



Joint Report 2015

Are You In? 100% Renewables, Zero Poverty



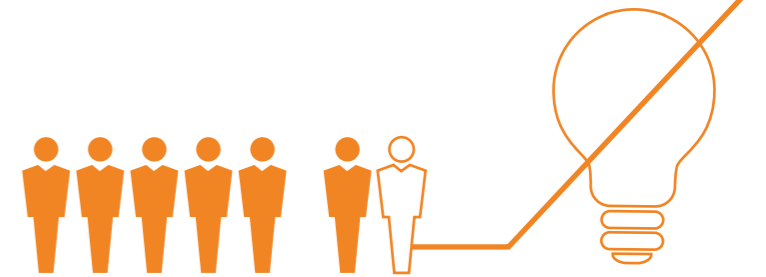
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REPORT PREFACE

In September 2015 world leaders signed off on a new global 15 year plan to tackle poverty inequality and climate change. In doing so, they pledged to ensure all people have access to affordable, reliable, sustainable and modern energy.

1.2 billion people,

Today 1.2 billion people (nearly 1 in 7) lack access to electricity.



But communities are rolling out renewables in order to beat back poverty, as these technologies can provide sustainable energy access where coal, oil and gas have failed for the last century. Sustainable energy can improve health by reducing pollution, it can improve education, create jobs and kickstart industries in minor economies.

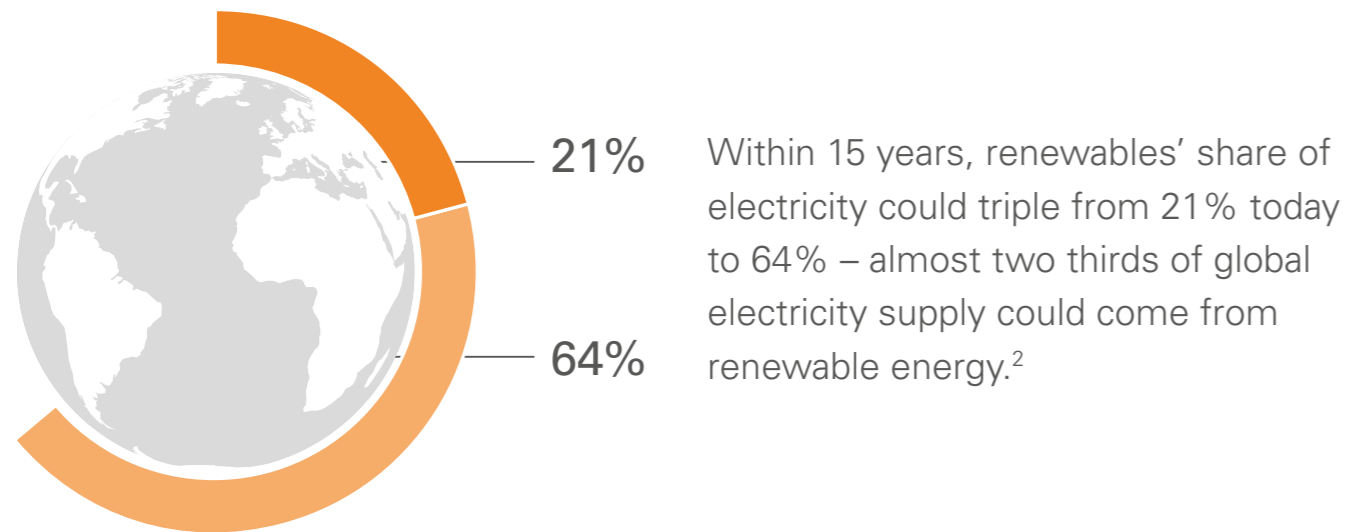
There is already a growing movement of leaders from villages, cities and businesses around the world who are not waiting for national governments to act, but are getting their own communities on track to a 100% renewable energy powered future - to deliver the just, equitable, healthy and prosperous world we need.

This report features a range of these people whose stories highlight the development benefits derived from getting on track to go 100% renewable. For example, take Marjina from Bangladesh, one of the real world leaders featured in this report. Marjina faced energy poverty, a lack of reliable energy access, that was exacerbating gender inequality in her village. Women were unable to walk safely down unlit streets until Marjina harnessed the power of renewable energy to light the way for her daughters today and into the future.

What's not evident from Marjina's story is that this kind of action will also, eventually, limit the climate impacts these communities are projected to experience, the kind of impacts that are stripping away the hard won development gains made in recent years. These communities are already dealing with myriad challenges like rising seas

infiltrating arable land reducing the security of food supplies. They are doing what they can to build resilience, but without building on the work of real leaders like Marjina, with comprehensive coordinated global action to phase in 100% renewable energy by the middle of the century fairly, it will get much much worse.

Clean [renewable energy is where the smart money is going](#) - wind, solar and other technologies have never provided more value for money as prices drop while effectiveness rises. Renewables represented approximately 59% of net additions to global power capacity in 2014 alone, with significant growth across all regions.¹

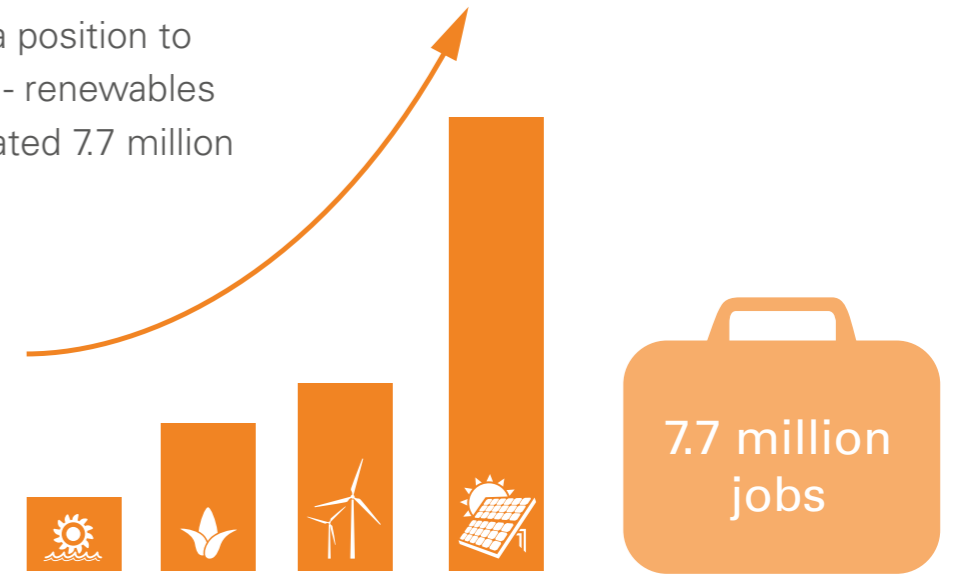


In many countries, like the UK and Germany, renewable energy technologies provide the cheapest energy while options like solar are projected to reach parity across 80% of global markets in just two years.³

China has been leading the world in new renewable power capacity installations while Brazil, India, and South Africa accounted for a large share of the capacity added in their respective regions. An increasing number of developing countries across Asia, Africa, and Latin America are now important manufacturers and installers of renewable energy technologies.⁴

¹ http://www.ren21.net/wp-content/uploads/2015/07/GSR2015_KeyFindings_lowres.pdf
² <http://www.greenpeace.org/international/Global/international/publications/climate/2015/Energy-Revolution-2015-Summary.pdf>
³ https://www.db.com/cr/en/docs/solar_report_full_length.pdf
⁴ http://www.ren21.net/wp-content/uploads/2015/07/GSR2015_KeyFindings_lowres.pdf
⁵ <http://www.irena.org/menu/index.aspx?mnu=Subcat&PriMenuID=36&CatID=141&SubcatID=585>

The industry is now in a position to drive economic growth - renewables now provides an estimated 7.7 million jobs worldwide.⁵



The shift towards 100% renewables is happening as it becomes clear investments made today in fossil fuel infrastructure under the guise of development is simply a mirage painted by an industry in the throes of structural decline. Why sell poorer countries a dud, especially when investments made today will never be used for their full life cycle - because science says that in order to keep global warming below 2°C we must leave more than 80% of fossil fuel reserves in the ground?

We hope that you are inspired by the real world leaders whose stories are outlined in these pages and take the call for 100% renewable energy to your government.

Signed,

Antonio Oposa (*President of The Law of Nature Foundation*),
 Cornelia Füllkrug-Weitzel (*President of Bread for the World*),
 David Suzuki (*Co-founder of the David Suzuki Foundation*)*,
 Dipal Barua (*Founder & Chairman of the Bright Green Energy Foundation*)**,
 Edwin Huizing (*Executive Director of Hivos*),
 Stefan Schurig (*Director of Climate and Energy at World Future Council*),
 Thais Corral (*Co-founder of the Women's Environment and Development Organization*)**,
 Wael Hmaidan (*Director of Climate Action Network International*),
 Wanjira Mathai (*Director of the Partnerships for Women Entrepreneurs in Renewables*)**

* Ambassador of the Global 100% RE Campaign
 ** Councillor of the World Future Council

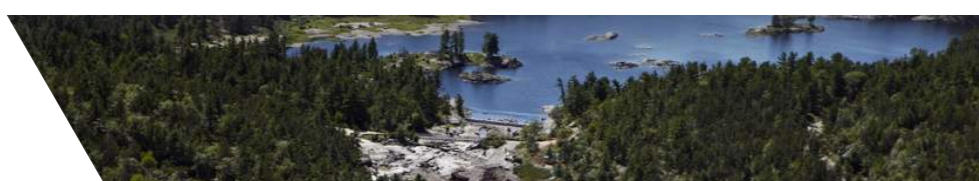


TABLE OF CONTENT

Marjina Begum / Khulna District, Bangladesh	9
Villager who catalysed local communities around 100% renewable homes to boost energy access and improve womens' rights .	
Larry Cantwell / East Hampton, USA	17
Town supervisor who rallied a town to create resilient communities and boost energy security by setting out to go 100% renewable.	
Sulis Setiawati / Island of Sumba, Indonesia	25
Islander who helped a range of diverse stakeholders to agree on a 100% renewable vision for a resilient economy and increased energy access .	
Gregor Robertson / Vancouver, Canada	33
City Mayor who pioneered a city-wide 100% renewable energy policy to guarantee a resilient economy, strong communities and energy security .	
Godfrey Kime / Kasese, Uganda	41
City Mayor who instigated and oversees a district-wide 100% renewable energy project to boost energy access and protect cultural identity .	
Denise Restoule / Dokis First Nation, Canada	49
Chief who led her First Nations Community to a 100% renewable reality that is helping to preserve their cultural identity , increase energy security and create a stronger economy .	
Steve Howard / The Hague, Netherlands	57
Chief Sustainability Officer at Ikea Group who has overseen a period of massive investment in renewable energy - as part of a plan for the business to go 100% renewable - to build a responsible, resilient business .	
Kingumohanti Koteswaro Patnaik / Andhra Pradesh, India	65
Grassroots coordinator who supported indigenous communities on a journey to 100% renewable energy that has boosted energy access and energy security .	



Written by

Helena Wright, Independent film-maker
and researcher

Other materials

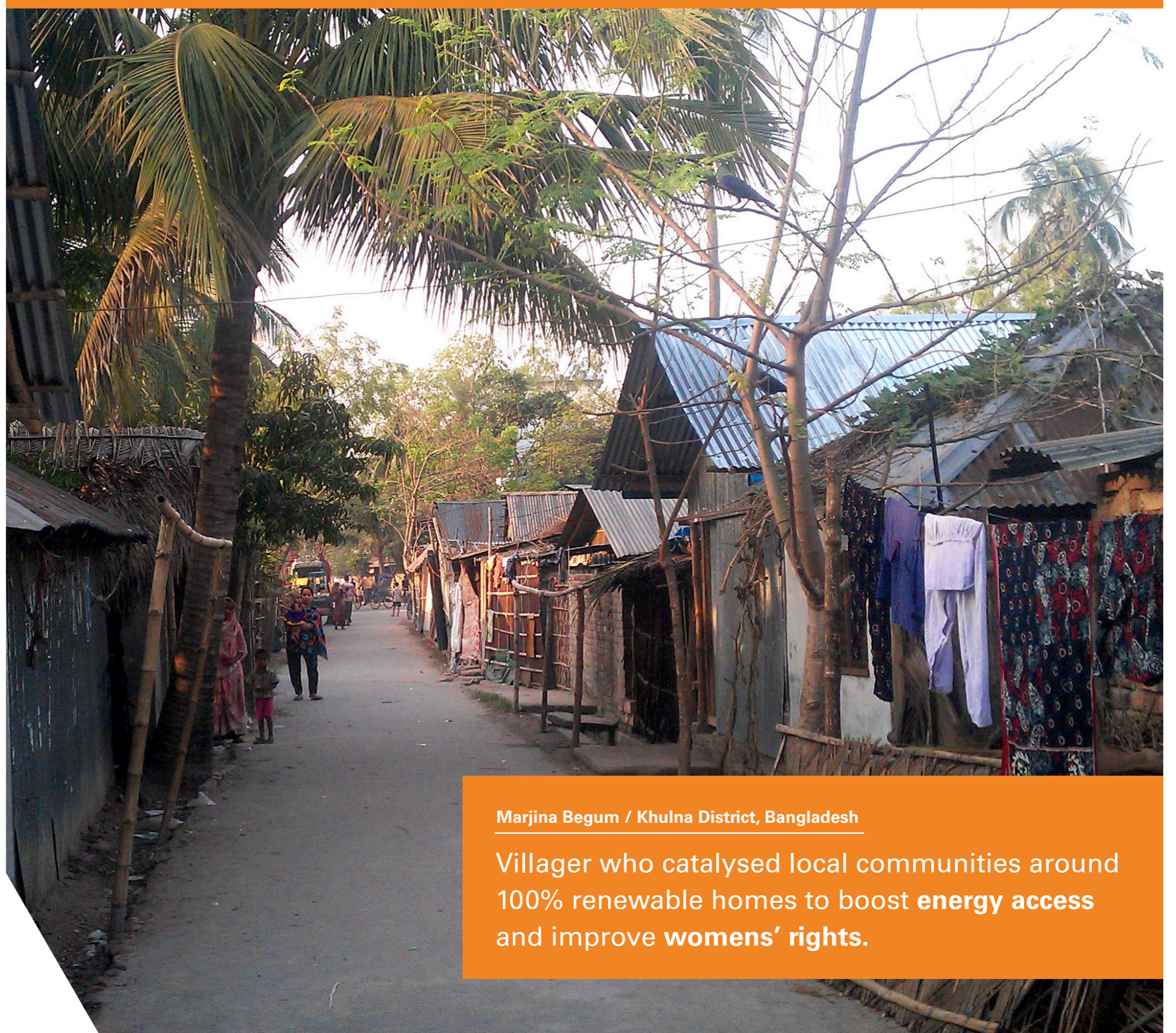
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Flickr stream available at:

www.flickr.com/photos/climatescope

Film Website (under construction):

www.solarnationfilm.com



Marjina Begum / Khulna District, Bangladesh

Villager who catalysed local communities around
100% renewable homes to boost **energy access**
and improve **womens' rights**.



INTRODUCTION

All change needs a champion. Marjina Begum is that champion. She lives in Kulia village in Khulna District, Bangladesh where she was the first person to transform her household to run on 100% renewable energy and is helping other villagers do the same. By harnessing solar energy Begum has avoided the need to rely on patchy grid connections and inefficient kerosene fuel. As a result of her actions local children can now study at night, improving their educational outcomes, women in the village are increasingly empowered, and security has improved.

Bangladesh has one of the fastest growing renewable energy programmes in the world and solar energy has already reached 15 million people, nearly 10% of the population¹ – but there is much more to do. The country suffers from regular cyclones and floods, and high rates of poverty, these issues are compounded by the increasing impact of climate change on the region.

Fortunately, local NGOs like ADAMS are helping to empower women, like Begum, to harness the power of solar energy in order to raise their living standards and bolster their communities against poverty and climate change by providing access to technology, training and micro-finance.

¹ <http://cleantechnica.com/2014/11/19/bangladesh-installed-3-million-new-residential-solar-systems-since-may/>

PROJECT

"I was trying hard to get an electricity line, at first I didn't know about solar" explains Begum. Then her daughter introduced her to a mechanic who had fitted his home with a solar power and recommended it for its stable supply of electricity, independent of the shaky grid. "I listened to this advice," she reflects. Begum undertook training to learn how to maintain a 40W solar photovoltaic system for her home – and for the homes of her neighbours.

Begum uses her solar power for lighting, charging mobile phones, keeping the home cool and powering a TV set. The system is connected to a battery to ensure a reliable electricity supply is available through the night. Begum has enthusiastically rec-

ommended solar panels to several of her neighbours.

"I advised more than ten families around here to get it. A few of them took it even after having electricity lines. They are all smiling now, saying – 'we did a wise thing listening to you, now we also have lights in our home!'"

Begum says solar is able to deliver power to those in Khulna district who previously had none - even villagers who had access to grid electricity have been switching to solar, because it is cheaper and more reliable.



RESULTS

100% renewable energy households are making a big difference to the lives of Begum's family and her neighbours in the district of Khulna. One of the most striking changes in daily life is the increase in physical, mental and material security women have experienced. Before 100% renewable homes helped illuminate the surroundings many women felt unsafe.

"My daughters couldn't go outside of the house at night. What if something happened in the dark of the trees?" Begum explains, "there is no such



problem after we installed the solar. We are very happy and much benefited."

Solar energy is saving women money because they can shelve their inefficient kerosene lamps, since it is considered a woman's responsibility to buy kerosene at market. Begum says she is paying off her solar system through instalments. "It will be my own after three years but I would have had to buy kerosene for decades."

Some women are becoming financially independent as a result of their switch to 100% renewable energy. Sabine, a lady in a neighbouring village, uses solar energy for her small sewing business. "Before the solar, I couldn't do my sewing at night, because

using kerosene was difficult. The children couldn't study, but after having solar now I can do sewing at night. I am earning some money - now I can support my family and it's going well," says Sabine.

Children are another group benefitting from the transition to 100% renewable energy because clean, reliable electricity means a better home environment in which to study, and ultimately a better education. "Before they used to fight at night over one hurricane [kerosene] lamp. Everyone complained "they were not getting much light. Solar is much more advantageous," according to Begum.

The 100% renewable energy homes are more resilient to cyclones and storms, compared to homes supplied by the grid electricity. Begum says, “the regular electricity lines are outside – these lines can be torn apart by trees. There is no certainty of these electricity lines and cables, but the solar cannot easily be damaged.”

This security of energy supply is also attributed to the fact that the villagers with solar systems are in full control of their electricity source. Thanks to micro-finance schemes they own their systems, which are not subject to fluctuating fuel costs, and with local NGO support local women and men are trained to independently repair and maintain their solar systems.

“I went for training where they taught me everything I needed to know: how I would repair them, how to adjust the bulb. They have showed me everything.” Begum said. “If there are any sudden difficulties, calling a mechanic would cost me 50 to 100 taka [\$1-2]. But now I know how to do them on my own and I instruct others.”



CONCLUSION

Begum’s leadership is an example for others. With strong policy and financial support from the national government, donors and NGOs the country’s solar energy program has been a real success and continues to transform lives every day. Good news spreads quickly in Bangladesh.

Begum explains that the benefit of going solar is spreading by word of mouth. “I think that people of south, north and eastern Bangladesh are installing it. Relatives come from far away to my place, they observe the advantages and problems, they further ask questions about it and then install it. It has been spreading in all regions, all over Bangladesh.”

The government has plans to double the country’s electrification ratio by delivering 25GW of renewable energy by 2020. By providing some of the most vulnerable and marginalised people in the world with sources of renewable energy, the government is bolstering local development, reducing inequality and increasing security.



Larry Cantwell / East Hampton, USA

Town supervisor who rallied a town to create **resilient communities** and boost **energy security** by setting out to go 100% renewable.

Written by

Gordian Raacke, Executive Director
for Renewable Energy Long Island



INTRODUCTION

Larry Cantwell is the Town Supervisor of East Hampton, a mixed community of baymen and billionaires on Long Island, New York. Cantwell is at the helm as the town embarks on its journey to a sustainable, 100% renewable energy future. The Town Board, energized by community leaders and activists, are taking this bold action following the impact of Superstorm Sandy on East Hampton. Cantwell says [Sandy was the moment his administration realized they had to develop a sustainable energy vision to boost the resilience of their community, help safeguard their local economy and take climate action.](#)

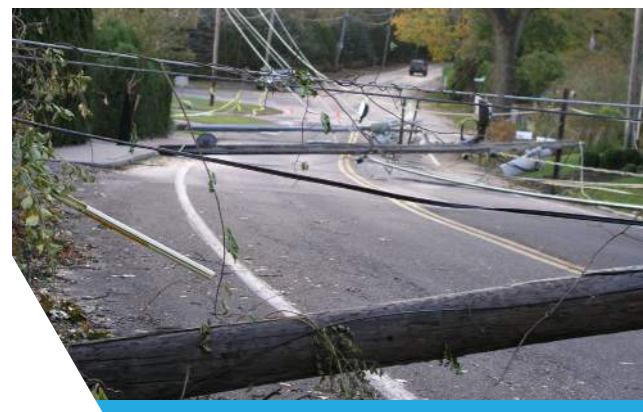
Cantwell was East Hampton's Village Administrator when Sandy struck and he spent countless hours at the emergency operations center with other officials, carefully monitoring the storm's path and managing emergency response. The damage and the aftermath of the storm served as a wakeup call to him and the community at large. "Residential neighborhoods as well as municipal and commercial facilities were badly damaged and there were widespread and lengthy power outages. We experienced severe erosion of our beaches, extensive damage to the coastal landscape and the environment's unique natural resources. It was a critical moment where we realized it was time for this small town to think big," he says.



PROJECT

In 2013, less than one year after Sandy made landfall, the East Hampton Energy Sustainability Committee submitted a Comprehensive Energy Vision to the Town Board calling for deep changes to the existing energy policy by harnessing renewable energy, minimizing environmental impacts and maximizing economic benefits. In 2014, with Cantwell at the helm backed by bipartisan support, the Town Board adopted a transformational goal to meet 100% of the town's energy needs with renewable sources by the year 2020.

“This historic act put East Hampton on the map as the first town on the East Coast to set such an ambitious renewable energy target and it also led to an ambitious agenda for delivering this bold vision,” says Sylvia Overby, a Town Board member who had urged the energy committee, on which she serves as liaison, to come up with concrete proposals. Immediately, the town's Natural Resources department, the committee, and others began turning the vision into reality by securing state grants.



The outlook is good according to Cantwell. “The town has received more than a dozen clean energy proposals ranging from utility scale solar farms to an offshore wind project. Testing is underway to show how a micro-grid supported by a mix of solar, battery storage, demand management and back-up generators can support critical facilities like the health care center, town hall, our police station, and a water pumping station during normal operation and emergencies such as hurricanes.”



Three large scale solar farms will be installed next year, the monitoring of electricity demand is being improved for efficiency, sites for battery storage are being located, and offshore wind turbines are expected to be installed in the Atlantic Ocean - connected to the island and East Hampton by underground transmission lines.

“We've got the perfect storm of conditions, ambition and expertise to transition to 100% renewable and distributed power,” explains Gordian Raacke, of the local not-for-profit group Renewable Energy Long Island.



RESULTS

The economic benefits of switching to renewable energy sources and reducing wasteful energy consumption practices are expected to be significant. Reducing energy waste by making buildings, air conditioners, appliances and lighting on average 20% more efficient can save local residents and businesses \$12 million in electric bills annually¹.

Supplying the remainder of the electricity from locally generated 100% renewable energy sources like solar and wind would avoid having to purchase costly and price volatile fossil fuels for which the utility currently charges East Hampton customers about \$26 million annually². Cantwell says,

“our electric rates are among the highest in the country, demand is still growing and we don't have enough transmission lines to bring in more power - now renewable energy and battery storage technologies being installed locally and off our shores are cost competitive and can help reduce electricity cost.”

“Generating our own power locally with solar and wind generated electricity while making our homes and businesses more energy efficient just makes sense,” says Margaret Turner, a respected voice of the local business community. “It means that millions of energy dollars will stay in the local economy rather than sending them to the utility companies.”

¹ Annual community wide electric consumption 310,144,000 kwh x \$0.20 x 20% = \$12,405,760

² Remainder of electric consumption: 310,144,000 kwh x 80% = 248,115,200kwh x \$0.105252 power supply charge/kwh = \$26,114,621.

Cantwell believes that shifting to renewable energy will help create employment in town and his view is supported by other key local figures. Frank Dalene of Telemark Inc., a local builder and Building Performance Institute (BPI) Accredited Contractor who spearheaded the committee's recommendation for the 100% renewable energy goal said, "upgrading the energy efficiency of existing buildings, by air sealing, installing better insulation and installing solar or other renewable energy systems, reduces energy consumption and carbon emissions at the same time it creates local jobs for contractors and related trades."

The community will benefit from shifting to 100% renewable energy by becoming more resilient. Cantwell explains, "by harnessing indigenous and locally available energy sources in conjunction with smarter energy infrastructure, the town's power, heating, cooling, water, transportation, communications, medical, emergency assistance and other essential services are more likely to be available during times of extreme weather events, natural disasters or other crisis situations."

Cantwell explains that East Hampton's electricity supply accounts for around half of the town's carbon emissions, so going 100% renewable is a way that the community can take action to tackle climate change and set a benchmark for other towns in the region.

Switching to a 100% renewable electricity supply would save as much CO₂ as 156,000 acres of U.S. forests would sequester, an area more than three times the land area of the town of East Hampton. Kim Shaw, environmental protection director of the town's Natural Resources department emphasizes the potential benefits for all Americans, "transitioning to a 100% renewable energy supply means drastic reductions in air pollution," she explains.



CONCLUSION

Cantwell says, "a powerful storm, strong leadership and a community with a vision to set course for a clean energy future made this small town think big. Taking ownership of our energy future, rather than letting the utility company make these decision, has already resulted in visible changes and a powerful sense that local leadership and community action will overcome obstacles and turn a bold 100% renewable energy vision into reality."

In public meetings and letters to local papers residents are encouraging the path to 100% renewable energy and are proud to see that their town is leading the way to a clean energy, resilient future. "As elected officials we must represent both the residents of today and those of future generations - and that's what this is all about," explains Town Board member Fred Overton.

To Larry Cantwell, it seems only fitting that East Hampton, the first English settlement in the state of New York, would become the first town in the state to establish a 100% renewable energy goal. "If you look at our town seal you'll see a windmill and a lighthouse. Using renewable energy sources and showing the way to a brighter future has been a tradition here for a long time."

³ Using U.S. EPA CO₂ conversion <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results> for 190,462 MT CO₂e from East Hampton 2010 carbon footprint as per NYIT LI Carbon Footprint data.

⁴ The land area of East Hampton town is 74 sq. miles or 47,360 acres which is 30.3% of the 156,116 acres of U.S. forest carbon sequestration calculated above. [https://en.wikipedia.org/wiki/East_Hampton_\(town\),_New_York](https://en.wikipedia.org/wiki/East_Hampton_(town),_New_York)



Written by

Sandra Winarsa, Sustainable Energy Programme
Manager for Hivos

Other materials

Photos Credit: Feri Latief/Hivos

[Video](#)



Sulis Setiawati / Island of Sumba, Indonesia

Islander who helped a range of diverse stakeholders to agree on a 100% renewable vision for a **resilient economy** and increased **energy access**.



INTRODUCTION

In the past Sumba Island was renowned for being one of the poorest areas of Indonesia where very few people had access to electricity, now thanks to the efforts of Sulis Setiawati the future is looking bright. Setiawati has been at the heart of a groundbreaking, island-wide initiative to address the energy shortage and boost living conditions by going 100% renewable.

Setiawati has played a pivotal role, bringing views of local farmers to decision-makers and the national government to agreement over the sustainable future of the island, ensuring that the needs of the local communities are being met. On a day-to-day basis she ensures that the just transition to 100% renewables is effectively helping to boost energy access, improve local business and safeguard public health.

Setiawati is a local partner in the Hivos Sumba Iconic Island Initiative that aims to deliver 100% renewable energy to islanders by the year 2020, It has been underway for 5 years and has already met with considerable success. "At first I thought it was just a crazy dream," says Setiawati, "but it is not crazy at all, **by working together to harness 100% renewable energy we are delivering prosperity, equal opportunity and fundamental human rights for our communities – no more living in darkness**".

Indonesia struggles to provide its citizens with reliable, cheap and safe access to energy with the existing grid infrastructure and reliance on large, centralized coal plants – which represent 30% of the countries current energy mix. However, the national government has noticed the development benefits of going 100% renewable on the Island of Sumba, in April this year Sudirman Said the Energy Minister was sent to scout out the initiative.

PROJECT

Five years ago Hivos, an international development organisation, spearheaded the introduction of the 'Sumba Iconic Island' initiative with support from the Indonesian Ministry of Energy and Mineral Resources. The aim is to support the just transition to a 100% renewable energy supply for the island by 2020 in order to reduce poverty, improve people's health, increase economic development and help tackle climate change while making communities more resilient to climate impacts.

Setiawati first encountered the initiative when the civil society organisation she works for became a partner in the programme. She saw firsthand how solar and biogas were delivering real solutions to the problems she was seeing native communities face everyday in the field. The majority of people had no electricity and islanders, particularly women, were being exposed to smoke and fumes from open fires in the home. Setiawati quickly offered her support to the initiative because for her, **"providing clean and renewable energy on Sumba is the best way to ensure fundamental human rights like the right to energy access and the right to health."**

Setiawati is now engaged in the project as a civil society representative, she brings diverse stakeholders to the table and channels ideas for solutions between local groups and the government. Her role is to translate the goal of going 100% renewable

into a delivery system that addresses the real needs of the poor people on Sumba – energy access, secure food production, better education and improved health. She is working closely with key constituents, like farmers, to ensure they understand the potential of the initiative and she is helping to harness their expertise to develop solar irrigation systems.



Setiawati works hard to ensure that the development benefits are systemic, not fleeting. To ensure this happens she says, "it is of the utmost importance to be able to connect with regional and national government representatives to voice directly all the hopes and concerns I gather from the field." Thanks to the spirit and commitment from local people in Sumba like Setiawati the initiative has obtained the full support from local leaders, the Indonesian government and major donors like the Asian Development Bank as well as the governments of Norway and Netherlands who all work together in the Sumba taskforce to realise the ambitious goal. "Now our farmers wanting to harness the power of renewable energy can directly apply for financial support and technical assistance" says Setiawati.



RESULTS

The impact of the iconic island initiative has already been far-reaching and transformative, doubling the electrification ratio on Sumba to nearly 40%. "Many people now have electricity for the first time in their lives," explains Setiawati. **"Having access to electricity means much more than just light in the darkness. It means independence and economic development. It means a way to improve our livelihoods."**

In the past the majority of the population used kerosene and wood for lighting and

cooking, which are polluting, extremely unhealthy and relatively expensive. Electricity was only available either in the city, where the grid is close by, or with diesel generators. Only a few businesses and residents could afford the expensive and highly polluting energy supplies. By using renewable energy and reducing the use of the old diesel generators, the island will decrease its CO₂ emissions as access to energy grows.

Agriculture is a vital sector for Sumba and farmers are benefitting directly from renewable energy. "For me the most important part of the programme is the solar irrigation project in Dikira" says Setiawati. "Farmers can

now grow a range of fresh vegetables when in the past they had to survive from growing corn and maize. It also means that farmers can now farm during the dry season – which lasts 8 months. Our farmers are able to generate food and income from their lands all through the year which is a boost for our economy and is paving the way out of poverty.” The solar irrigation project is currently being replicated around the island.

The economic benefits for the Sumbawese people have been profound. Setiawati knows like no other that the Sumba programme has had a major impact on small enterprises and traditional businesses around the island, “the hundreds of household biogas digesters have given local agriculture a giant boost. The digesters are all built and maintained by local entrepreneurs here on Sumba,” she says. These biogas systems harness natural waste products from local farming to supply energy for cooking and lighting. The bioslurry they produce is an excellent fertilizer that is sold by locals to farmers and is helping to increase agricultural output, alongside the solar irrigation projects.

The benefits of shifting towards a 100% renewable energy model are reaching women and children who in the past had suffered the worst impacts of poor energy access. Women were exposed to harmful fumes and children were unable to further their education. Now however, “solar panels and micro-hydro plants power schools and enable women to generate additional income by producing handicraft after sunset.

Many women are establishing small enterprises while more and more children are able study in the evening at home,” says Setiawati. “It is solar and biogas systems that are bringing the light, making households healthier and more prosperous across the island”.

As Setiawati and her colleagues continue to deploy renewable energy on Sumba the obvious development benefits and reporting of the Sumba Iconic Island taskforce are catching the eye of officials in the Indonesian government and having an impact on national level policy. “There is a noticeable progress at a higher level - such as more budget allocation from central government for renewable energy projects and more collaboration between the government, the private sector and local civil society organisations,” she explains.

“Sudirman Said, the Indonesian Minister of Energy, has taken responsibility for the realization of the Sumba objectives, and stated the government’s intention to replicate the model in other parts of the country,” says Setiawati, who expects the initiative to be replicated. “It is officially part of the Indonesian government policy through a recent Ministerial Decree announced in June. 100% renewable Sumba is an ideal model for other areas in Indonesia and beyond.” But Setiawati is very clear about the importance of engaging local communities in the process, “even if it takes some time we need to be part of the planning of our energy system.”



CONCLUSION

The Sumba Iconic Island initiative has set a benchmark for deploying low cost renewable energy in a way that empowers people, spurs local economic development and supports public services. Almost five years after its start, the project based on the aim to provide an entire island with 100% renewable energy by 2020, is well on its way to become a replicable example for climate-smart development solutions all over the world. Setiawati has already been engaged with the UN Food and Agriculture Organisation and the Cooperative Agency to discuss the benefits 100% renewables can deliver for both food security and gender equality. In sharing her experience she emphasises that the greatest challenge in deploying renewable energy for development is to ensure the local community is at the decision-making table to ensure long-lasting improvements and real life benefits.



Gregor Robertson / Vancouver, Canada

City Mayor who pioneered a city-wide 100% renewable energy policy to guarantee a **resilient economy, strong communities and energy security.**

Written by

Kevin Quinlan, Director of Policy and Communications, Vancouver Mayors Office



INTRODUCTION

Gregor Robertson was recently elected for his 3rd term as the Mayor of Vancouver, Canada, a city routinely ranked as one of the most livable places in the world. Mayor Robertson has set out a bold vision for the City of Vancouver: to meet all of its energy needs via 100% renewable sources as part of becoming the greenest city in the world.

Robertson wants to ensure that citizens are guaranteed clean air, a healthy economy, strong communities and energy security. Robertson's plan is also a beacon for cities around the world by demonstrating how going green is good for the economy, the community and the environment. Mayor Robertson's work has received international recognition, as demonstrated by his recent invitation to join Pope Francis and other world mayors at the Vatican to address climate change and social justice.

PROJECT

Even though Vancouver is widely recognized as one of the most livable cities in the world, its environmental footprint is currently three times larger than the planet can sustain. Robertson and his team are committed to continuing to move towards true sustainability. Their work began at the beginning of 2009, when he assembled the Greenest City Action Team and threw down an audacious and exciting challenge: to develop a plan to make Vancouver the greenest city in the world by 2050, or sooner. Today, the Greenest City Action Plan is one of the most rigorous roadmaps of any city in the world, ensuring transparency and accountability as it follows 10 long-term goals, with 15 measurable and ambitious targets.

In March 2015, Robertson took the next bold step towards ensuring a strong, resilient future: committing to ensuring that 100% of the energy used in Vancouver comes from renewable sources. "There is a huge economic opportunity in shifting away from fossil fuels and towards a green economy," says Robertson. "Vancouver has an opportunity to lead and the 100% renewable goal will make our city a greener, more resilient place to call home."

For Robertson, showing leadership on the urgent challenge of climate change is imperative. "While national governments have been stalling, cities around the world are taking action and delivering results when it comes to tackling climate change. The most impactful change we can make is a shift toward 100% of our energy being derived from renewable sources," says the Mayor. "The future of Vancouver's economy and livability will depend on our ability to confront and adapt to climate change. We can talk about others needing to do something about it, or we can act and in doing so, inspire other levels of government to act too."



RESULTS

Giving Vancouver this vision of becoming the greenest city, including pursuing 100% renewable energy, has a number of benefits, says the Mayor. "We are pursuing two goals at the same time. First of all, we want to make our city a safe, livable and healthy place for people of all backgrounds to live and call home. Getting off of fossil fuels and using cleaner energy in how we live has enormous environmental benefits. And secondly, in such a globalized world, we want Vancouver to be internationally recognized as a city that meets the needs of generations to come.

Making the decision to shift to 100% renewable energy today creates a positive environmental and economic legacy for future generations."

Since 1990, greenhouse gas emissions per person in Vancouver have declined by over 30% and are now the lowest of any major city in North America. Despite lower GHG emissions, the city is expected to have the strongest economic growth of any Canadian city next year. Vancouver's goal to be

the greenest city in the world has a strong focus on creating economic opportunity. City policies that push for greener building standards, incentivize local food production, and increase waste diversion and recycling efforts have helped bolster a thriving green economy. An analysis conducted by the Vancouver Economic Commission showed that more than 3,000 green and local food jobs were created in Vancouver in a three year time span – growing at a rate of four times that of conventional jobs in the national economy.

One of the biggest successes of the greenest city plan is that half of all trips made in Vancouver are now by foot, bike and transit - a goal that was reached five years ahead of schedule. "Our Greenest City and Transportation 2040 actions are making Vancouver a

safer, cleaner, more environmentally friendly city to get around," says the Mayor. "Investments in safer walking and cycling – protected bike lanes, improved crosswalks, better lighting – are encouraging people to walk and bike more, and we're now seeing big increases in walking and bike trips throughout the city." Vancouver is also committed to improving public transit, with plans to develop a subway system along what is currently North America's busiest bus corridor.



CONCLUSION

For Robertson it is important to highlight how local support is what's driving the city's progress. "The City's commitment to environmental issues stems from the dedication and passion of the citizens of Vancouver, and it was inspiring to see the level of support we heard when Council passed our 100% renewable target. Our city has a long history of caring for the environment and thinking long-term. Vancouverites are proud that our city has taken a position of global leadership on climate and sustainability and they expect us to be bold. They are constantly pushing us to take every step we can to make Vancouver the greenest city possible and they have high expectations for us. It's inspiring to have that level of public support and it's what motivates us to keep pushing the pace on becoming the greenest city in the world."



Godfrey Kime / Kasese, Uganda

City Mayor who instigated and oversees a district-wide 100% renewable energy project to boost energy access and protect cultural identity.

Written by
Mukobi Seleverio, Kasese District Council



INTRODUCTION

Godfrey Baluku Kime is the Mayor of Kasese, a city in Uganda with a population of 126,000 inhabitants. Kime has spearheaded an ambitious programme to shift his city and the wider district of Kasese to 100% renewable energy by 2020. Kime is motivated by the need to boost energy access in the region to improve living standards, increase public health and bolster the local economy. He is also responding to the deforestation caused by reliance on solid fuels for power and the obvious impacts of climate change that threaten the water supply and cultural identity.

Kime says, “my desire to set a 100% renewable goal was strongly motivated by the alarming climate-induced degradation of the snowcapped Rwenzori Mountains, from which the communities here derive their livelihood, water supply and identity. The people of the Rwenzori ‘Banya rwenururu’ get their name from the snow ‘Esyonzururu’. Without the snow, our name will be no more thus.”

PROJECT

The ambitious programme was launched in 2012, which is when Kime officially adopted the 100% renewable target for Kasese district. The aim is to transform the energy supply in the city of Kasese and the surrounding district. "I want to bring access to clean energy services for all domestic, productive and social needs in both rural and urban areas by 2020" says Kime. Only 7.6% of the 135,000 households in the district have access to the nation's electricity grid so the district's ambitious target is being achieved by adopting a wide variety of different renewable sources including biomass, solar, geothermal and micro hydroelectric technologies.

Kime has helped Kasese develop a holistic approach and a suite of policies to deliver their 100% renewable vision. Renewable energy access has become a key deliverable for all government funded projects and institutions - including schools, health centers, markets and other public infrastructure.

Similarly, the Kime guided the district council to pass a policy providing tax-breaks for all renewable energy related businesses. The council is also providing traineeship for the installation, maintenance and distribution of renewable energy technologies.

To ratchet up national efforts to drive innovative solutions to energy access, climate impacts and other development challenges Kime is working with a range of stakeholders including universities, businesses and NGOs. He has helped to foster a partnership between the international NGO WWF and local local entrepreneurial business Bare Foot Power Uganda Limited - a social enterprise distributing solar lighting and charging systems to poor people in developing countries.

Kime says, "these kinds of collaborative efforts are allowing local businesses provide loans for small-scale solar in mountain villages - allowing the rural and urban population to invest in their own renewable energy solutions."



RESULTS

Kime's 100% renewable energy vision for Kasese has quickly earned the support of the national government, civil society organizations and the Obusinga Bwa Rwenzururu Kingdom. "They have witnessed the project providing energy access for the first time to tens of thousands of people by harnessing off-grid solutions like solar. I can proudly say that the initiative has already benefited 26.8% of the residences in the Kasese district - including homes, schools, municipal services and small businesses." Today renewables are estimated to be supplying

26.8% of the total 146,000 household in the Kasese district with energy.

Renewable energy is helping to improve the daily quality of life as energy access rises. In the past 97% of the local population relied on charcoal and firewood for cooking which caused noxious fumes leading to health issues, particularly for women. Similarly, 85% of locals relied on kerosene for domestic electricity production, which is an expensive and inefficient fuel and imposes a significant financial burden on poorer families.

Kime explains that “solar for lighting and biogas for cooking has replaced the traditional Tadoba and the 3 stone method of cooking - reducing indoor pollution as a result.” At the same time, “the deployment of relatively cheap domestic solar systems is providing electricity for the many of the poor, freeing up money for other daily necessities like food and clothing.”

As a result of the increasing electrification rate many residents of Kasese have the power to run their own radio and TV sets for the first time, 26% of locals are using their solar systems to do this. Important lines of telecommunication in the district are opening up and becoming increasingly reliable due to the roll-out of solar phone charging facilities and solar run computers with internet access. Residents are increasingly able to access new forms of entertainment, each other and the outside world.

Biogas systems and energy saving stoves are improving community relations. “Conflicts as a result of groups searching for firewood have reduced, while the time spent to collect firewood is being used for other, more productive work.”

There are new jobs available for locals as the renewable energy sector expands in the region. Kime explains, “several clean energy businesses have been started since 2012, they sell solar equipment, construct solar hubs, build Biogas systems, improve cook stoves and deliver mini hydro projects. The number of businesses in our green economy has increased from 5 to 55 since 2012 – at least 1,650 people have been trained in the process. The tourist industry has also enjoyed growth, as our camps and lodges get access to electricity we are able to attract more visitors.”

“This isn’t just about local development, we are taking an active role in fighting climate change, that threatens our very identity with its assault on the glaciers of the Rwenzori Mountains. So far our efforts have saved an estimated 80,000 trees and the people of Kasese know that this, along with abandoning inefficient fossil fuels, means they are having a real impact in the fight to tackle climate change and preserve our heritage.”



CONCLUSION

“People’s support for renewable energy solutions in Kasese has rapidly increased in an extremely small amount of time, people have on several occasions expressed to me their appreciation for the initiative which in only 3 years has yielded remarkable results”

“Kasese’s journey towards 100% renewable energy by 2020 is happening right now. This bold project is empowering communities and improving livelihoods. It is setting a great example for other districts and municipalities to follow in Africa and in the rest of the world”

Nonetheless, Mayor Kime emphasises the need for sustainable funding of renewable energy technologies and appeals for support from the national government, civil society and the private sector. Sustainable financial support for the programme and finance mechanisms for individual households – especially those living on less than \$1 a day - need to be ensured over the years in order for the 100% renewable vision to be realized.



Written by

Chris Henderson, Clean Energy Advisor & Honorary Member of the Dokis Nation

Other resources

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Denise Restoule / Dokis First Nation, Canada

Chief who led her First Nations Community to a 100% renewable reality that is helping to preserve their **cultural identity**, increase **energy security** and create a **stronger economy**.



INTRODUCTION

Chief Denise Restoule is the leader of the Dokis First Nation community that has existed in harmony with nature on the banks of the French River in Ontario, Canada for time immemorial. For the benefit of her community and the bountiful ecosphere in northern Canada Restoule has catalyzed the Dokis people around a legacy-oriented project - to construct a small hydro-plant and go 100% renewable.

“Our culture is deep and enduring” says Restoule, “for our Ojibway culture; art, history, faith, family, ceremonies and traditions are essential parts of community life. Our people also have a deep and abiding connection to nature. [We believe that a run-off-river, small hydro project, planned and built in a sustainable manner, can be culturally and ecologically beneficial whilst contributing to a low carbon future for Canada.](#)”

Restoule’s vision to restore the heritage of the Dokis people, revitalise the local economy and reinvigorate the Dokis nation gained the support of the community who made a collective decision to support the Okikendawt Hydro Project. Today the plant is operational, around 4% of the renewable energy generated flows into the Dokis community - making the community’s energy 100% renewable - while the remaining 96% flows into the power grid, offsetting coal-based generation.

PROJECT

Chief Restoule helped forge an important relationship between the Dokis First Nation and private firm Hydromega in order to deliver the Okikendawt Hydro Project. The community and the business now own 40% and 60% of the project respectively and have a close, collaborative working relationship. Restoule says, "operations began this year and I can say that Hydromega is an outstanding project development company with a deep understanding and appreciation for Aboriginal communities."

The Okikendawt Hydro Project would not have been possible without Ontario's Green Energy and Economy Act, which acknowledges the important role that First Nations communities are playing as they shift away from harmful fossil fuels to renewable energy sources on traditional territory.

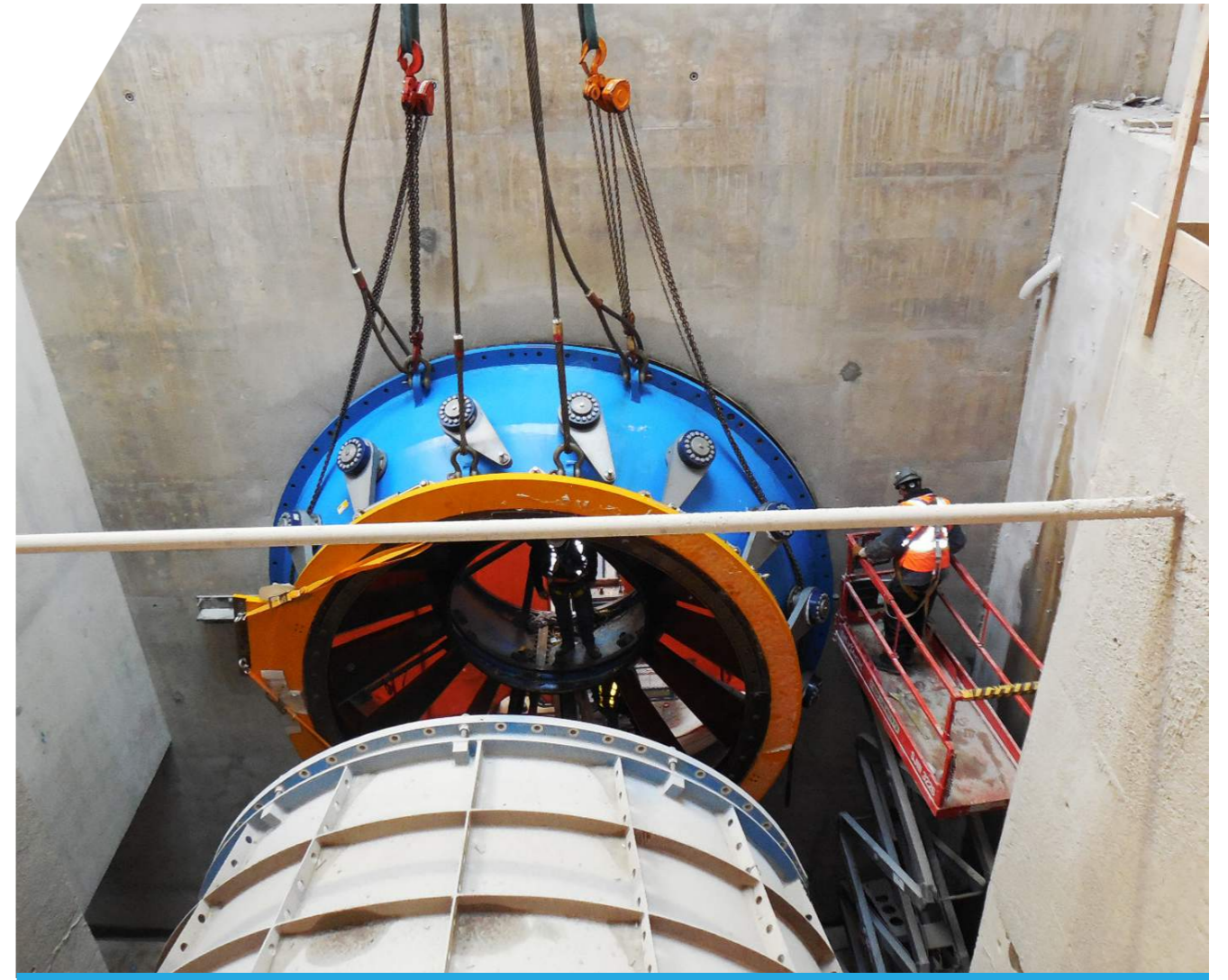


By enshrining the role of indigenous communities in developing sustainable, renewable energy sources in Ontario, the provincial government has accorded indigenous communities the most important thing they seek - Respect.

"We are enormously grateful for the Ontario government going further and establishing a range of regulatory and program measures to promote economic and social improvements for First Nation through green energy, while protecting the environment," says Restoule.

Restoule worked with the Dokis people to ensure that community level policies were in place to ensure the shift to 100% renewable energy provided maximum benefits for the people and the local environment. The community and Council approved strict guidance for the Okikendawt Hydro Project to ensure that it respects the environment, restores the heritage of the Dokis people, revitalises the local economy and reinvigorates the Dokis Nation.

The Chief also helped to develop a core set of sustainability principles that fundamentally shaped the way the project was designed, constructed and is operated today. These principles include the need to prevent any significant impact on the water flow of the French River, the need to focus economic benefits around the legacy of the Dokis Nation, and ensuring a programme of community engagement and education is delivered.



RESULTS

The Okikendawt Hydro 100% renewable project is a restorative initiative that is already advancing social and economic goals for the indigenous Dokis people, while at the same time generating clean power for the rest of Ontario.

Restoule explains how the project is delivering prominent economic and social benefits for the Dokis Nation and surrounding communities. "This is a \$64 million capital pro-

ject that significantly boosted local economic development. Over 30 members of the Dokis Nation were employed during the project's development, and on-going operating staff will be indigenous people. On top of this our community infrastructure has been greatly improved."

The Dokis Nation has established the Okikendawt Hydro Trust to ensure the earnings from the hydro-plant are effectively used - so that funds are invested wisely, to promote long term community prosperity for purposes such as: economic development, health care, education and community infrastructure.

The finances obtained by switching to 100% renewable energy are supporting work to improve local fisheries and protect the breeding sites of the rare Blandings turtle. Similarly, efforts to preserve ancient archaeological pictographs have been enabled, as have plans to reconstitute the traditional chaudiere (a form of oven) and preserve important stone pots retrieved from the river. Over the next 40 years, the it estimated the project

will generate in excess of \$45 million for the Dokis Nation, to continue these and other efforts.

Restoule says, "our community plans to build interpretive trails, a "portage" bridge, shaped like a canoe, and a ceremonial cultural centre adjacent to the Okikendawt site that truly restores the heritage habitat of the French River. We will be actively linking the positive features of renewable hydropower with the revitalization of our heritage landscape to promote tourism, fishery and the sustainable use of lands and waters."



CONCLUSION

Restoule and the Dokis Nation have expressed their thanks to all the workers and the leaders of the organisations and institutions that have supported them in planning, financing and constructing the hydro-plant that provides them with 100% renewable energy. The Dokis Nation has made a solemn pledge to use these resources wisely to build a sustainable legacy for their community on a foundation of clean, renewable energy. Restoule hopes that their example can provide a beacon of hope for other communities across Canada, "for people seeking to consolidate their rights, protect their heritage, live in harmony with their surroundings and leave a legacy for the future – we have shown that renewable energy can deliver."



Written by
Jamie Rusby, Sustainability Communicator,
IKEA Group

Photo credit: IKEA Group

Steve Howard / The Hague, Netherlands

Chief Sustainability Officer at Ikea Group who has overseen a period of massive investment in renewable energy – as part of a plan for the business to go 100% renewable – to build a **responsible, resilient business.**



INTRODUCTION

Climate change is one of the world's biggest challenges and we need bold commitments and action to find a solution, according to the global home furnishing company IKEA Group. The company is demonstrating remarkable leadership through its own actions – by committing to go 100% renewable, producing as much energy from renewable sources as the total energy it uses in its buildings and, through the IKEA Foundation, committing hundreds of millions of dollars to help the most vulnerable communities build resilience to the impacts of climate change.

Steve Howard, IKEA Group Chief Sustainability Officer, says, “action on sustainability and climate change is driving innovation in the way we power our stores, the material we use and the products we offer. It’s about staying relevant for our customers, making our business fit for the future and ensuring we have a positive impact.”

IKEA's direct operations are already being disrupted by extreme weather. For example, in 2012, Hurricane Sandy seriously affected co-workers and communities in the USA and forced them to temporarily close nine IKEA stores, leading to losses in revenue of USD 9 million (EUR 7.2 million). Some of the countries in which IKEA sources materials are particularly vulnerable to the effects of climate change, harming local communities and increasing the risk of disruption in the supply chain.

For these reasons IKEA is going all in to transform its business, to ensure that it is fit for the future and is having a positive impact. This means becoming energy independent by investing in renewable energy and efficiency while cutting emissions across the global supply chain. It means transporting products more efficiently and designing them to use fewer materials and more sustainable materials in production. And it means enabling customers to live a more sustainable life at home, saving and generating energy, using less water and reducing waste and recycling more.

PROJECT

In this critical year for climate action, IKEA Group and IKEA Foundation announced a new financial commitment totaling EUR 1 billion to accelerate the transition to a low-carbon economy and to support the communities most at risk. This is made up of an IKEA Group commitment of EUR 600 million for investment in renewable energy and a EUR 400 million IKEA Foundation funding commitment to support communities most impacted by climate change.



The EUR 600 million IKEA Group commitment to renewable energy builds on the EUR 1.5 billion the company has invested in wind and solar since 2009.

IKEA has set out to go 100% renewable and plans to become energy independent by 2020. *“We will produce as much energy from renewable sources as all of the energy we consume in our own operations globally. We do this because it is the right thing to do for people and the planet and for the future of our business. Tackling climate change is also a driver for innovation and renewal,”* explains Howard.

As well as taking action within their business, IKEA is calling for bold action from policy makers, individually and through the We Mean Business coalition, RE100 and other partnerships. For example in the RE100 campaign, IKEA stands together with many other forward-thinking businesses that have also committed to switch to 100% renewable energy. These businesses recognise that the world’s future is a renewable one.



RESULTS

The company is on track to become energy independent, producing as much renewable energy as it consumes in its buildings. *“We are well on the way to reach our goal of energy independence,”* says Howard.

“We have so far committed to own and operate 314 offsite wind turbines and installed 700,000 solar panels on our buildings. Around 90% of our US buildings now have rooftop solar. Our investment in energy independence makes good business sense. Being more energy efficient and producing renewable energy enables

us to reduce costs and makes us more resilient by protecting us from fluctuating energy prices.”

In 2015, IKEA Group announced that, following the inauguration of a new wind farm in Sweden, it has become energy independent in its operations in the Nordic countries. IKEA Group operations in the Nordic countries (Sweden, Norway, Finland and Denmark) join operations in Canada that became energy independent in 2014 – actually producing more energy from renewable sources than they consume in their buildings.

Operations in Poland and the US are on-track for energy independence with wind farms under construction. Once operational in late 2015, a total of six wind farms in Poland will produce an estimated 473 GW of electricity each year. Together with the heat energy produced from biomass in IKEA Group factories in Poland, the IKEA Group will produce as much energy from renewable sources as it uses in all its Polish stores, shopping centres, factories, distribution centres and offices.

“We want to have a positive impact on the planet and the communities where we source and sell our products. Poland is an important country to IKEA where we have the complete value chain represented, from factory to store. Our new wind farm investments will make IKEA Group energy independent in Poland, meaning we produce

as much renewable energy as all the energy we use in our stores, shopping centres, factories, distribution centres and offices in the country,” says Evelyn Higler, CEO, IKEA Retail Poland.

“At IKEA, we see renewable energy as a fantastic opportunity to build a better business and to support a better everyday life for our customers. Investing in renewable energy is great for our business as it reduces CO₂ emissions and giving us a long-term supply of clean, affordable energy,” Higler adds.



CONCLUSION

Climate change is one of the biggest challenges facing society, and urgent action is needed to protect people and the planet. But the transition to a low-carbon economy offers huge opportunities, bringing new jobs, economic growth and energy security. For IKEA, taking action on climate change drives innovation, investment and renewal. It is seen as an opportunity to make the business better and meet the needs and expectations of customers.

Howard concludes: “In this critical year for tackling climate change, we are calling for long-lasting, robust policies that will unlock the innovation and investment needed for companies to commit to more sustainable business models and a low-carbon economy.

“It is clear that the transition to a low-carbon world is both essential to protect communities everywhere, and is a huge economic opportunity. Now it’s up to governments and businesses to take decisive action to get us on track for a prosperous, sustainable future,” he says.



Written by
Written by Siddharth D'Souza, Alternative Energy
Desk, LAYA



Kingumohanti Koteswaro Patnaik / Andhra Pradesh, India

Grassroots coordinator who supported indigenous communities on a journey to 100% renewable energy that has boosted **energy access** and **energy security**.



INTRODUCTION

Kingumohanti Koteswaro Patnaik or Koti has spent nearly 30 years traversing the remote Andhra Pradesh region of India conducting meetings with local indigenous communities to help them make better use of their natural resources. "Several indigenous groups have existed here for hundreds of years largely isolated from mainstream society and many of them have suffered from poor access to proper energy services," he says.

Koti coordinates the natural resource management projects for a regional NGO called Laya¹. In this role he visited the Konda Reddy and Valimiki peoples, situated in a distant valley surrounded by hills, where he struck up a lasting and fruitful relationship with the residents of Pathakota and Rachimetta Villages - home to around 60 households.

He held several meetings to understand the key issues these villagers were facing and one of the most prominent problems was the lack of access to electricity. As a result the people of Pathakota, Rachimetta and the surrounding communities were dependent on kerosene² and relied heavily on traditional cookstoves that consume a lot of wood, emitting a lot of smoke in their kitchens, often rendering women vulnerable to respiratory illnesses.

Koti explains that simply pressuring the government to provide electricity from the national grid was not a clear solution. "Even if the government would connect the village to the main grid, it would not last, because every year during the months of June and July, the local monsoon, the torrential downpour and heavy winds would make the electricity lines vulnerable to fallen trees."

Ultimately Koti decided the solution lay in decentralized, micro-hydro power and he galvanized the villagers around a vision of locally owned, 100% renewable energy, as a means for them to effectively utilize their natural resources and improve their own wellbeing.

¹ Laya is an NGO, based in Visakhapatnam, working with indigenous communities in north Andhra Pradesh since 1985 (www.laya.org.in)

² Schedule Tribe communities under the PDS can avail up to 3lts of kerosene per month at a price of Rs 10 per litre.

PROJECT

Koti alongside his other colleagues at Laya undertook an intensive study³ to explore the best options for boosting energy access in the area around Pathakota and Rachimetta Villages. The analysis showed that the best option was a deployment of decentralized renewable energy in the form of micro hydro systems, combined with the distribution of solar lanterns and energy efficient woodstoves. This helped initiate a project, supported by Bread for the World, to deliver a renewable energy cluster across entire region.

“The study helped me to come up with a vision to harness the power of a natural waterfall in a stream nearby both villages,” says Koti. “It became a plan to construct a 6KW micro hydro plant and provide 50 efficient woodstoves as well as 200 solar lanterns.”

“I had lots of work to do with my friends in the village, when I first suggested the possibility to Balla Reddy and other village elders, they thought I was insane. But after several community meetings to address their concerns they agreed to get on board.” Laya financed the project while the local community agreed to contribute manual labour towards the building of the hydro plant. “They knew the work would be hard, but that the results would be worth it,” says Koti.

The project commenced in late 2008 and the work was indeed hard, especially during the rainy season. Nonetheless the community grew in confidence, especially after Koti organized an exposure visit for villagers to a similar, functioning project in the adjoining Orissa state. Work went on in earnest and by the end of 2009 the indigenous people of Pathakota and Rachimetta finally had reliable access to electricity via micro hydro - by this time the distribution of stoves and lanterns was also completed.

He says, “I then held discussions with the villagers to establish long-term ownership of the plant. Together we decided that each family would contribute a small monthly fee of 30 rupees each month so that the Villages of Pathakota and Rachimetta could take on the ownership and maintenance of their own electricity supply. Together we delivered a self-sustaining, 100% renewable solution to energy access issues for indigenous communities in the Andhra Pradesh region”

³ <http://www.laya.org.in/PublicFiles/DEOBooklet.pdf?download>



RESULTS

Koti has become something of a local hero following the transformation of life in the villages, after people gained energy access and ownership of supply. He says, “it is not just about getting electricity for the community, it is the fact that they have electricity in a way that it is theirs to make and use”

The reliability of supply has been key. **“Even in urban areas such as Delhi, the capital city, people are fraught with load shedding.”**

So for the people of Pathakota and Rachimetta it’s a huge success when they can manage their own electricity and needn’t depend on the coal based power of the government”

The ultimate test of the success of the hydro project came in 2012 when grid electricity did arrive in the villages and most of the households received connections.



“Every month each household was receiving a bill of 150 to 200 rupees, far more expensive than their renewable electricity, and there was an additional problem of mismanaged, incorrect billing. On top of this the people were regularly subject to grid failures. The communities took a unilateral decision to cancel their grid connections and go back to their micro hydro energy supply.”

The benefits of going 100% renewable are reaching women and children who had suffered the worst impacts of poor energy access. Now women in Pathakota and Rachimetta say they needn't rush home early evening from their fields to ensure that they don't have to cook in the dark. They have more time to spend with their families and are able to socialize with their neighbors after sunset. Crucially, the efficient woodstoves have reduced the levels of toxic fumes in their homes, reducing the risk of respiratory illness.

Koti explains, “every technology that we have introduced here has its own potential, trajectory and growth. What I am trying to do is to ensure that everyone, especially women and children have a better opportunity to develop themselves in meaningful way with dignity, with these technologies helping them realize an easier way of life.”



CONCLUSION

Despite its success the Indian government has not shown strong interest in micro hydro projects - they consider them too small. However these small-scale, localised, 100% renewable solutions make a real difference to people who have nothing but their land and forest. “These people may be poor but they are resource rich. If villages could have infrastructure that is locally sourced, managed and maintained, in other words “appropriate”, why indeed would people need to crowd an environmentally unsustainable city?” asks Koti.

He is hopeful that more money can be made available to expand this and similar initiatives throughout India. Koti believes that the need for decentralized 100% renewable energy is not a “nice to have” option any more, it is the only way to effectively lift millions of people out of energy poverty.



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Edited by

Mark Raven (mraven@climatenetwork.org) and
Ria Voorhaar (rvoorhaar@climatenetwork.org)

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