

OPERATING AT THE FRONTIER: A CLEANER WORLD



PIDG aims to provide affordable power while always evaluating the potential climate impact of its energy initiatives. PIDG seeks to increase supply in the most challenged countries, while contributing towards SDG 7, Affordable and Clean Energy.



DEVELOPING RENEWABLE ENERGY

With nearly 80% of those lacking access to electricity based in rural areas, off-grid renewables solutions are a critical route to electrification.

Providing affordable and clean energy for all is a key UN SDG, and one that is fully embedded in PIDG's portfolio. An increased focus on renewable energy is needed in the years ahead, to enable the decoupling of economic growth from carbon emissions so that spending on infrastructure can increase without contributing to climate change. Solar, wind, geothermal and hydro projects, which diversify the energy supply, are all a key part of the future energy mix.

PIDG's involvement in renewable energy demonstrates the possibilities of scale – from the mini-grids enabling rural communities in Tanzania to plug into solar power to the 82MW Lower Solu run-of-river hydro project in north-eastern Nepal. Lower Solu is the country's largest private sector plant, capable of delivering sustainable power to 4 million people.

In 2018, all of PIDG's commitments to the energy sector were renewable energy projects.

PIDG will continue to develop those areas where it has acquired expertise (small hydro, wind, solar and geothermal) and increasingly explore more programmatic off-grid and mini-grid solutions, including storage solutions co-located with renewable generation, to provide power in remote areas.



HARNESSING THE SUN

Global demand for solar power was forecast to reach 85GW by the end of 2018, more than doubling over three years. This rapid growth has driven technology advances that have in turn driven down costs, however providing 24-hour power remains a challenge.

The International Energy Agency forecasts that 140 million people will be connected to a mini-grid by 2040. Off-grid solar's rapid deployment is predominantly driven by a proliferation of solar-home system solutions on a pay-as-you-go basis. PIDG has been leading the drive for off-grid and mini-grid power solutions for some time. In 2015, InfraCo Africa's 1.6MW solar hybrid power plant with battery storage became fully operational on Bugala Island, Uganda, as part of the company's Kalangala Infrastructure Services project. InfraCo Africa has since invested in highly replicable off-grid solutions in rural Tanzania and Zambia.

In Tanzania, the REDAVIA project is enabling local businesses to grow and thrive. To date, 61 businesses have been connected to solar power in the remote villages of Isenzanya and Shitunguru. 38 of these are new businesses started up as a direct result of access to electricity. Among the new businesses there are those which provide services never previously seen in the villages.

InfraCo Africa is also looking to the future by working closely with innovators in the solar sector to explore battery storage technology that could expand access to 24-hour solar power.

Meanwhile, TAF provided a grant to cover part of the costs of a comprehensive vetting of each of the 500 locations chosen for the installation of Solaric solar nano-grids in poor rural areas of Bangladesh. These are micro power grids serving 50-60 households each, with enough energy to supply basic household needs and support micro-businesses.

Alongside its off-grid portfolio, InfraCo Africa has also worked with its partners to develop the 60MW Salima Solar project through to construction. As Malawi's first commercial-scale solar project and the country's first Independent Power Project, Salima Solar is truly pioneering and is expected to begin delivering much-needed clean power to Malawi's national grid in the next twelve months.

At an even larger scale, InfraCo Asia has co-developed the 168MWp Ninh Thuan Solar Power project on the south-central coast of Vietnam. The Ninh Thuan Solar Power project will be one of the country's first large, utility-scale solar farms, providing power up to 190,000 people through a 20-year PPA with the national utility company EVN. The project will also make a significant contribution to Vietnam's renewable energy mix and is hoped to create a demonstration effect for future solar projects in the country. This range of capacity is proof of PIDG's agile approach towards meeting the energy needs of the communities in which it operates.

WHERE THE WIND BLOWS

In many of the countries in which PIDG operates, there is the potential for wind power to help solve energy challenges, but a lack of measurable data and the absence of a successful project-implementation track record keeps new projects from getting off the ground. Through the Myanmar Wind Power project, a portfolio of wind power projects, which is targeted to have a generation capacity of approximately 263MWp, InfraCo Asia is collaborating with key local stakeholders to develop a deeper understanding of available wind resource in the country, and helping build local government capacity around the techno-commercial aspects of development, construction, management and operation of wind power facilities. Once complete, the Myanmar Wind Power project will provide improved access to power for over 2 million people.

This initiative builds on InfraCo Asia's successful participation in the development of the Metro Wind and Gul Ahmed Wind Power projects in Pakistan. InfraCo Asia provided development-stage expertise and capital to complete the projects and secured debt financing from international and local lenders. When a funding gap was identified after securing debt from lenders, InfraCo Asia provided additional capital through a fellow PIDG subsidiary company, InfraCo Asia Investments to enable Metro Wind and Gul Ahmed to reach financial close.

Together, the Metro Wind and Gul Ahmed Wind Power projects contribute 100MW renewable energy generation capacity to Pakistan's grid – not only helping to address the country's power deficit, but also reducing its exposure to the high cost and insecurity of fuel imports, while reducing carbon emissions.

Metro Wind and Gul Ahmed became operational in 2016, and InfraCo Asia successfully divested its shares in both projects to Daelim Energy in the following year.

A RIVER RUNS THROUGH IT

Run-of-river hydro projects have a modest environmental footprint and are particularly effective in areas where there is very limited water storage. In Cameroon the 420MW run-of-river Nachtigal hydropower plant on the Sanaga River is a cornerstone of the country's electricity sector development plan.

As a national priority project, Nachtigal will enhance the reliability of the country's power system. Its expected power generation will increase by 30%, amounting to an annual output of nearly 3TWh. In addition to supplying clean, green baseload power, the PPA tariff for Nachtigal is highly competitive and, once operational, the plant is expected to enhance the overall viability of the sector.

The size and scale of the financing required for this project was significant and its certainty was secured with a €50m loan from EAIF. In recognition of the level of complexity involved, Nachtigal was awarded the Multilateral Deal of the Year in the Global category at the PFI Awards 2018 and the IJGlobal award for African Power Deal of the Year in 2019.

Another example of PIDG's ability to overcome development obstacles is the Lower Solu run-of-river hydro plant in the Solukhumbu District of north-eastern Nepal. At the time of its financial close in December 2014, it was the first internationally funded hydropower plant to reach financial close in the country in nearly two decades.

GuarantCo's local currency credit guarantee of NPR 2.785bn (\$28.2m) for the project was the first of its kind, developing Nepalese financial markets and securing long-term financing from the local private sector. GuarantCo's support enabled the project to incorporate international standards and mobilised \$191m in funding from DFIs and regional private sector sources.

By scaling up Nepal's power generation capacity by 11%, Lower Solu will substantially improve access to clean power, underpinning social and economic development in the country. Like the rest of PIDG's renewables portfolio, it also underlines its capacity to demonstrate the bankability of clean energy in emerging markets.