

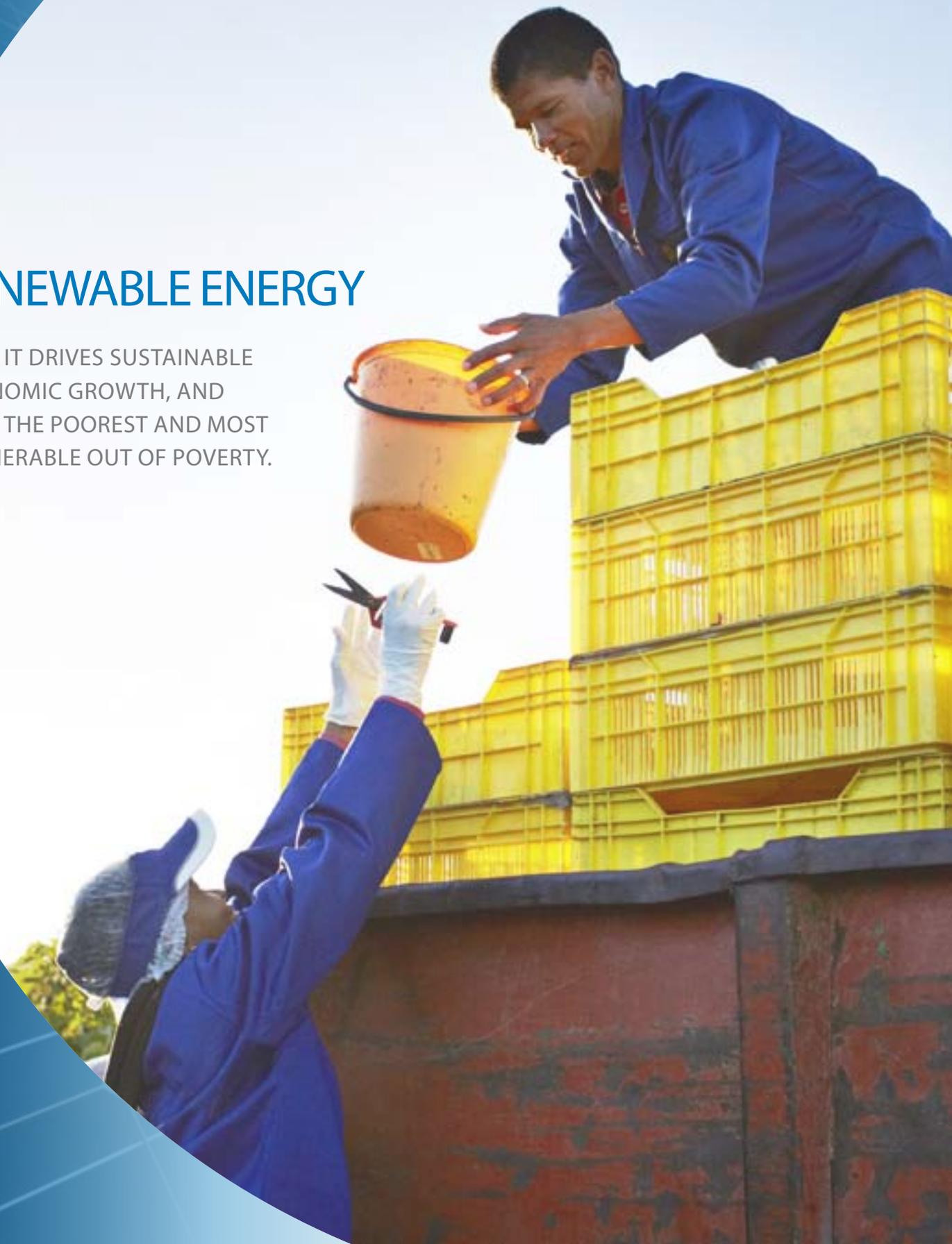
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RENEWABLE ENERGY

HOW IT DRIVES SUSTAINABLE
ECONOMIC GROWTH, AND
LIFTS THE POOREST AND MOST
VULNERABLE OUT OF POVERTY.



In this – the first of a series of Cowater white papers on topical issues in development we look at the critical link between energy access for the poorest and most vulnerable, and sustainable economic growth.

THREE POINTS ARE CRITICAL TO ESTABLISHING THIS LINK

1. Renewable energy (and specifically solar) allows power to reach poor communities directly, with significant localized jobs and enduring economic activity, especially for women and the most vulnerable.
2. Access to energy is a key determinant and is highly correlated to sustainable economic growth across countries.
3. Development project interventions can address key obstacles and barriers to renewable energy adoption in developing countries, and will pave the way for subsequent private sector activity in the region and bolstering sustainable economic growth.

The world is catching on to renewable energy's promise as a tool for rapid economic development. Solar power, for example, allows some of the world's poorest communities to leapfrog old models of electrification by building power generation close to communities where the power is used, without all the costly transmission and grid infrastructure to reach communities directly. Perhaps most importantly, deploying renewable energy (RE).

HOW DOES RENEWABLE ENERGY BENEFIT THE POOREST AND MOST VULNERABLE?

Extensive independent research has validated the direct link between electricity access and human development. Broadly, power consumption correlates strongly with the Human Development Index (HDI): those countries at the bottom of the HDI Index including Chad, Mali and Niger, also have among the lowest kilowatt-hour (kWh) consumption per capita in the world¹. Moreover, access to affordable electricity (enabled by renewable power on a distributed basis) is key to women's economic empowerment. Large scale case studies² in developing countries find high correlation between energy access and higher incomes for women (as well as men), and that access to affordable electricity can enable significant gains in education, participation in the workforce, and starting businesses.

Solar energy in particular introduces a whole new paradigm to rural electrification: it allows projects to directly target isolated communities, on a cost-effective basis. The concept is very similar to the way cell towers removed the need for costly landline connections to poor and rural communities and literally enabled access to telecommunications and connectivity leading to economic growth, even in the poorest of communities. The power of solar energy is the same, with an even greater impact on economic development for the poorest and most vulnerable because of the clear correlation between access to affordable power and rates of economic growth³ and the local jobs and business development that comes with renewable

1. IBRD and World Bank, Energy Services for the Millennium Development Goals, Table 2 page 19; http://www.unmillenniumproject.org/documents/MP_Energy_Low_Res.pdf

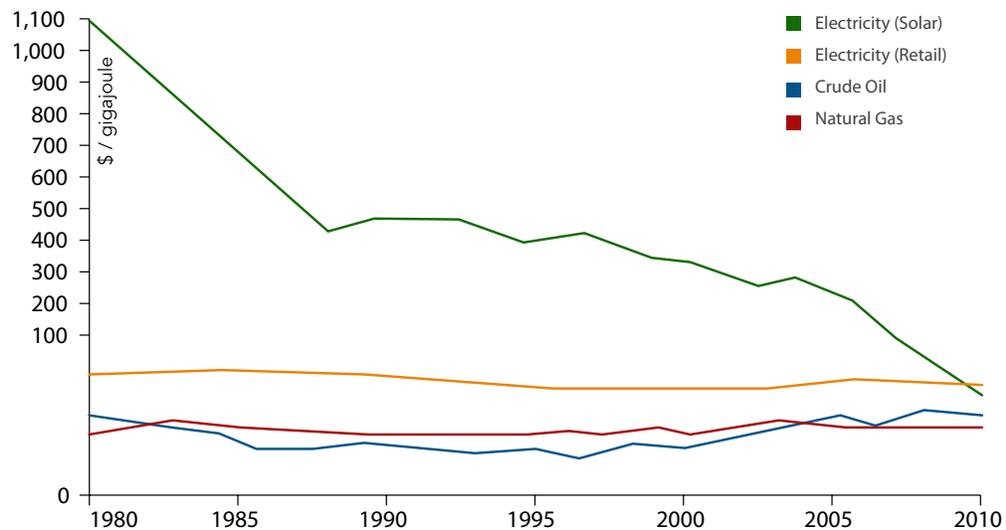
2. See for example Deloitte University Press, "Women, energy and economic empowerment," <http://dupress.com/articles/women-empowerment-energy-access/>

energy. Today RE is proven technology, it can be scaled, it can be installed and maintained by local technicians creating local employment, and it can be operated reliably for over 25+ years with minimal maintenance.

THE LINK BETWEEN POWER SECTOR DEVELOPMENT AND SUSTAINABLE ECONOMIC GROWTH

Progressive development thinkers consider the concept of economic sustainability – meaning ensuring development results are viable once the project finishes and subsidies are phased out – as critical to successful projects. What we want are projects that naturally scale up and create jobs because they are helping accelerate a business or technology that is fundamentally economically competitive, and we want to enable access to affordable electricity in poor communities that currently do not have it. Due to price compression of leading renewable energy technologies and convergence with fossil fuel prices on an per-unit of energy output basis (see Figure 1), we happily have a situation where RE is often cheaper than competing fossil fuel energy sources including in rural/underserved regions of the developing world. This means it is economically viable and can be scaled up after the successful interventions of a development assistance project have concluded.⁴

Development of local RE industries is a natural fit for enabling sustainable economic growth and empowerment of the most vulnerable. In terms of building competitive industries, we can see high correlations between high



Source: Cleantechica - <http://cleantechica.com/2014/09/04/solar-panel-cost-trends-10-charts/>

3. <http://www.worldenergyoutlook.org/media/weowebsite/energydevelopment/WEO2004Chapter10.pdf>

4. While the focus of this piece is solar power, other renewable technologies also have promise as a tool of international development assistance and will be covered in future Cowater white papers.

cost electricity (or lack of access to electricity at all) stunting economic growth while access to reasonably-priced power does the reverse.⁵ Reliable, affordable power is one of the fundamental building blocks of pulling people out of poverty, fostering economic growth and achieving the Sustainable Development Goals.⁶ Rural electrification allows business to operate with predictable access to power, literally enabling economic activity that would otherwise not be possible, particularly for the most vulnerable.

HOW CAN DEVELOPMENT ASSISTANCE PROJECTS ACCELERATE RE ADOPTION?

Despite these compelling economic rationales and despite the notable growth of RE in developing countries⁷, numerous obstacles remain to sustained growth. What are these interventions that will make a difference? One shoe does not fit all, there is no magic bullet. For example, the issues in the Caribbean are quite different to the challenges of scaling up renewables in rural Africa. The goal of development assistance projects should be to carry out targeted interventions that deliver not just solutions that enable RE scale-up, but involve poor communities in RE development itself and ensure skills transfer and lasting economic growth.

Let's look at the Caribbean example. Most Caribbean nations import very expensive fossil fuels to power their homes and businesses, which damages business viability and prevents the private sector from helping lift people out of poverty. As a region the Caribbean has compelling economics favoring the adoption of RE technologies: retail power prices are on average three times higher than US continental electricity rates due to the high cost of importing fuel oil, making it highly attractive to build solar or wind projects on the islands themselves. Strong solar irradiance in the region means solar installations should be productive and attractive investments provided developers can obtain contracts to sell the power on a predictable basis. So what explains the failure to adopt solar more widely and quickly? Often the regulatory environment applicable to renewable energy is unclear and stakeholders want to see pilots carried out that prove projects can be built at scale. These are interventions that development projects can help with or facilitate. In most developing countries, training and capacity building in the renewable energy sphere can be invaluable in building the ability of local actors to seize the renewable energy opportunity. Microfinance- type instruments and appropriate training/capacity building on the technical side can equip rural-based businesses with the tools they need to develop a full offering to potential households and small commercial rooftop or ground-mount customers.

The bottom line? We know that access to affordable energy is a key determinant of economic growth, and we know that RE solutions can reach the poorest and most vulnerable in a cost-effective way. If we can drive renewable energy adaption forward through project interventions such as training, regulatory reform or pilot projects that encourage RE adoption, the result will be sustainable economic growth, delivering a host of benefits for the poorest and most vulnerable, especially women, and eventually lifting whole communities out of poverty.

5. See for example Chi Seng Leung and Peter Meisen, "How electricity consumption affects social and economic development by comparing low, medium and high human development countries" <http://www.geni.org/globalenergy/issues/global/qualityoflife/HDI-vs-Electricity-Consumption-2005-07-18.pdf>

6. http://www.unmillenniumproject.org/documents/MP_Energy_Low_Res.pdf

7. Non-OECD countries are forecast by the International Energy Agency (IEA) to account for two thirds of the growth in renewables over the long term. The IEA notes that unblocking obstacles to more faster renewables adoption will be key. <https://www.iea.org/Textbase/npsun/MTrenew2015sum.pdf>