsequent updates, as received over the course of the past year from each Project Implementation Unit.





# MALDIVES

PROJECT NAME:

**Small-scale waste to energy project**

TECHNOLOGY:

**Waste to energy**

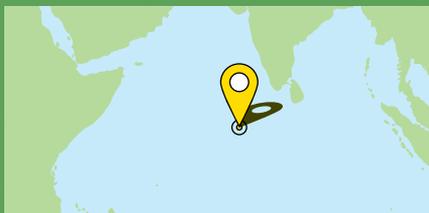


CAPACITY:

**2 MW**

ADFD LOAN:

**USD 6 million**



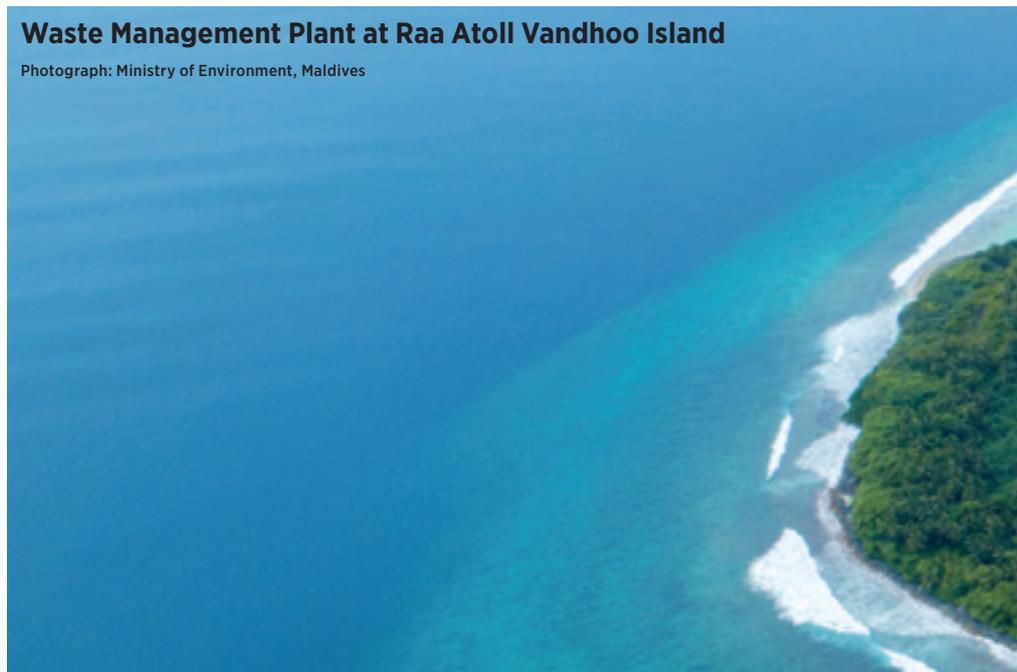
## SPOTLIGHT

The Maldives faces significant development and environmental challenges related to waste management, access to fresh water and the provision of sustainable energy solutions. The Ministry of Environment in partnership with the Waste Management Corporation Limited (WAMCO) – a state owned enterprise – put forward this project, aiming to address these issues in a holistic manner. This would be through the construction of small demonstration waste-to-energy facilities to provide renewable electricity for the population, combusting municipal solid waste (MSW) while also powering an integrated desalination plant. These facilities are part of the country’s larger waste management framework and contribute to the government’s ‘Scaling up Renewable Energy Program’.

The three waste-to-energy power plants were initially proposed to be constructed on the islands of Addu, Kulhudhuffushi and Vandhoo. The plants would generate 2 MW of renewable capacity through the combustion of MSW and power integrated desalination plants through heat recovery systems. The project was scaled up to 4 MW based on waste resource assessments on the three islands. The project was divided into components wherein the two waste-to-energy plants on Vandhoo and Addu, with a total capacity of 2 MW, were prioritised.

### Waste Management Plant at Raa Atoll Vandhoo Island

Photograph: Ministry of Environment, Maldives





### EXPECTED DEVELOPMENT IMPACTS



**c. 25%**  
of the population

**Integrated waste management:**  
122 000 people benefit  
from clean energy



**551 000**  
litres daily

**Freshwater supply:**  
Desalinated water reduces  
national water stress.



**55 000**  
tonnes per year

= 10 000 tonnes

**Environmental benefits:**

Waste incineration reduces local marine pollution  
and protects coral reef health.



**3.5 million**  
litres per year = 1 million litres

**Energy security:**  
Diesel fuel savings



**9 200**  
tCO<sub>2</sub>e per year

**Emissions avoided.**



**Progress updates**

The first 500 kW plant was completed on Vandhoo Island in 2019 and is generating power for multiple island communities. The plant serves 20 islands (including 11 resorts) with sustainable energy and better waste management services.

**Challenges**

The project faced delays during procurement, as very few suppliers were willing to provide the size of boiler required by the design specifications. Several rounds of bid invitations were held and adjustments in specifications were necessary before the required number of bids were received.



**11 resorts**



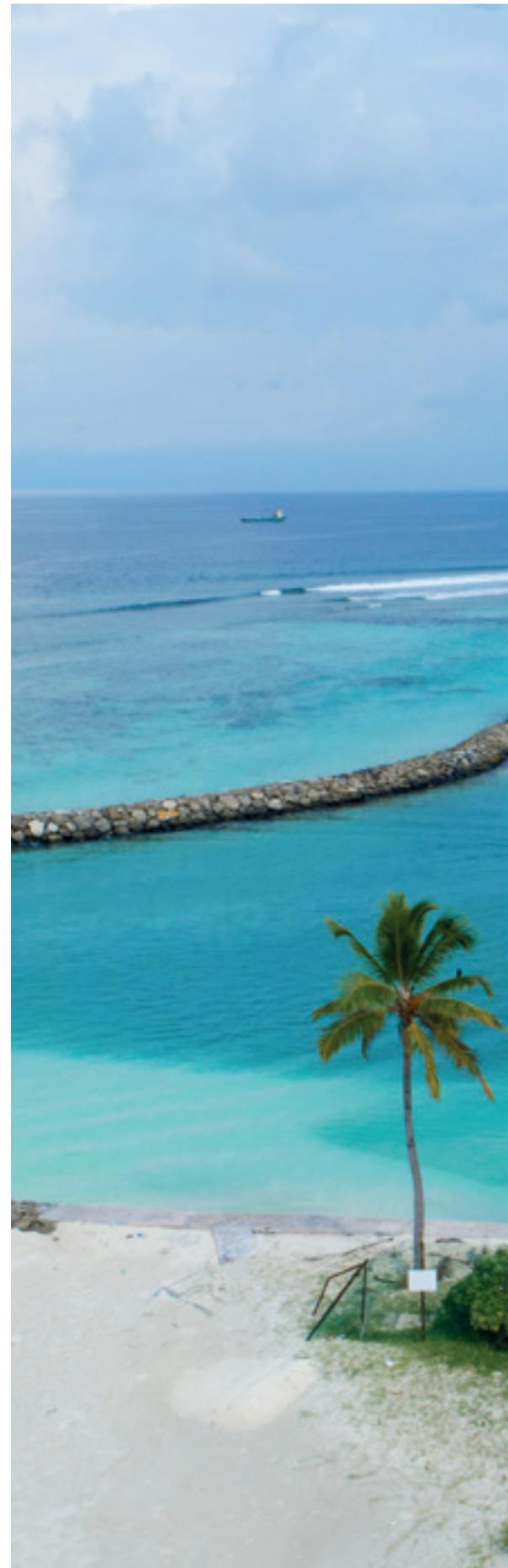
**20 islands**



**Vandhoo plant**

**PROJECT STATUS**

The first waste-to-energy facility was completed in 2019 and is generating electricity for all the Vandhoo Island while also servicing 20 islands (including 11 resorts) with improved waste collection and management. The procurement of the contractor for the Addu facility was completed in 2019 with the project expected to be fully completed in 2021.





**Waste management plant at Raa Atoll Vandhoo Island**

Photograph: Ministry of Environment, Maldives



# MALI

PROJECT NAME:

**Hybrid renewable energy systems for rural electrification in 32 villages**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**4 MW**

ADFD LOAN:

**USD 9 million**

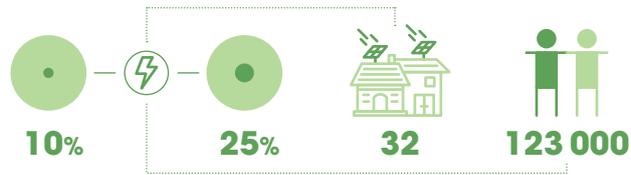


## PROJECT OUTLINE

This project involves the installation of decentralised solar PV mini-grid systems to provide clean energy to 32 villages in six regions of Mali. The project uses a public-private partnership model to allow co-operation between the Malian Agency for Domestic Energy Development and Rural Electrification (Agence Malienne pour le Développement de l’Energie Domestique et de l’Electrification Rurale – AMADER), National Centre for Solar Energy and Renewable Energy (Centre National d’Energie Solaire et des Energies Renouvelables – CNESOLER), Mali-Folkecenter Nyetaa and ACCESS, a local rural energy service company. Existing diesel mini-grids will be converted to hybrid solar systems, and 154 km of grid extension infrastructure will be installed to increase access to power for communities.

The project complements current socio-economic development programs being carried out by the government of Mali that aim to combat poverty through sustainable development and increase the contribution of renewables in the Malian energy balance.

## DEVELOPMENT IMPACTS



Increasing energy access in rural communities from 10% to 25%, benefitting 123 000 people in 32 villages.



Emissions avoided.



**2 000**  
direct and indirect jobs

Catalysing employment and socio-economic development.

### Installation of solar PV panels for the mini-grid at Bougoula, Mali

Photograph: IRENA



#### PROJECT STATUS

Installation of solar PV is ongoing for the first ten villages, with the first two installations scheduled to be commissioned by February 2020.

The second phase of 22 communities is at the procurement stage, with the project is expected to be completed by 2022



# MAURITANIA

PROJECT NAME:

## Wind power electrification project for coastal communities

TECHNOLOGY:

Wind



CAPACITY:

1 MW

ADFD LOAN:

USD 5 million



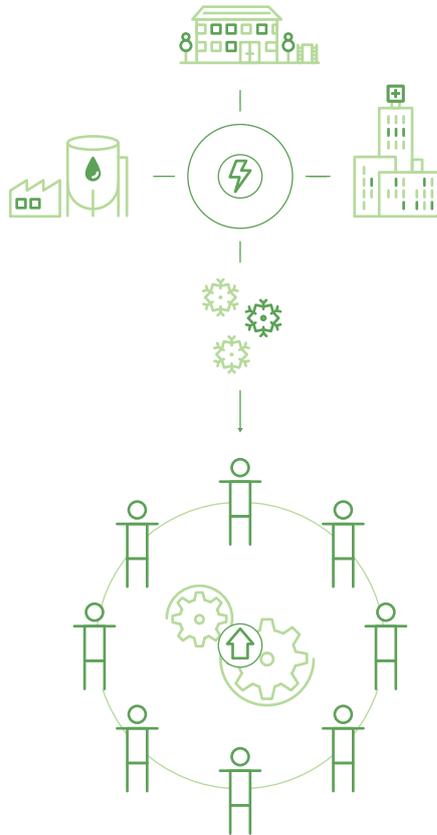
## PROJECT OUTLINE

This project, put forward by the National Agency for Development of Renewable Energy (ANADER) in Mauritania, will provide four off-grid coastal fishing villages with decentralised renewable power for domestic use, desalination plants and ice production facilities. A total of 18 wind turbines of 15 kW capacity will be installed, providing 270 kW capacity for each of the localities of Lemcid, Lemhajratt, Bellewakh and Loubeir.

## DEVELOPMENT IMPACTS



Providing access to energy for people in off-grid localities.



Provision of electricity for schools, health facilities, water desalination plants and ice production facilities to boost community productivity.

### Pilot wind and solar PV plant

Photograph: ANADER, Mauritania



#### PROJECT STATUS

The project is at construction stage and is expected to be completed by 2021.

# SIERRA LEONE

PROJECT NAME:

**Solar Park Freetown**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**6 MW**

ADFD LOAN:

**USD 9 million**



Sierra Leone’s energy developments have been modest over the last decade, with less than 200 000 households – about 15% of the population – having access to grid-connected electricity. Available data indicates that the bulk (86%) of power consumers connected to the national electricity grid are in Freetown. Demand for electricity is mainly from households and a few SMEs and industries. The peak demand is in the evenings when people get back home and use the power for lighting, cooling, security and entertainment.

The Solar Park Freetown Project being implemented by the Ministry of Energy comprises the construction of a solar PV plant feeding into the national grid, close to the capital city of Freetown. It represents one of the first large-scale PV installations in Western Africa and aims to have a multiplier effect in the region whilst setting standards for additional renewable energy developments.

### Implementation progress

The construction of the 6 MW solar PV park at Newton town near Freetown started in 2018 and will be completed in the first half of 2020. The solar power plant will be connected to the national grid, supplying approximately 8.76 gigawatt-hours (GWh) of electricity annually, improving grid stability and boosting supply during peak demand. The project also creates benefits in form of employment opportunities and the subsequent acquisition of technical skills through a planned training centre for installation, operations and maintenance of solar PV power plants in the region.



**Kingtom sub-station, set to distribute electricity from Solar Park Freetown**

Photograph: IRENA



DEVELOPMENT IMPACTS



Bringing renewable energy benefits to 190 000 grid-connected customers in Freetown.



Emissions avoided.



Improving national power reliability.



### Project partners

The government of Sierra Leone, supported by ADFD, selected the Advanced Science and Innovation Company (ASIC) as the project manager and SMRT Projects and Energy Solutions as the EPC contractor.

### Main implementation challenges

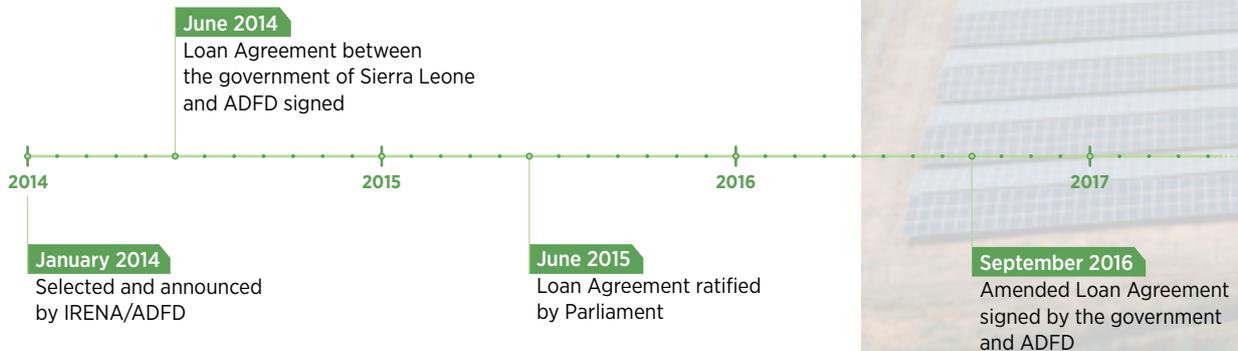
The project was selected for funding in 2014 and suffered several external setbacks including an outbreak of the Ebola Virus Disease and landslides in 2014–2015 and 2017, respectively, leading to delays in project completion.

### Additional benefits

A reduction in the cost of solar PV equipment enabled the government to renegotiate its loan agreement with ADFD, saving the country USD 5.4 million. The project also expands the sources of energy in Sierra Leone’s national grid with the addition of solar PV to supplement thermal and hydro sources.

The project also inspired assessments for additional grid-scale solar PV projects to be installed next to the Solar Park Freetown project site.

### Progress timeline



## PROJECT STATUS

The project is nearing the end of construction and is expected to be commissioned in 2020.





**November 2017**  
Procurements completed by EPC

**February 2019**  
Installation started by EPC

**April 2020**  
Expected completion by EPC

**May 2020**  
Commissioning and electricity generation by EPC, PM and PIU

Installation of solar PV and ancillary structures at Solar Park Freetown

Photograph: IRENA



# ARGENTINA

PROJECT NAME:

**Nahueve hydropower project**

TECHNOLOGY:

**Hydropower**



CAPACITY:

**7 MW**

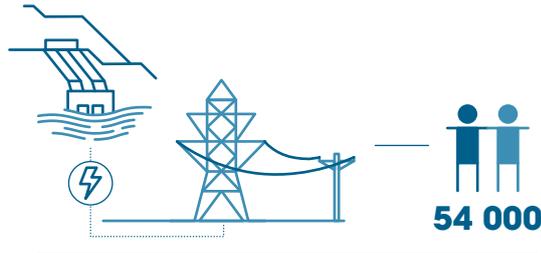
ADFD LOAN:

**USD 15 million**

## PROJECT OUTLINE

The Nahueve hydropower project is a government-driven multi-purpose project located in Neuquén province. The project involves the development of a 7 MW hydropower plant and will also provide both potable and irrigation water for the population of Villa de Nahueve. The project will be used as a model for future small-scale hydro development in Argentina.

## EXPECTED PROJECT IMPACTS



People receiving energy access.

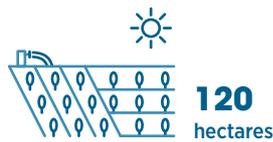


### Neuquén

Province's electricity reliability improved.



Employment creation.



Increasing agricultural productivity through land irrigation.



Greenhouse gas emissions reduced.



Fossil-fuel savings.





Photograph: Neuquen Investment Agency (ADI-NQN), Argentina

## PROJECT STATUS

Tendering for selection of an EPC contractor began in 2019.  
Construction of the plant is expected to begin in 2020 and be completed in 2022.



## CUBA

PROJECT NAME:

### 15 MWp grid-connected solar PV project

TECHNOLOGY:

### Solar PV



CAPACITY:

### 15 MWp (originally 10 MWp)

ADFD LOAN:

### USD 15 million



## SPOTLIGHT

The objectives of renewable energy development in Cuba involve increasing the national share of renewable energy to 24% by 2030 through the development of solar PV plants amounting to 700 megawatt-peak (MWp) capacity, along with 13 wind farms (663 MW), 19 bioelectric plants (755 MW) and three hydroelectric projects (56 MW). The IRENA/ADFD-supported project in Cuba focuses on one of the solar PV projects, with the aim of helping to achieve the country's targets.

The project is being implemented by Union Eléctrica (UNE), a state-owned utility that oversees the generation, transmission, distribution and delivery of electricity services. Four solar PV power plants connected to the grid were installed in several places in Cuba with a total installed capacity of 10 MWp, providing an annual generation of 15 000 megawatt-hours (MWh) – equivalent to a saving of 4 700 tonnes of oil annually and avoiding the emission of 12 700 tCO<sub>2</sub>e annually. The generation is equivalent to the annual electricity consumption of around 7 000 Cuban homes.

Solar PV power plants will contribute directly to the national objectives of the government to reduce the use of fossil fuels for the generation of electricity in Cuba and, consequently, reduce greenhouse gas emissions.

### Implementation progress

The execution of this project began on 4 July 2018, beginning with the construction of the Mayajigua Solar Park, followed by the three remaining parks (Cárdenas I, Venegas and Planta Mecánica). Project implementation took ten months, from the start to the commissioning of the last park in May of 2019, reaching a cumulative generation capacity of 10 MWp between the four power plants.

### Inauguration of solar PV park in Cardenas, Cuba

Photograph: IRENA





### EXPECTED PROJECT IMPACTS



**USD 30 million**

= USD 0.5 million

Financial savings over the project's lifetime.



**10 416**

households



Electricity needs (annual equivalent) supplied.



**15 MW**

Renewable energy

Increasing share of renewables in Cuba's energy mix.



**5.9 million**

litres per year

= 2 million litres

Replacing 7 050 tonnes of fossil fuels per year.



**19 035**

tCO<sub>2</sub>e per year

Emissions mitigated.



**Project partners**

UNE, as the main implementor, sourced the solar PV components from CRT Technologies based in Italy. Local contractors were engaged to carry out the civil works and installation of equipment.

**Main implementation challenges**

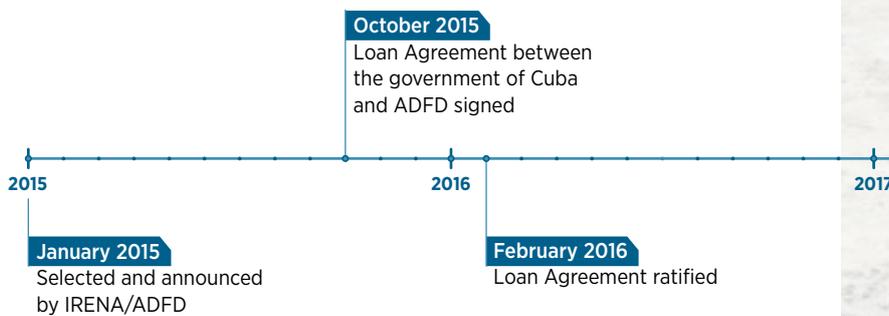
Communication challenges between the ADFD and the implementing agency affected project advancement in the early stages – especially during procurement. However, the project managed to save time in the installation and commissioning stages.

**Additional benefits**

A reduction in the cost of solar PV equipment due to a fall in global market prices over the years led to savings. In addition, the use of local workforce and UNE project management saved the project funds. A cumulative USD 5 million was saved that has been utilised to increase the project scope from 10 MW to 15 MW capacity. The expansion of the project will increase the generation capacity from 15 000 MWh to 22 500 MWh, equivalent to the total electricity needs for 10 416 households annually.

The project has increased local expertise in solar PV installation and will enable increased technical capacity to install solar PV in achieving the national target of 700 MW capacity by 2030.

**Progress timeline**



**PROJECT STATUS**

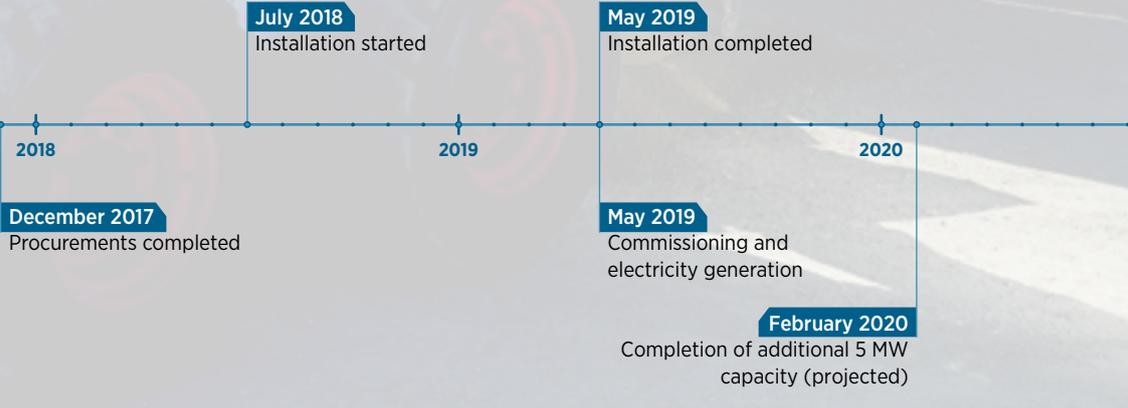
Installation of solar PV equipment at four locations for the initial 10 MW capacity was completed and commissioned in 2019. Because of the savings attained, the additional 5 MW capacity is being installed and will be completed in 2020.

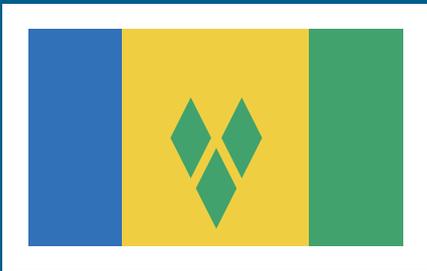




### Installation works at the Venegas PV plant in Cuba

Photograph: IRENA





# SAINT VINCENT AND THE GRENADINES

PROJECT NAME:

## La Soufrière geothermal energy project

TECHNOLOGY:

### Geothermal



CAPACITY:

### 10-15 MW

ADFD LOAN:

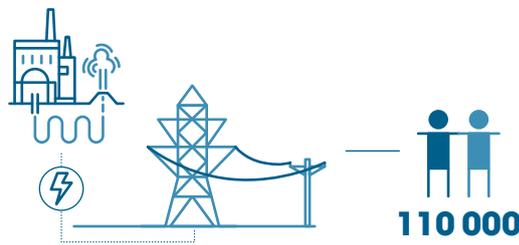
### USD 15 million



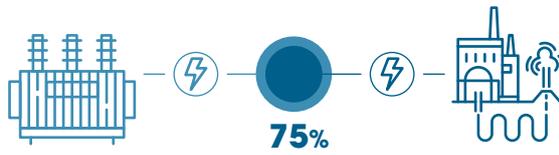
## PROJECT OUTLINE

This 10–15 MW geothermal project will transform the energy sector of Saint Vincent and the Grenadines, providing a sustainable and reliable source of renewable power. The project is being developed as a public-private partnership between the government of Saint Vincent and the Grenadines, Light & Power Holdings and Reykjavik Geothermal. The project will contribute to realising the country’s recent Energy Action Plan target to increase the amount of renewable energy to 60% of the energy mix. Once operational, the plant will bring the share of renewable energy sources to approximately 73% of total national power generation, well over the country’s Energy Action Plan target.

## DEVELOPMENT IMPACTS



Contributing people’s electricity supply.



Increasing renewables in the country’s power generation capacity.



Making electricity more affordable through lower tariff structures and cheaper generation.



Emissions mitigated.



Reducing reliance on annual fossil fuel imports by 17 million litres and reducing national foreign exchange expenditure.

**Drilling at La Soufriere Geothermal Plant,  
Saint Vincent and the Grenadines**

Photograph: IRENA



SAINT VINCENT AND THE GRENADINES SECOND CYCLE

**PROJECT STATUS**  
Civil works began in 2018, followed by well-drilling activities in 2019. The project is expected to be completed by 2023.



# ANTIGUA AND BARBUDA

PROJECT NAME:

**Transformation of the water and government sectors using renewable**

TECHNOLOGY:

**Hybrid wind and solar PV**



CAPACITY:

**4 MW**

ADFD LOAN:

**USD 15 million**



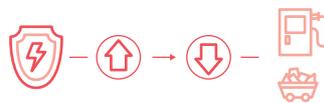
## PROJECT OUTLINE

This 4 MW solar-wind hybrid project is being implemented by the government of Antigua and Barbuda's Department of Environment as part of a broader scheme to transform the water sector and provide low-emission and climate-resilient energy for critical services in the small island state. The project involves the installation of wind turbines and solar PV panels, with battery backup for electricity storage in the event of extreme weather events. Beneficiary facilities include reverse osmosis desalination plants for clean water provision as well as providing electricity to hospitals, community clinics and emergency response public service buildings. This project directly contributes to the government's stated objectives to obtain 20% of power from renewable sources and make critical services resilient to the impacts of climate change.

## DEVELOPMENT IMPACTS



Providing clean water access across Antigua.



Improving national energy security by reducing dependence on imported fossil fuels.



Making electricity more affordable.

Photograph: Department of Environment, Antigua and Barbuda



### PROJECT STATUS

Site selection and geotechnical works were completed in 2019.  
Installation of solar PV systems and wind turbines are to be completed in 2020 and 2021, respectively.



# BURKINA FASO

PROJECT NAME:

**Rural electrification by solar PV/diesel and power-distribution mini-grids**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**3.6 MW**

ADFD LOAN:

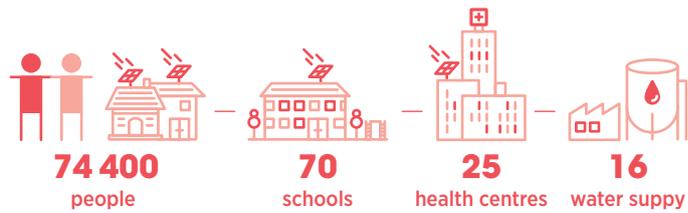
**USD 10 million**



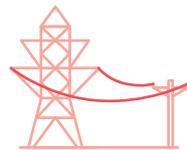
## PROJECT OUTLINE

This government priority project involves the rural electrification of 42 localities in Burkina Faso with mini-grids, grid extensions and solar home system technologies. The project is being implemented by the government-led Burkina Rural Electrification Agency (Agence Burkinabé de l'Électrification Rurale, ABER; formerly the Development Fund for Electrification – Fonds de Développement de l'Électrification), together with Sahelia Solar and decentralised services company Nuon-Yéelen Kura S.A. The project follows a holistic approach, matching the most suitable and cost-effective technology with each end-user. In rural trading localities where populations are sufficiently dense, mini-grids will provide technical and economic competitive advantages over grid connections or individual solar kits. In sparsely populated areas, however, households will be most cost-effectively served by individual solar kits – which will be provided by the project.

## EXPECTED PROJECT IMPACTS



Electricity provision benefitting thousands of households, as well as schools, health centres and water supply locations.



**10 714**  
electricity connections

Expanding energy access.



**1.1 million**  
litres

Fuel use displaced, creating cost savings.



**350**  
businesses

Support for small enterprise.



**300**  
jobs

Employment creation.



Emissions avoided.



**A pilot PV installation in Burkina Faso**

Photograph: IRENA/ S. Lockwood



**PROJECT STATUS**

The project loan agreement was signed in 2019 with installation set to begin imminently.



# SENEGAL

PROJECT NAME:

**Promoting renewable energy rural electrification**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**2 MW**

ADFD LOAN:

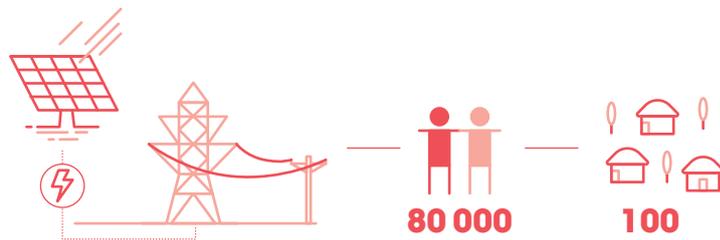
**USD 13 million**



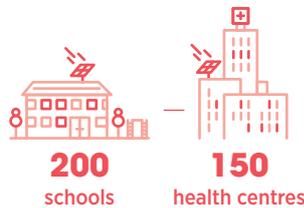
## PROJECT OUTLINE

This project was developed by the Senegalese Rural Electrification Agency (ASER) to electrify 100 villages located in isolated regions of Senegal. It is part of a broader government emergency rural electrification strategy that aims to achieve 60% rural electrification by 2025. The project will power medium-sized, remote villages using solar PV plants that feed into mini-grids. The mini-grids will include solar battery storage devices to provide power during the evenings. This project supports the government's national electrification program, which aims to provide universal access to energy by 2025-2030.

## DEVELOPMENT IMPACTS



Enhancing energy access for people in rural communities.



Providing electricity to health centres and schools.



Employment creation.



Improving productivity.



Emissions mitigated.

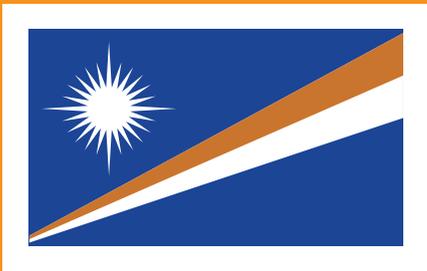


Photograph: ASER, Senegal



**PROJECT STATUS**

Procurement for both the consultants and EPC contractors has begun. Construction is expected to begin in 2020.



# MARSHALL ISLANDS

PROJECT NAME:

**Solar micro-grid hybrid project in four islands**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**4.6 MW**

ADFD LOAN:

**USD 11 million**



## PROJECT OUTLINE

The National Energy Policy and Energy Action Plan of 2016 for the Republic of the Marshall Islands seeks to provide “an improved quality of life for the people of the Marshall Islands through clean, reliable, affordable, accessible, environmentally appropriate and sustainable energy services”.\*

The government, together with Solar City, developed this project to contribute to the policy objective by deploying hybrid microgrids on the four islands of Ebeye, Jabor, Rongrong and Wotje. Solar PV will be combined with advanced lithium-ion battery storage and control systems (specially designed for the harsh near-ocean environment) and integrated with existing diesel generation as the primary electricity generation source. The energy will be used for domestic and productive uses including powering freshwater supply.

## DEVELOPMENT IMPACTS



Access to affordable electricity for customers.



Reduction in diesel-based electricity generation by 36% for the island of Ebeye and by 90% for Jabor, Rongrong and Wotje.



Provision of water.



Foreign exchange savings (equivalent diesel imports).



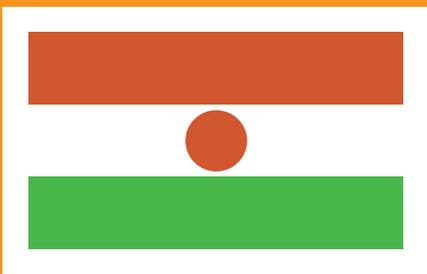
\* [http://prdrse4all.spc.int/sites/default/files/neap\\_rmi\\_endorsed\\_2016.pdf](http://prdrse4all.spc.int/sites/default/files/neap_rmi_endorsed_2016.pdf)



Photograph: Government of the Marshall Islands

## PROJECT STATUS

Loan agreement processing is ongoing.



# NIGER

PROJECT NAME:

## Solar rural electrification in 100 villages

TECHNOLOGY:

### Solar PV



CAPACITY:

### 2.1 MW

ADFD LOAN:

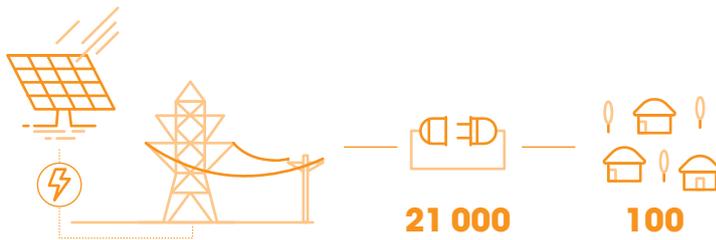
### USD 10 million



## PROJECT OUTLINE

This government priority project is being implemented by the Rural Electrification Agency of Niger (Agence Nigerienne de Promotion de l'Electrification en milieu Rural – ANPER). It supports the government's policy to provide electricity through solar PV systems to 200 villages, in order to offer sustainable and clean electricity services to the beneficiaries. Given Niger's national electricity access rate of around 10% (49% in urban areas and 0.4% in rural areas), ANPER was created to accelerate rural electrification and has since embarked on work to electrify 100 localities.

## EXPECTED PROJECT IMPACTS



Electricity access for new connections (customers) in numerous villages.



150 000

Providing benefits for people.



250

direct and indirect jobs

Employment creation.



Enabling improved access to basic services powered by renewable energy including schools, health centres, provision of water for drinking and agriculture, and food processing and preservation.



Reducing pollution from diesel-based generators and kerosene lamps.



Photograph: ANPER, Niger

## PROJECT STATUS

Loan agreement processing has been concluded and signing is expected in 2020.



# SEYCHELLES

PROJECT NAME:

**Ile de Romainville solar park**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**5 MW**

ADFD LOAN:

**USD 8.5 million**



## ★ SPOTLIGHT

The Seychelles power system is almost entirely based on conventional diesel thermal power plants, consisting of three power stations managed by the Public Utilities Corporation (PUC) that are connected to an integrated national grid also managed by PUC. Currently, a 6 MW wind farm and 3.4 MW of aggregated PV are connected to the grid, and together they contribute almost 2.5% of the total electricity production in the country. The National Energy Policy of Seychelles stipulates that by 2030 the contribution of renewables toward the total energy demand of the country should be 15%.

In order to achieve this target, the country has taken steps to augment the capacity of grid-tied solar PV by implementing larger scale solar parks. Efforts are underway to increase investment in renewable energy technologies through private investments and contributions from PUC and the government of the Seychelles. The Romainville island solar PV project aims to increase renewable power generation and contribute to diversifying the energy portfolio of the Seychelles, and thus reduce dependence on imported fossil fuels, increasing energy security while also stabilising the price of electrical energy. The solar farm will be coupled with an Energy Storage System (ESS) to assure network stability.

### Solar PV plant integrated into an existing wind power plant on Romainville Island, Seychelles

Photograph: Masdar / S. Bräuniger





DEVELOPMENT IMPACTS



Contributing residential electricity supply.



**295**  
direct and indirect jobs

Employment creation.



**1.6 million**  
litres per year = 1 million litres

Foreign exchange savings  
(equivalent diesel imports).



**5 000**  
tCO<sub>2</sub>e per year

Emissions mitigated.

Additional benefits



Annual fuel savings  
(SR 11 million).



Energy produced  
from renewable sources.



**Implementation Progress**

The EPC contract was signed on 1 August 2018 and construction works started in November 2018. The project includes installation of 14 850 solar panels of 340 Wp capacity each, together with 84 solar PV inverters of 50 kW capacity and other balance of system equipment. The ESS has a capacity of 5 MW and 3.3 MWh to compensate for intermittence due to shading, thereby improving the stability of the grid. The project was completed by December 2019.

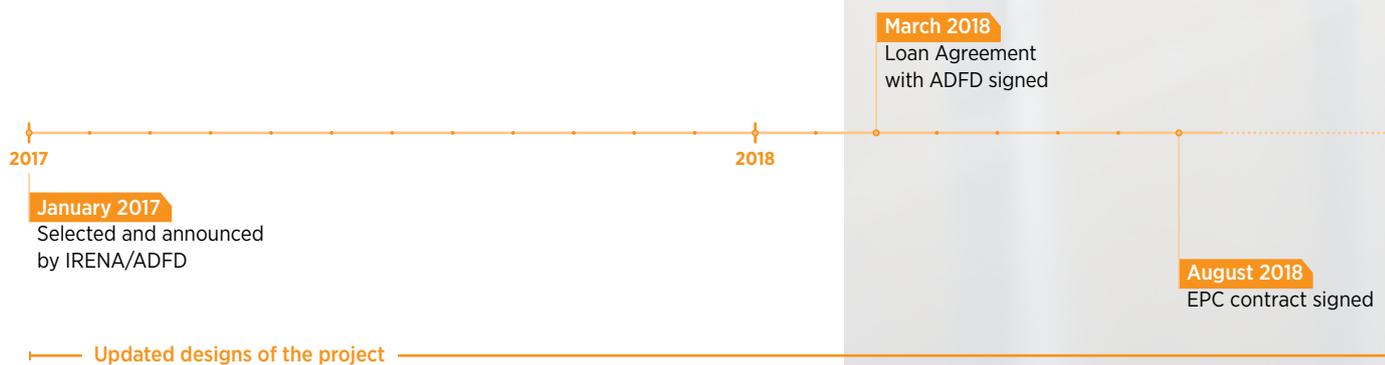
**Project partners**

PUC engaged Masdar – part of the Mubadala Investment Company based in the UAE – in the design, development and execution of the project. Masdar developed the project and conceptual design together with PUC and is now managing the execution of the project on PUC’s behalf. Masdar conducted a competitive tendering exercise for PUC and the works were awarded by PUC to the contractor Complete Energy Solutions (CES).

**Main implementation challenges**

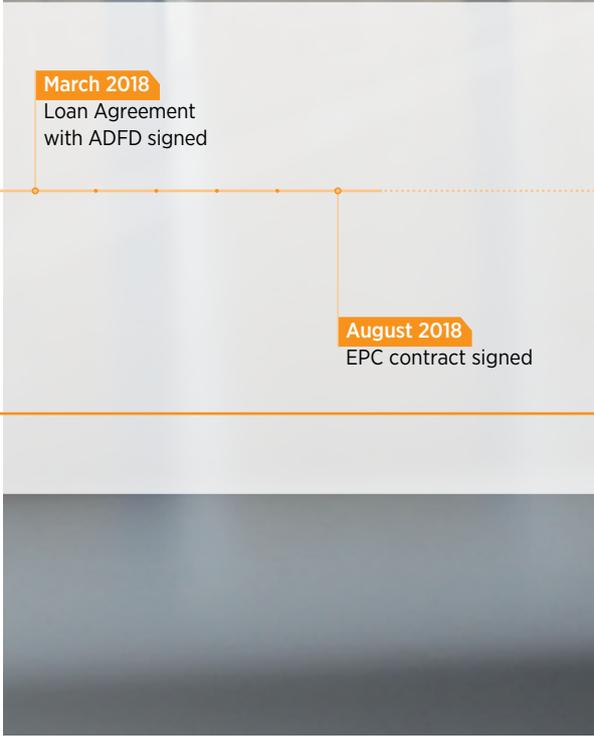
During the execution of the project there were risks related to barge transportation from the main island of Mahé to the project site of Ile de Romainville. Additional delays during the engineering design, manufacturing and shipping process were experienced. However, the execution of the works was managed efficiently, ensuring timely delivery of the overall project.

**Progress timeline**



**PROJECT STATUS**

The project was completed by the end of 2019.





September 2018

Agreement ratified

2019

November 2018

Construction/installation started

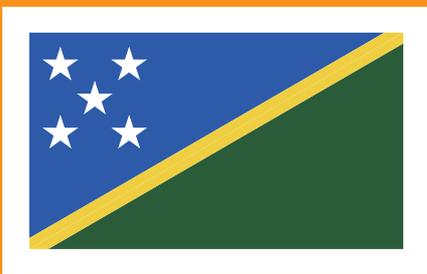
December 2019

Installation completion

2020

Workers installing panels at Romainville, Seychelles

Photograph: IRENA



# SOLOMON ISLANDS

PROJECT NAME:

**Tina river hydropower project**

TECHNOLOGY:

**Hydropower**



CAPACITY:

**20 MW**

ADFD LOAN:

**USD 15 million**

## PROJECT OUTLINE

The Tina river hydropower project is a national priority energy project initiated by the Solomon Islands government to introduce renewable energy to the country's energy mix and reduce dependence on diesel fuels. The project aims to convert the Solomon Islands' power sector, which is presently 100% dependent on imported diesel fuel. Consequently, the retail cost of electricity is very high and greenhouse gas emissions are significant. The project is being implemented by K-Water and Hyundai Engineering Company.

## DEVELOPMENT IMPACTS



People receiving access to renewable energy.



Lower power tariffs,  
making electricity more affordable.



Greenhouse gas emissions reduced.



Reduced fuel import expenditure.





**Tina River catchment, Solomon Islands**

Photograph: Tina River Hydropower Project

## PROJECT STATUS

Loan agreement was signed and declared effective in 2019.  
Construction is expected to start in 2020.



# MAURITIUS

PROJECT NAME:

**10 000 solar PV systems for households**

TECHNOLOGY:

**Grid-connected rooftop solar PV**



CAPACITY:

**10 MW**

ADFD LOAN:

**USD 10 million**

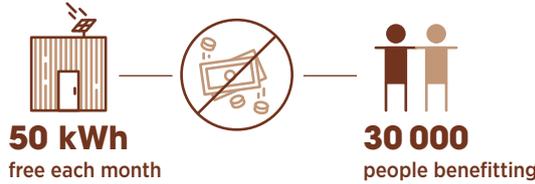


## PROJECT OUTLINE

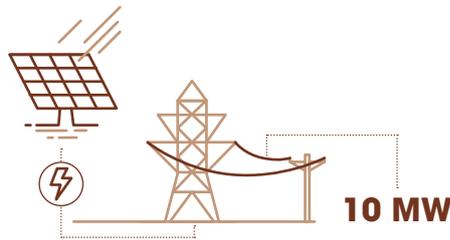
This government priority project by the Mauritius Central Electricity Board's Green Energy Company, involves the installation of 10 000 solar PV kits of 1 kilowatt-peak (kWp) each on the rooftops of low-income households. The kits are grid-connected and offer net-metering benefits to participating households in the form of 50 kilowatt-hours (kWh) of free electricity each month.

The project will contribute to achieving the government's target of generating 35% of its electricity from renewable sources by 2025. By lowering energy expenditures for low-income households, the project will also contribute to poverty alleviation, which is a strategic priority for the government.

## EXPECTED PROJECT IMPACTS



Affordable electricity for low-income households.



Increasing the share of renewables on the grid.



Emissions avoided.



Reducing dependence on fossil fuels and saving USD 400 000 annually.





**Installation of grid-connected solar PV kits on homes under the pilot project in Mauritius**

Photograph: IRENA

## PROJECT STATUS

The project's loan agreement was signed in 2019, with a pilot phase involving 1 000 installations being completed the same year.

Procurement for the full-scale implementation is ongoing, with expected annual installation of 2 000 kits by 2025.



# GUYANA

PROJECT NAME:

## Guyana Hinterland Electrification Programme

TECHNOLOGY:

### Solar PV



CAPACITY:

### 5.2 MW

ADFD LOAN:

### USD 8 million



## PROJECT OUTLINE

The project will be implemented by the Hinterland Electrification Company (HEC) Incorporated – a wholly owned public entity under the purview of the Ministry of Public Infrastructure. The project entails the installation of 5.2 MW of grid-connected solar PV systems to supply the grids of six electric utilities in Guyana’s Hinterland. The main objectives of the project are to reduce fossil fuel consumption for electricity generation and increase energy security in the respective hinterland communities. The introduction of solar PV grid-connected power is expected to improve the reliability and duration of electricity supply within the communities by reducing the utilities’ dependence on very expensive imported diesel fuel and supplementing their generation capacity from a less expensive, renewable source. At a national level, the project supports the government’s policy for the integration of renewable energy in the electricity sector and the vision of becoming a ‘green state’.

## EXPECTED PROJECT IMPACTS



Benefiting residents in target areas.



Employment creation.



Lower power tariff for target region.



Diesel fuel savings.



Stimulation of local cottage industries and improving the operations of existing local businesses.



**USD 2.2**  
million

Savings USD 2.2 million on fossil fuel imports annually.



**5 400**  
tCO<sub>2</sub>e per year

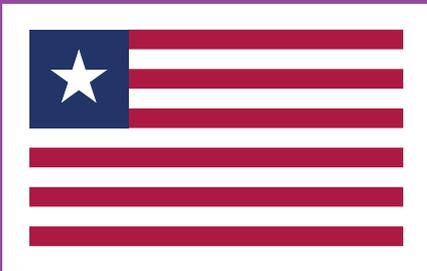
Emission reductions.



**One of the beneficiary communities of the Hinterland Electrification Programme in Guyana**

Photograph: HEC

**PROJECT STATUS**  
The project is still at the preliminary loan offer stage, with a plan for its appraisal in 2020.



# LIBERIA

PROJECT NAME:

**River Gee mini-hydro project**

TECHNOLOGY:

**Hydropower**



CAPACITY:

**2.1 MW**

ADFD LOAN:

**USD 8 million**



## PROJECT OUTLINE

The project was submitted by the Rural and Renewable Energy Agency (RREA) of Liberia and involves building a run-of-river hydropower plant on the Gee river. The objective of the project is to provide generation capacity in River Gee county from renewable resources to supply, at affordable cost, a sustainable and reliable source of electricity to the rural population, businesses, institutions and industries in the south-east region of Liberia. Electricity generated will be fed into an existing cross-border transmission line from Côte d'Ivoire into Liberia providing a clean, reliable, sustainable and affordable source of energy to River Gee and Maryland counties.

## EXPECTED PROJECT IMPACTS



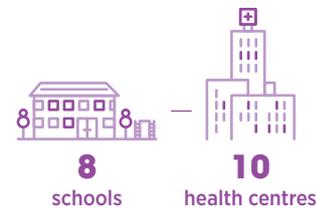
Benefitting residents in target areas.



Employment creation.



Reduced household expenditure on fuels from other energy sources.



Contributing to electrification of schools and health centres.



Emission reductions.



Photograph: RREA, Liberia

## PROJECT STATUS

Loan agreement processing has concluded, with signing expected in 2020.



# TOGO

PROJECT NAME:

**Blitta solar PV project**

TECHNOLOGY:

**Solar PV**



CAPACITY:

**30 MW**

ADFD LOAN:

**USD 15 million**

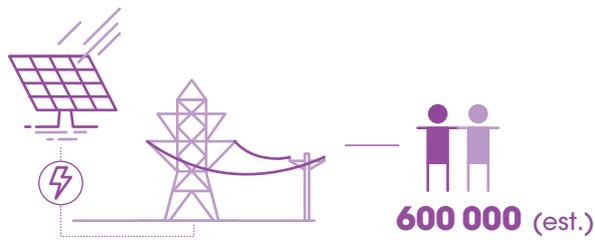


## PROJECT OUTLINE

This project is being implemented by the Ministry of Mines and Energy through the Togolese Rural Electrification and Renewable Energy Agency (AT2ER) in a public-private partnership with Africa Middle East Asia (AMEA) Power Company as the developer. The project involves the construction of a 30 MW solar plant at Blitta – an area in the central region of Togo – to generate electricity that is fed into the national grid. The plant contributes to meeting Togolese commitments to SDGs through achieving access to affordable, reliable and modern energy services for all (per SDG 7) by 2030, significantly increasing the share of renewable energy in its energy mix and doubling its energy efficiency.

The project is funded by the Togolese government, ADFD and the West African Development Bank together with AMEA Power Company.

## EXPECTED PROJECT IMPACTS



Benefitting residents in target areas.



Employment creation.



Power provided for industrial and economic development.



Emission reductions.



Photograph: AT2ER, Togo

**PROJECT STATUS**

Loan agreement signing is expected in 2020.  
Construction is underway and expected to be completed in 2020.

# CONCLUSION AND OUTLOOK

## Conclusions

Progress was made in 2019 in terms of increasing the proportion of projects completing implementation, with 44% of the portfolio reaching the construction stage, compared to 33% in 2018. Several projects began generating electricity, thereby providing renewable energy benefits to target communities. Loan agreement processing also advanced, with three additional projects signed in 2019 and five others under negotiation.

Ongoing follow-up activities include an online progress tracking platform, which is being updated and re-deployed to provide project teams with the ability to issue regular reports on progress, challenges and mitigation measures.

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*IRENA's partnership  
with ADFD produces  
action on the ground*

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## 2020 outlook

As more projects begin to generate electricity in 2020, the IRENA-ADFD team will continue to monitor and report the development impacts and the contribution of these projects to the realisation of Sustainable Development Goals including SDG 7, focused on energy. Lessons learned during the process may be applied both by the IRENA/ADFD Project Facility itself and in broader efforts to boost renewable energy deployment in the developing world.

### 1. Eight projects generating electricity

The number of projects generating electricity will increase from four in 2019 to eight in 2020. The Cuba expansion, the Seychelles, Sierra Leone and Togo will be fully commissioned; the other states (Antigua and Barbuda, the Maldives, Mali and Mauritius) will see some sites completed and generating power while others will remain under construction.

### 2. More projects at construction/ installation stage

Besides those mentioned above, seven more projects in Argentina, Mauritania, Saint Vincent and the Grenadines, Senegal, Niger, the Solomon Islands and Liberia are expected to reach the construction stage. Continuous support to these projects will include: online project tracking; organising quarterly conference calls; filing monthly progress reports; and undertaking field monitoring missions. IRENA will continue facilitating communication between each project and ADFD to ensure that approvals and disbursements can be processed in a timely manner.

### 3. Loan agreements signed

Loan agreements from the fourth, sixth and seventh cycles are expected to be signed. The IRENA-ADFD team will work together closely to ensure these projects are efficiently processed, paving the way for more projects to advance through the implementation stages.

### 4. Announcement of results from the seventh cycle

The IRENA-ADFD team has completed the seventh cycle selection process, the outcome of which will be announced in January 2020 during the tenth session of the IRENA General Assembly. Additional appraisal missions will be organised in 2020 for the selected projects.

### 5. Development of new project facilitation initiatives

IRENA continues working with partners to develop new initiatives to select and support renewable energy projects and programmes in developing countries, aiming to help countries achieve SDGs and particularly the crucial energy goal, SDG 7. IRENA continues exploring long-term, strategic, collaborative initiatives with various entities to facilitate more projects and programmes. The intention is to drive funding commitments in the form of grants, concessional debt, guarantees among other instruments. The initiatives must result in on-the-ground renewable energy deployment in developing countries.

For more details, visit: [www.irena.org/adfd](http://www.irena.org/adfd)

# ADVANCING RENEWABLES IN DEVELOPING COUNTRIES

Progress of projects supported  
through the IRENA/ADFD Project Facility



International Renewable Energy Agency

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Headquarters: Masdar City  
P.O. Box 236, Abu Dhabi

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United Arab Emirates

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