Access to Energy

Quarterly Bulletin




ISSN 2278 - 5663 *Vol 4, 2017*

EDITORIAL

Dr. Akanksha Chaurey
CEO, ITP India

Distributed and micro-power

In the year 2002, the Indian Ministry of Power set up a committee of experts to look at the option of distributed power. Around the same time, the Washington DC based think tank Worldwatch Institute published a paper on micro-power. While the two events took place in different geographies and used different arguments, they arrived at the same conclusion on the scope, relevance and benefits of distributed and micro-power, particularly using renewable energy resources.

Some of the accelerators identified for ushering in distributed and micro-power were demand for green energy, technological improvements, and incentives for self-generation. Most of these accelerators are in place today in India, but have they actually accelerated the era of distributed and micro- power, or is it still sitting on the fence as utility scale solar PV and on-shore wind take the centre stage in greening the electricity sector.

I would call the utility scale solar PV and on-shore wind as the conventional renewable energy systems. Their non-conventional counterparts typically deployed at sub-megawatt or single digit megawatt capacities using energy of wave and tidal, biomass, small hydro, solar PV-wind hybrid and storage have been pushed to the side and so is the era of distributed and micro-power.

Let us look at some of the relevant applications that can best be served by distributed power. During natural disasters such as hurricanes Harvey and Irma in southern United States and recent floods in Asia, restoring electricity for medical and telecommunication services, distributed micro-grids are the best option. Rocky Mountain Institute (Boulder, US), opines that as cities and utilities rebuild, they should look toward solutions that provide grid resilience, using distributed power, especially solar and battery storage embedded on distribution grids. A combination of solar, storage, flexible electricity demand, and small generators increases grid resilience.

While solar micro and mini-grids have been used for rural electrification in India for decades now, there are many other off-site and on-site industrial and commercial applications where distributed power can effectively be used. However, it needs a policy push and a market pull to usher in the micro-power era in the country.

Clean Energy Access and Sustainable Development in the Remote Pacific

Dr. James Hazelton
Programme Manager & Consultant
ITP Renewables

Kiritimati Island, pronounced and commonly referred to as "Christmas Island", is the largest island of Kiribati and the largest coral atoll in the world. Located in the central pacific, the island straddles both the equator and the international dateline, being the first to welcome the new day. With a population of approximately 6,500, it is seen as a priority development zone to alleviate overpopulation on the much smaller island capital of Tarawa, who hosts 50,000. A recent government plan to triple the available leases here has meant that this island will experience rapid development, and it is critical this is managed sustainably.

Currently only around 70% of households have access to grid electricity, and these are served by scattered low voltage diesel mini-grids. For those with access, it is plagued with weekly outages, sometimes stretching for months at a time. For the government who operates these grids, maintenance and management come at considerable expense with heavy subsidies in place to make tariffs affordable to the end users.

ITP Renewables has been involved in the scoping, design and management of the Kiritimati Island Energy Sector Program (KIESP). Jointly funded by the EU and NZ governments, this program includes a diverse set of projects that will assist Kiritimati Island and the Government of Kiribati increase clean energy access and enable a more sustainable transition toward development.

The program includes the installation of a central PV/diesel hybrid power station and 11kV transmission network, interconnecting the four-existing diesel mini-grids that have been in operation since times before its independence in 60s.

This involves the first overhead high voltage system on the island, that has been designed to be maintainable and resilient in the trying conditions of the remote pacific. The consolidation of the existing power stations and incorporation of 150 kWp of PV will mean significant reductions in diesel use while increasing reliability of supply. To the south, in the farthest village of Poland, a standalone PV mini-grid will be repaired and expanded to incorporate further storage and high contribution from renewable energy (around 90% at current loads).

KIESP Poles Decca

In addition to the upgraded infrastructure, a range of complimentary activities are also underway. These include significant training components for local staff, asset management plans, tariff review, recommendations for reform, review changes to institutional structure and energy efficiency campaigns. The major project is currently under implementation with the program due to be completed in early 2019.

Delivering Solar Energy to Scotland

Andrew Bright
Director
ITPEnergised

As you first read this, you could be wondering if we are actually talking about Solar energy and Scotland! Scotland is indeed more widely known for its wind and rain rather than solar energy and thus perhaps more readily associated with hydro-electric power and onshore/offshore wind energy.

That assertion would not be unreasonable.

Scotland's energy mix has long consisted of approximately 10% of its electricity from hydro-electric schemes, and over the last decade onshore wind, and increasingly now offshore wind, have grown dramatically.

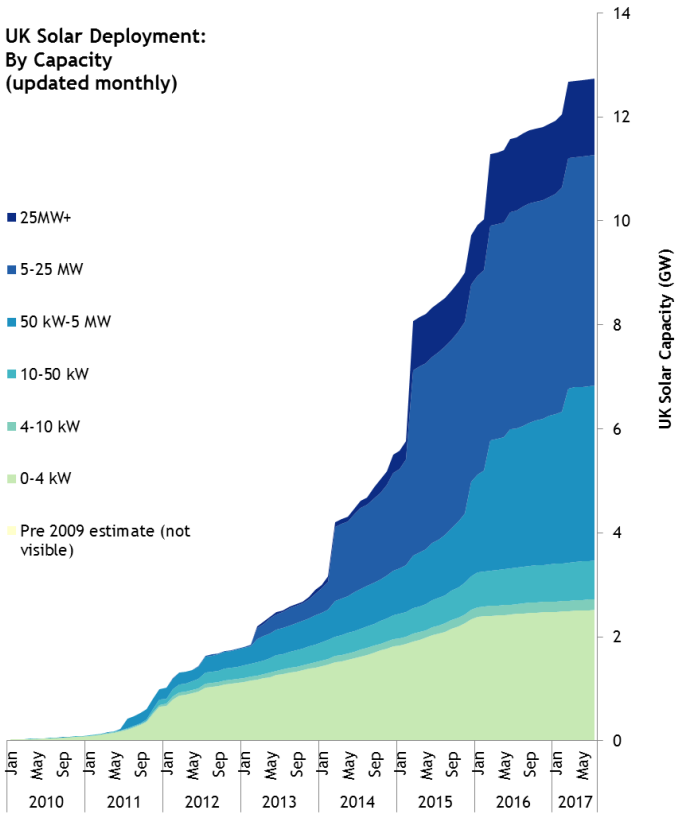
Renewable energy is part of the Scottish landscape. Scottish Government statistics show that in 2015, 59.4% of the Gross electricity consumption was derived from renewable energy.

Whilst the growth of wind energy has caught the headlines, solar energy from PV, has been growing equally dramatically. In the UK as a whole the growth has been astonishing as illustrated by the chart below.

Solar PV now accounts for 12GW of total installed capacity in the UK. In Scotland, however, this has lagged behind, due to the focus on wind and the perceived inclement weather compared to the sunnier parts of the UK. This has started to change with falling prices of solar PV, and ITPEnergised has played our role in moving solar PV forward in Scotland. The opportunity is no less important. The Scottish Solar Trade Association is expecting 6GW of solar to be installed in Scotland by 2030.

With our expertise in Environmental Planning, technical due diligence and asset management we are well placed to embrace this opportunity. For example, Environmental Impact Assessments for large renewable energy developments, particularly for wind energy and grid transmission systems, has been a strong focus for ITPEnergised.

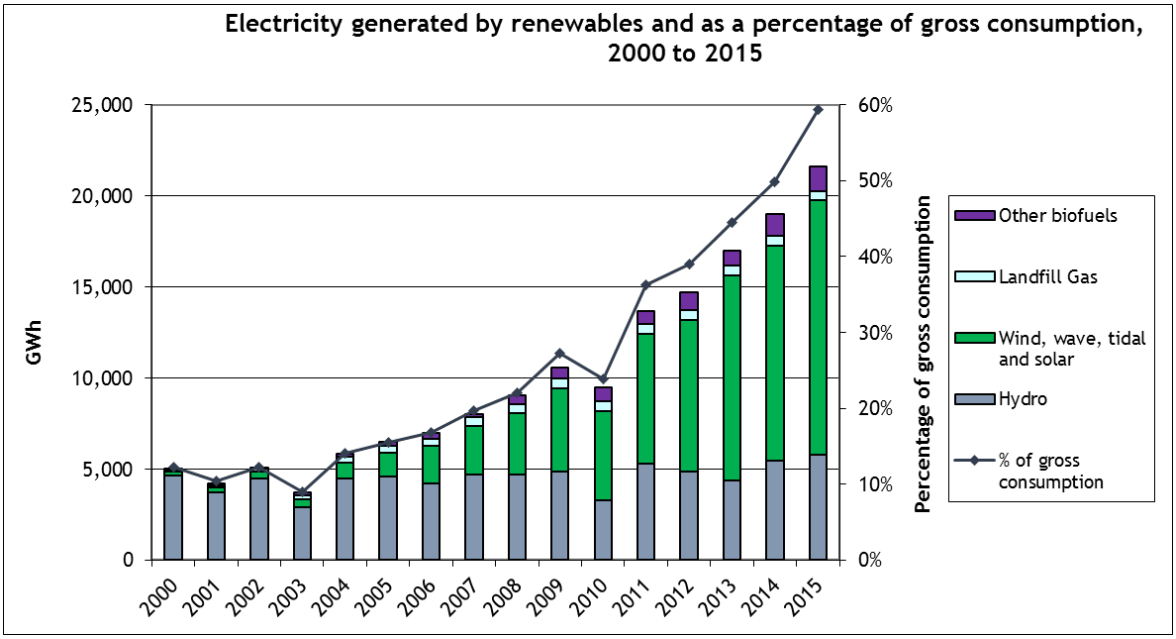
ITPEnergised recently completed the environmental assessment of two 5MW ground mounted solar schemes in an area that had previously been looked at for windfarms, but within a local planning area that had been overwhelming anti wind development. Solar was new, but no less challenging. At ITPEnergised we worked closely with the landowner, the local community and the local planning authority to undertake an assessment that was both thorough and sensitive to the landscape.



Source: Solar Photovoltaics Deployment in the UK, July 2017, BEIS

The sites, located on an area of farm land utilised for grazing cattle and sheep, were chosen not only for their suitability for large solar arrays, but were also well screened from view. Following a scoping exercise with the local planners, the sites were assessed on the basis of their landscape and visual impact, noise, access, ecological, cultural and socio-economic impacts, as well as the potential for glint and glare impact on air traffic.

The solar sites were consented with a number of minor conditions attached. The 2 sites when fully operational will provide enough energy for 3000 homes and a financial benefit to the local community that will provide for much needed improvements to community assets.



ITPEnergised has significant experience of delivering services for solar developers and asset owners. The business in the UK currently provides asset management services to a number of sites.

This includes monitoring both the financial and operational performance of the sites, together with coordinating contracted service providers to ensure the sites are operating optimally on behalf of the asset owners.

Source: ITPEnergised - Environmental Statement, Solar Farm Photomontage

Renewable Energy Development in Afghanistan

Mahmood Hasieb
ITPI Associate, Kabul

A critical and effective element in moving toward a sustainable and reliable economy is to increase the share of renewables in the generation portfolio. Renewable energy resources with their enormous potential in Afghanistan can successfully be harnessed to meet the current and future energy demand growth. However, Afghanistan only produces less than 10% of its energy from renewable energy sources currently. The renewable energy sector development is thus a strategic priority for the Government of Afghanistan and all its supporting partners.

The Asian Development Bank (ADB) through its Technical Assistance Program Renewable Energy

Development in Afghanistan, has addressed these challenges by developing the Roadmap for Renewable Energy Development in Afghanistan, which is a strategic document aiming to achieve the objectives of the Afghanistan Renewable Energy Policy (AREP). The Roadmap is designed to increase the supply of energy from domestic resources, improve energy supply to load centers, provincial capitals, and rural population, and increase the capacity within the Government to plan and implement renewable energy projects.

The scope of the Roadmap includes an estimation of technology specific achievable targets based on an assessment of RE potential that has already been mapped and segregated region-wise. Technologies utilizing solar, wind, biomass, hydro and geothermal resources are considered for this purpose. The Roadmap comprises of prioritization of technologies and projects, designing appropriate business models for their implementation and identifying enablers for market development using a Stage-Gate analysis approach.

An essential component of the Roadmap is the institutional arrangement for its implementation and enhancing the capacities of various stakeholders through training on knowledge products, particularly the project selection & decision-making tool and the system optimization models.

The Impacts of the Roadmap

Increasing deployment in renewable energy is not an end in itself. Expanding the share of renewable energy is an important part of the Afghan Government's strategy to generate new sources for growth, stimulate the economy and create jobs, particularly in rural areas. Renewable energy projects contribute significantly to employment growth, offering opportunities in a range of specialized skills and fields. There is significant employment potential associated with renewable energy project development, construction and installation, operation and maintenance of plants, etc. A steady pipeline of renewable energy projects will also ensure development of reliable local supply chains in components and specialized services.

In addition to increased access to renewable energy in Afghanistan, the impacts of the Roadmap go well beyond national boundaries. The Government's effort in mapping the road to renewable energy development is also geared toward achieving cross border trade and energy security, knowledge creation and sharing through regional platforms, and adoption and advancement of the global agenda toward sustainable energy for all and sustainable development goals.

ITP India organized a training program on "Design, Installation, Upkeep and Maintenance of Solar Photovoltaic Power Plants" for the officials and professionals of Assam Energy Development Agency (AEDA). The program was organized at Guwahati from 29th to 30th August 2017 and included sessions on: Solar Energy; Solar PV Basics; Solar Technologies; Solar PV System Configurations; Latest Technologies; Policies and Programs; Business Models and Project Developments.

ITPEnergised Offices

Bristol
ITPEnergised
29 Great George Street
Bristol, UK BS1 5QT
T: +44 (0) 117 214 0510
E: info@itpenergised.com

Edinburgh
ITPEnergised
7 Dundas Street
Edinburgh, UK EH3 6QG
T: +44 131 557 8325
E: info@itpenergised.com

Glasgow
ITPEnergised
The Whisky Bond
2 Dawson Road
Glasgow, UK G4 9SS
T: +44 (0) 131 557 8325
E: info@itpenergised.com

London
ITPEnergised
Unit 3.14-15
18 King William Street
London, UK
EC4N 7BP
T: +44 (0)20 3700 6111
E: info@itpenergised.com

Mainland Europe
ITPEnergised
Lisbon, Portugal
T. +351917208573
E: info@itpenergised.com

Latin America
ITPEnergised
Buenos Aires, Argentina
T: +54 11 3750 9853
E:
americas@itpowergroup.com

China
IT Power China
Beijing
T: +86 10 6413 6295
E: china@itpowergroup.com

Australia & Pacific
ITP Renewables / ITP Thermal
Canberra
T: +61 2 6257 3511
E: info@itpau.com.au

New Zealand
ITP Renewables
Auckland
T: +64 275 818 989
E: admin@itpau.com.nz

Published by:

IT Power Private Limited
410, Ansal Tower, 38 Nehru Place
New Delhi – 110019, INDIA
Tel: +91 (11) 4600-1191/92
Fax: +91 (11) 4600-1193
Web: www.itpower.co.in
Email: info@itpower.co.in