



REPORT

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WWF REPORT

CROSSING THE DIVIDE:

How To Close The Emissions Abyss 2

Essays by a selection of WWF offices on what countries can do pre-2020 to reduce greenhouse gas emissions

May 2015

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Illegal logging operation north of Vladivostok, Russia.

PREFACE

Sometimes we don't know that we are living through historically significant moments, until we look back and realise just how far we have come.

We live in a rapidly warming world. The evidence of the human impact on our planet is impossible to ignore, and there is no doubt that climate change is the biggest long term threat that we face as a species.

The flip side of this is that it is not too late to do something about it. The essays in this publication, which reflect the work being undertaken in 10 of our country offices, show that there is no reason to lose hope. We are not just vulnerable victims. We have the agency to take action and to ensure that we - and our children - live in a different tomorrow.

And while we are making changes on an individual level, we also need to remember that influencing climate change is not a project you can do by yourself. We also need to see fundamental change in some of the biggest systems we have.

We all have a role to play in making sure that governments and policy influencers take the action that is needed to ensure that global emissions in 2020 are reduced to 44 gigatonnes of carbon equivalent. That means pushing for the implementation of more than even the most ambitious government pledges.

As people stand up and make their voices heard, even the most skeptical of politicians will take note and we will see the bigger structural changes begin to happen in energy systems, in consumption, in agriculture, in the timber value chain, etc. We'll see changes in the deep elements of geo-politics and internal politics around inequality and social justice too.

Climate change is a struggle that will last decades, and during that time we need to be on a curve that is going up, where we are taking urgent action and keeping on taking it.

We don't know exactly where we are on the curve but what we know is that we are seeing positive impacts. For the first time in decades we are seeing coal consumption in China and the US starting to plateau. We're seeing an explosion of renewable energy in all forms as communities make decisions and governments move to a different way of thinking about energy.

We expect a new global climate agreement to be reached in Paris this December, but Paris is not our ultimate focus. We need to keep up the pressure before December 2015 to ensure that the strongest possible agreement is reached. And then, for the next five years until 2020 when the agreement comes into effect, we need to use our collective passion to ensure that our hopes and dreams for a sustainable future are kept alive.

There is no time to waste. Let's ensure that we stay on the positive side of the curve.



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Human-shaped ice sculptures melting in the hot sun, symbolising the effects of global warming.

INTRODUCTION

As we witness the first wave of countries submit their national contributions to combat climate change in the period after 2020 it is already becoming clear that we are potentially facing yet another huge emissions gap. This builds off an already existing emissions gap in the current pre-2020 period. If governments' continue on a low ambition path it becomes increasingly difficult to stay below the 2° C, let alone a 1.5° C, threshold.

There is still a window of opportunity to put us back on course. This window starts closing in 2020 when emissions should already have peaked and declined. That leaves us with just five years to keep the world on a path to avoid dangerous climate change. This fact does not seem to have hit home to many of our decision-makers yet. While it is important to have a long-term goal to deal with climate change, this focus on only a long-term goal without any references to what needs to be done to close the existing gap in the short and medium term, runs the risk of ignoring the need to act now and act at scale. It is critical for all of us not to take our eye off the ball in this current critical 5-year period.

We have an opportunity to focus attention on closing the gap during the next five years. Throughout 2015 Governments will be engaged in formal negotiations for a new climate agreement which will be concluded in December in Paris. They will also be using the opportunity to listen to ideas on how to deal with the pre-2020 ambitions gap during the sessions of the Technical Experts Meetings. It is critical for negotiators to now move beyond these Technical Experts meetings and translate their knowledge and information into decisions as part of a Paris package of agreements. They also need to unlock the institutional resources of the UNFCCC such as the Green Climate Fund and the Technology mechanisms to support a rapid roll out of urgent implementation of these scaled up additional initiatives in the pre-2020 period.

The Paris outcome has to be a package that includes strong decisions on addressing the pre-2020 ambition gap as well as agreements on the post-2020 climate regime.

WWF has been a strong proponent of the idea of scaling up renewable energy and energy efficiency as low hanging fruit to address the gap. We have also presented a number of other possible solutions to address this challenge as well.

In our first "Close the Abyss" report we provided solutions to how to address this gap in a few key countries. (<http://bit.ly/ClosingtheAbyss>). In this second report we present proposals for another set of countries based on the knowledge and experiences from our national offices in these countries.

The mix of these countries, help tell the story that no matter what your national circumstances, it is possible to find solutions that can help your economies and societies. The co-benefits of climate action and development are clear. The sooner governments lead their countries on a just transition to low carbon economies and societies the more affordable and beneficial it is and the more likely we are to stay well below 2° C warming and possibly even return to 1.5° C.

Immediate short-term action in the next five years to address the existing gap will certainly be a good starting point for that transition.



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Wind turbines at Bangui Mills, Philippines.

PHILIPPINES

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THE CURRENT
ECONOMIC
PROGRESS
WILL INCREASE
THE DEMAND
FOR ENERGY,
RESULTING IN
INCREASED CARBON
EMISSIONS.
THAT'S WHY IT IS
IMPERATIVE FOR
THE PHILIPPINES
TO PURSUE A
LOW CARBON
DEVELOPMENT
STRATEGY

Can a developing country like the Philippines which is extremely vulnerable to climate change impacts take a low carbon trajectory? We believe that it can and that it should.

With its 7 101 islands situated in the tropics, within the Pacific Ring of Fire and along the path of tropical cyclones, monsoons, and the El Niño Southern Oscillation (ENSO), the Philippines ranks as high as 3rd among countries particularly vulnerable to climate change and natural disasters. This vulnerability was acutely highlighted when super typhoon Haiyan, the strongest tropical cyclone on record to make landfall, hit the country in November 2013. The impact was not only felt in the loss of lives and property, but also in the country's GDP growth which slowed down in late 2013, with its effects continuing through 2014.

Haiyan was just one typhoon. The Philippines averages 20 tropical cyclones a year, with 8-11 of those making landfall. Year in, year out, destruction and decrease in agricultural productivity, recurring infrastructure and property damage, and deaths from weather-related disasters happen. Climate change and extreme weather disturbances put a strain on resources, both public and private, and pose a great threat to economic progress. Being resilient to these impacts is key to the continued economic health of the country.

In recent years, the Philippines has been transitioning into a dynamic emerging market with one of the fastest economic growths in the Asia-Pacific region, growing by as much as 7.2 per cent in 2013 and levelling off with an annual GDP growth rate of 6.1 per cent in 2014. In July of the same year, the country became the 12th most populous nation in the world, reaching the 100 million mark. While the Philippines' share in global greenhouse gas emissions is only 0.31 per cent of the total global emission of 50 101 MtCO₂e¹ in 2010, it will exceed its allowable carbon budget of 2 104 GtCO₂e² by 2020 if no immediate measures are taken.

In a climate defined future, the economic gains being enjoyed now by the Philippines must be brought out from a national development agenda that promotes inclusive economic growth within a sustainable, green economy framework. The current economic progress coupled with a rising population will increase the demand for energy consumption, accompanied by an increase in carbon emissions. It is imperative for the Philippines to pursue a low carbon development strategy.

What the Philippines are already doing.

In 2008, the Philippine Renewable Energy Act was enacted with the aim of driving investments in the renewable energy sector towards the national goal of being 60 per cent energy self-sufficient by 2010. The National Renewable Energy Program, launched in 2009, seeks to increase the country's renewable energy-based capacity to an estimated 15 304 megawatts by 2030, almost triple its 2010 level. Recently, the Feed-in-Tariff installation targets for solar have been increased from 50 megawatts to 500 megawatts, while a National Energy Efficiency and Conservation Program was revitalised, wherein 4.79 MTOE³ was saved in 2012, about 14.6 per cent higher than 2011 level. Locally, we have supported a multi-stakeholder replicable process that delivers a local energy development plan for small island provinces.

After enacting its Climate Change Law in 2009, the Philippines approved its National Framework Strategy on Climate Change (2010-2022) and National Climate Change Action Plan (2011-2028) (NCAAP). This outlines the country's adaptation and mitigation agenda in line with building the adaptive capacities of the citizenry and increasing resilience of vulnerable sectors and natural ecosystems to climate change. It also optimises mitigation opportunities. Sustainable energy, one of the NCCAP thematic priorities, prioritises the promotion and expansion of energy efficiency and conservation, the development of sustainable and renewable energy, environmentally sustainable transport; and climate proofing and rehabilitation of energy system infrastructures.

Worryingly, the share of the renewable energy in the energy mix has been sliding since 2001 from 37.29 per cent to 28.37 per cent in 2011. This is despite the fact that the Philippines is blessed with abundant renewable energy sources, even being the second largest global geothermal energy producer. The energy supply continues to be dominated

1. Metric Tonne Carbon Dioxide Equivalent
2. Gigatonne Carbon Dioxide Equivalent
3. Million Tonnes of Oil Equivalent

THE KEY TO
REDUCING CARBON
EMISSIONS WILL
BE TO HARNESS
AND UTILISE THE
COUNTRY'S HUGE
RENEWABLE
ENERGY RESOURCES

by fossil fuels, particularly coal, most of which is imported.

Can the Philippines do more?

The key to addressing energy security, while reducing carbon emissions, will be to harness and utilise the country's huge renewable energy resources. The decreasing costs of renewable energy technologies and increasing fossil fuel costs should be sufficient grounds for the Philippine government to declare priority deployment for renewable energy and liquefied natural gas, before coal and oil..

Other priority actions are:

- **declaring a moratorium on the building of coal-fired plants.**
- **lifting imposed caps and restrictive requirements on renewable energy developers.**
- **increasing renewable energy installation targets.**

With one of the highest costs of electricity in the world, the Philippines can achieve lower cost levels with scaled renewable energy, implementation of decentralised smart grid systems, improved energy efficiency and savings through distributed and combined power generation.

The Philippines also needs to get its land use and urban planning right. It needs self-sustaining communities with infrastructure for multi-modal systems with high connectivity and access despite weather-related disruptions. Efficiency measures in transport and the shift towards the use of electric vehicles and natural gas-hybrid systems already show financial viability. Long-term behavioural campaigns and training to deepen knowledge regarding a renewable energy-based economy should continue.

We believe that the transition to a renewable energy-based economy in the Philippines may be difficult but it is certainly not impossible. We are at the frontline of climate change. The time to act is now.

KENYA

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As many ordinary Kenyans struggle to eke out a living, climate change continues to put pressure on their ability to put food on the table. A population growth of 4.7 per cent, according to the statistics bureau in its 2014 update, is increasing this pressure.

The economic growth needed to support this growing population is likely to increase emissions from key sectors such as agriculture, transport, and more importantly, energy. Added to the mix is an ambitious target of 10 per cent annual GDP growth and economic development plans set out by the Kenya Vision 2030 blueprint of “transforming Kenya into an industrial, middle income country providing a high quality of life to all its citizens in a clean and healthy environment”.

In the energy sector, Kenya’s political leadership seems to be taking steps towards achieving its target of producing 5000 megawatts of electricity in a 40-month initiative from 2013 by bringing an additional 1 500 megawatts of electricity from geothermal on stream by 2016. Although there is significant ambition and political will, reaching the short, medium and even long-term geothermal goals will be a major challenge. If the geothermal sector fails to deliver the new and necessary capacity in a timely manner, Kenya is likely to turn to high carbon options. Recent discoveries of petroleum, coal and traces of natural gas in the region indicate that fossil fuels are likely to be seen as the easiest opportunities for electricity generation. Fossil fuels may seem to offer an easier route for development but have a high carbon intensity and a limited future, so their increased use would move Kenya away from the pre-2020 goals to close the emissions gap and put the country out of touch with the National Climate Change Action Plan (NCCAP). As a country we urgently need to stay to our course - including the constitutional ambition of 10 per cent tree cover to respond to bridging the gigatonne gap.

So what do we want Kenya to do?

As WWF we ask the government take the bold step and implement its low carbon ambition as articulated in the NCCAP through the following measures:

- **Investment in the renewable energy sector.** If Kenya is to transition into a low carbon, climate resilient development pathway, geothermal energy will arguably be the powerhouse for its economic development. According to the assessments in the 2013 NCCAP, geothermal energy has the largest abatement potential in the electricity generation sector at approximately 14.1 Metric Tonne Carbon Dioxide equivalents per year by 2030. Growing the sector more and ensuring that most of the potential is tapped will see the country take a cleaner development pathway. The other low carbon options include wind hydropower with an abatement potential of 2.5 Metric Tonne Carbon Dioxide equivalent by 2030.
- **Forest restoration and Reforestation.** With an estimated abatement potential of 32.6 Metric Tonnes equivalent of carbon dioxide, forest restoration offers the best abatement potential among all mitigation options. Reforestation offers another 6.1 Metric Tonnes equivalent of carbon dioxide by 2030. The country must invest in the sector through innovative strategies that allow all the sectors and individuals to play a role. This will also contribute a significant portion of constitutional ambition of 10 per cent tree cover in the country. Other possible options include investing in agroforestry, improved cookstoves and use of LPG¹ and a robust rapid transit system.

The political and economic will is in place – we just need to keep to the sustainable and environmentally-sound low carbon path moving forward!

IF KENYA IS TO
TRANSITION INTO
A LOW CARBON,
CLIMATE RESILIENT
DEVELOPMENT
PATHWAY, THEN
RENEWABLE
ENERGY - MAINLY
GEOTHERMAL
ENERGY - WILL
ARGUABLY BE THE
POWERHOUSE FOR
ITS ECONOMIC
DEVELOPMENT

1. Liquefied petroleum gas



Tree seedlings grow in a nursery before being replanted in the Mau forest, Kenya.

TURKEY

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AN AMBITIOUS,
YET ACHIEVABLE
TARGET FOR
TURKEY WOULD BE
50 PER CENT
RENEWABLES
IN POWER
GENERATION BY
2030

A country that bridges geographical Europe and Asia... An EU candidate whose long journey to membership began more than 50 years ago but is yet to be concluded... A developing country, which was initially listed in both the Annex I and Annex II of the UNFCCC, only to be removed from Annex II and granted a vague status within Annex I, in the light of its “special circumstances”... A Kyoto Protocol signatory, with no emission targets or obligations at all... An OECD¹ country with high growth aspirations...

This is Turkey. Between 1990 and 2012, it had increased its total GHG² emissions by 133 per cent to lead the OECD countries head to head with South Korea³. This does not mean that Turkey has become one of the largest emitters, but it is at a crossroads. Turkey is yet to have a meaningful emission reduction target (only seven per cent deviation from a reference scenario that involves no action by 2020). With its vast renewable energy and energy savings potential, the country can begin decarbonising its energy sector today and opt for a low-carbon development pathway.

The electricity sector is the single largest contributor to Turkey’s rapidly increasing greenhouse gas emissions. Between 1990 and 2012, emissions from power generation almost quadrupled. In 2013, the share of renewables (including hydro) in electricity demand stood around 29 per cent. While this figure is above world and European averages, a lack of ambition to increase this is concerning. The renewables target for 2023 in power generation is 30 per cent. Plain and simple: this is not a target. It is maintaining the status quo.

In order to meet the energy needs of the growing economy and reduce the country's dependence on imported gas, the Turkish government has articulated an energy future that involves the rapid expansion of coal-fired generation. In 2009, coal fired power plants (to be powered by both domestic lignite and imported hard coal) were identified as the main building blocks of Turkey’s energy strategy. This was followed by the announcement of 2012 as “The Year of Coal”, and the subsequent flooding of license applications and project pipeline with coal projects.. In addition to the 14 gigawatts of on-line installed capacity, there are now more than 50 new coal fired power plants in the pipeline, with a total installed capacity of more than 50 gigawatts.

The lignite target for 2023 is 20-25 per cent of total power generation, which indicates a significant shift up from the current 15 per cent share. These targets are backed by strong policy tools such as exemption from environmental legislation, very lucrative subsidy schemes that render economically questionable projects bankable.

The realisation of these coal targets means that Turkey would be locked in a high carbon economy for the following three to four decades, the growth rate of Turkey’s greenhouse gas emissions from the power sector would be upheld, and Turkey could rapidly turn into one of the largest emitters in Europe (both in absolute and per capita terms), rendering efforts to mitigate climate change futile.

There is an alternative path.

According to a recent analysis commissioned by WWF-Turkey and conducted by Bloomberg New Energy Finance (<http://goo.gl/FZnkDS>), the share of renewables in Turkey’s power mix can increase to 40 per cent by 2023 and to 47 per cent by 2030. This would help the country anchor its power sector emissions near current levels. What is remarkable is that such a strategy would have a cost comparable with the current coal based strategy.

Like most emerging economies, Turkey’s historical responsibility in driving the CO₂ levels in the atmosphere is relatively low. Having positioned itself as a regional leader, though, the country should bear the obligation to become a pioneer in realising the transition to a low carbon economy.

1. Organisation for Economic Co-operation and Development

2. Greenhouse Gas

3. http://unfccc.int/files/inc/graphics/image/jpeg/total_excl_2014.jpg

**TURKEY NEEDS
TO USE ITS
PRESIDENCY OF
G20 TO PUSH
FOR STRONG AND
DECISIVE ACTION
ON PHASING OUT
FOSSIL FUEL
SUBSIDIES**

What Turkey should deliver immediately, to help close the pre-2020 emissions gap, are as follows:

- **Increase the renewable energy target in both primary energy and electricity.** An ambitious, yet achievable target would be 50 per cent renewables in power generation by 2030.
- **Abandon the coal first strategy:** Evidence suggests that a “coal first” strategy is bad for climate, bad for air quality, bad for labour safety and even bad for energy independence. Since 2009, around 2.3 Gigawatts of new coal capacity came on line, over 90 per cent of which was based on imported coal. That strategy needs to be abandoned now. The first step could be phasing out subsidies to coal projects. This could be supported by effective support for RES projects.
- **Strengthen energy efficiency measures.** Turkey has set an ambitious 20 per cent per cent primary energy intensity reduction target for 2023. Achieving this could be a game-changer. In order to live up to this target, effective legislation and implementation should be put in place.
- **Set ambitious climate targets:** Turkey is expected to announce its INDC⁴ in October 2015. The country needs to follow good examples and make sure its contribution does not fall below the threshold set by other high-middle income countries and/or emerging economies such as Mexico.
- **Use G-20 leadership to take decisive action:** Turkey assumed the G-20 presidency in 2015. The G-20 summit will be held just a couple of weeks before the Paris COP. Turkey needs to use this opportunity to lead the G-20 countries towards two objectives. First, it should persuade G-20 leaders to take strong and decisive action on phasing out fossil fuel subsidies, a pledge that was made in 2009. Second, Turkey needs to use its leverage to scale up climate finance by G-20 members.

With one of the most dynamic energy markets in the world, Turkey is at a critical crossroads. Decisions to be made today on how the ever increasing energy and power demand is going to be met -together with their economic, environmental and social implications- will shape the next 30 years. Is it possible to ensure both environmental sustainability and a cleaner, cost-comparative energy mix, while progressing towards the goal of sufficient and secure energy provision? There is an affirmative answer to this question and it could be a game-changer for Turkey.



Ataturk hydro electric plant, part of the GAP (South-east Anatolian project), producing electricity and irrigation for the arid south east, Anatolia, Turkey.



Messy electric post wires in San Andres, Colombia

COLOMBIA

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Climate change is one of the biggest challenges we will have to face in this century. For Colombia, it will represent double the work: we will have to adapt to a changing climate and build a resilient economy while we build a new society after a long-term armed conflict.

It will not be easy. Colombia is especially vulnerable to climate change because of its geographic location. The low-lying coastal areas are prone to flooding and the land in the high mountain range is unstable. It is expected that climate change will have an impact not only on general human well-being, but will also result in increased social displacement as well as impacting poverty rates, health conditions and the rights of the minority population.

Colombia has a carbon intensive economy even if it is only responsible for 0.37 per cent of global emissions. The development model prioritises large-scale activities such as mining, hydrocarbons and extensive agriculture projects in strategic ecosystems. Therefore, Colombia will have to overcome many challenges and begin a true transformation within this decade to move towards a resilient low carbon development model.

So what has Colombia been doing to reduce emissions and help close the ‘gigatonne gap’, domestically and internationally in the pre-2020 period?

Forests cover almost 60 per cent of Colombia’s territory. Yet, increasing deforestation and land use change threaten biodiversity and are the main source of carbon emissions. Hence, Colombia is promoting reforestation, conservation of natural forests and restoration of degraded areas as one of the main solutions to contribute on pre-2020 action.

The most outstanding are the following:

- Following COP¹ 15 in Copenhagen, Colombia announced its commitment to reach zero net deforestation in the Amazon by 2020. To reach this goal, the national government is currently developing a comprehensive program called the “Amazon Vision”. This is an ambitious initiative to promote a low deforestation and low carbon development model for the Colombian Amazon in the context of an expected post - conflict scenario; with planned investments in forest governance, intersectoral agreements, sustainable productive activities, strengthening of indigenous communities and forest monitoring, among others;
- This was reaffirmed at COP16 in Cancun through the projected expansion of Chiribiquete National Natural Park (from 1.3 million hectares to 2,8 million, an area as large as Belgium) as a contribution to the Vision. At COP 18 in Warsaw, a joint statement by Germany, Norway and UK was made to support Colombia’s ambition. Germany and Norway confirmed their intent to provide \$65 million for the next three years through a results-based payment scheme (REDD Early Movers Programme) for emission reductions resulting from reduced gross deforestation in the Amazon;
- At the New York Climate Summit on the 23rd of September 2004, Colombia’s government announced its compromise to enhance domestic climate action. Specifically, it agreed to sign the New York Forest Declaration and participate in the 20x20 forest restoration initiative that seeks to restore, in collaboration with other Latin American countries, 20 million hectares of degraded land before 2020. During this Summit, Germany and Norway agreed, together with the United Kingdom, to enhance cooperation and fund new, large-scale REDD+ Emission Reduction programmes;
- During COP 20 in Lima, the Environment Minister Gabriel Vallejo, with the support of his Peruvian counterpart Manuel Pulgar, issued the “Lima Challenge”, an initiative of 14 developing countries that are willing to enhance their forest-based emission reduction and quantify them with international collaboration in the pre-2020 period and beyond.

All of these initiatives are being implemented based on a policy framework. The government has been working to create public policies and strategies that encourage climate change action.

- **In 2012, Colombia, issued a Low-Carbon Development Strategy that promotes an efficient low-carbon growth, identifies a greenhouse gas emission baseline and implements low-carbon development plans in different economic sectors. This transition to a low carbon economy is currently being implemented and will deliver significant results before 2020.**
- **The government approved a National Adaptation Plan, which aims to reduce socio-economic risks and impacts related to variability and climate change in Colombia. Currently, this plan is articulating its actions with the pre-2020**

COLOMBIA’S
NATIONAL
DEVELOPMENT
PLAN CONTAINS
A STRONG
COMMITMENT
TO REDUCE
DEFORESTATION
FROM 120 000 HA/
YEAR IN 2013 TO
90 000 HA/YEAR IN
2018

adaptation commitments that the country has announced in the UNFCCC³ framework.

- **Colombia is part of the UN-REDD Programme. With this programme, Colombia will receive a total of \$4 million, to construct the National REDD Strategy (ENREDD) that will allow, among other mechanisms, to reduce deforestation, especially in the Amazon and Chocó Darién Regions.**
- **On the energy front, Colombia has been implementing different policies to promote energy, efficiency and renewable energy in the pre-2020 period. In 2014 Colombia's Congress adopted a non-conventional renewable energy law that encourages its production and investment to reach national targets. Furthermore, it established the Non-Conventional Energy Efficient Energy Management Fund designed to finance energy efficiency programs. Yet, its success will depend on the regulatory framework of the law that is currently under discussion.**

Despite these initiatives, which certainly are a step forward towards closing the gigatonne gap, Colombia could do more. **These are four actions that the government could put in place to raise its ambition pre-2020.**

- **It could create energy efficiency standards and larger goals for both transportation and industry.** This would encourage a more rapid energy transition.
- **It could channel more funds to achieve the zero net deforestation target in the Amazon by 2020.** The government has expressed that without sufficient funds this target will not be achieved. Funds could be mobilised through the Lima Challenge platform.
- **Encourage non-traditional energy use:** The non-conventional renewable energy law only focuses on energy production and excludes energy use. Another law or decree could be adopted to create a framework that encourages non-traditional clean energy use.
- **The government should also regulate hybrid and electric public transportation system.** This would encourage a change in mass public transportation for a cleaner and healthier one. Currently, it is estimated that each year 1100 children under the age of 5 die due to respiratory diseases associated with particulate matter from diesel and gasoline combustion.
- **Enhance pre-2020 climate actions in the National Development Plan:** Colombia's National Development Plan (2014-2018), recently approved by the Congress, favours an extractive-based economy. However there are elements within the plan that could be used as an opportunity to enhance climate action in the pre-2020 period. Firstly, it incorporates a green growth strategy that includes all economic sectors. Hence, by implementing the Plan, Colombia could improve communication between Ministries and different stakeholders to take climate action, and reduce risks and vulnerability. Furthermore, it also strengthens Colombia's capacity to reduce forest-based emissions and meet its international commitments. For example, it has a strong commitment to reduce deforestation from 120 000 ha/year in 2013 to 90 000 ha/year in 2018.

In this context, WWF will keep pushing for more ambitious results pre-2020 and beyond, highlighting the importance of implementing actions that address climate change and advocating for innovative sustainable development model that guarantee a responsible use of natural capital.

WWF Colombia will pledge to support the government in alliance with key institutions in the implementation of international agreements.



Windmill in Colombia



Solar panels in Dubai.

PAKISTAN

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Catastrophic floods in 2010 marked a turning point in Pakistan. It was then that actions by state and political institutions first reflected a commitment towards solving the climate crisis. The response to the issue did not only come through national (and international) relief and rehabilitation disbursements. Climate-specific policies and institutions were established. The country's environmental portfolio became highly focused with the reinstatement in 2015 of the "Ministry of Climate Change" (MoCC), a federal ministry which had been demoted only five years earlier.

One of the MoCC's first directives was to develop a National Climate Change Policy (NCCP). With as much as half of the policy devoted to mitigation, the NCCP's parliamentary approval in 2012 signalled Pakistan's best endeavour to address mitigation, even as adaptation remains its priority.

In 2008, Pakistan's total greenhouse gas emissions were 310 million tonnes, although its share in global emissions is not substantial. Priorities within an abatement agenda include energy (51 per cent) and agriculture sectors (39 per cent), while sectoral contributions are lower from industrial processes (six per cent), land use, land use change and forestry (three per cent), and waste (one per cent).

Within the energy and agricultural sectors, there's much that Pakistan can do now and up to 2020 to reduce emissions and contribute in closing the 'gigatonne gap'.

Priority actions include:

- Integrating climate change and renewable energy objectives into public investments and policies;
- Enhancing energy efficiency in medium and large sized buildings;
- Reducing deforestation and land use changes; and
- Improving agricultural methods and practices for high methane emitting crops (e.g. rice) through policy and agricultural extension measures.

Already, some work is being done in these areas, but it can be further enhanced and scaled up nationally, especially with the help of additional (inter)national financing and support.

The examples below illustrate work that is already being done in Pakistan to reduce emissions, as well as how these initiatives could be scaled up:

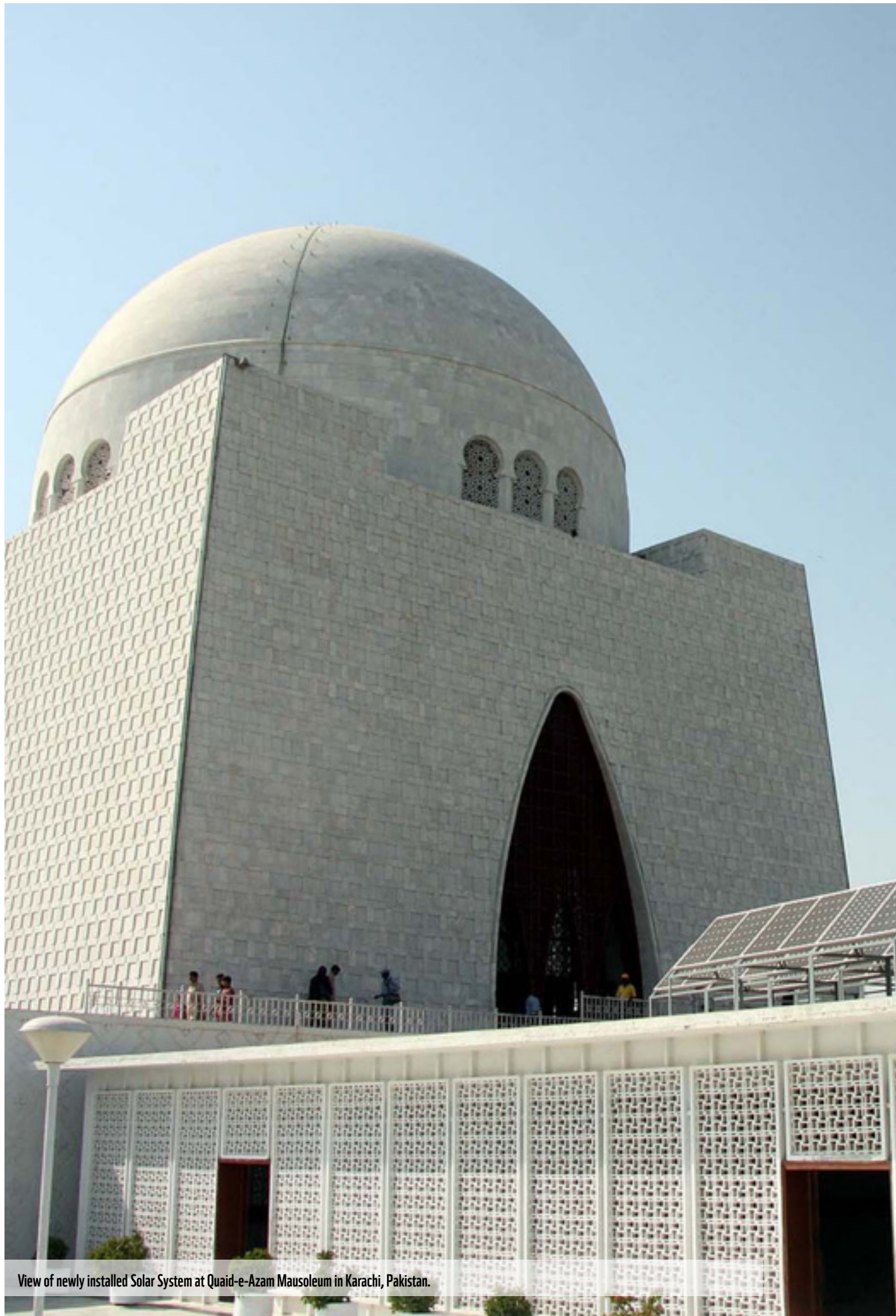
- **Increase use of renewable energy:** At present, Pakistan faces a huge energy deficit of around 6,000 megawatts. Until recently, successive Pakistani governments had plans to install several mega coal projects to meet this energy need. The construction of six coal-fired plants (amounting to 14,000 megawatts of electricity), however, was stalled due to the inadequacy of supporting infrastructure (such as roads and waterways) and investments. Instead, based on the assessment done by the Pakistan Metrological Department about the amount of electricity that Pakistan can generate from renewables (around 11,000 megawatts), renewable energy is being considered as a more feasible and preferred option. In the energy sector, it is clear that if policies were already in place to integrate climate change considerations and decentralise renewable energy objectives, emissions reduction gains would by now have been realised through ordinary investments in infrastructure, fuel and technologies.
- **Create a policy framework to encourage renewable energy:** The government has set an aspirational goal of increasing the deployment of renewable energy in the national energy supply mix to produce a minimum of 9,700 Megawatts of energy by 2030. It is important that the federal and provincial governments in Pakistan realign their policies and investments to actualise this goal.

RENEWABLE
ENERGY IS BEING
CONSIDERED AS A
MORE FEASIBLE
AND PREFERRED
OPTION FOR
PAKISTAN

PAKISTAN HAS
DEVELOPED A
NATIONAL FOREST
MONITORING
SYSTEM TO
MONITOR
AND REDUCE
DEFORESTATION
IN THE COUNTRY,
WHICH IS
ESTIMATED TO
BE AROUND 2,700
HECTARES PER
YEAR

- **Increase energy efficiency:** Another area where Pakistan is making an effort to reduce emissions is through enforcing the inclusion of energy efficiency standards into building and construction codes. The 2014 Energy and Conservation Bill, approved by the Council of Common Interest, mandate the Pakistan Energy Conservation Council (PECC) to formulate a national policy on energy conservation. The policy is not only expected to save up to 20 per cent energy from large buildings, but will also reduce emissions from lowering demand for power, as suggested in McKinsey's "Pathways to Low-carbon Economy" study.
- **Reduce deforestation and forest degradation:** Pakistan is also ready to implement the United Nations Collaborative Programme on Reducing Emissions from Deforestation (UN-REDD) to reduce emissions from deforestation and forest degradation. Through a REDD+ Readiness Roadmap, Pakistan has developed a National Forest Monitoring System to monitor and reduce deforestation in the country, which is estimated to be around 2,700 hectares per year.

With the fast approaching Paris Climate Conference in December, countries with low-responsibility like Pakistan are also doing their part in closing the gigatonne gap. And while every action matters, let's remember that it will take unprecedented global efforts to avert the climate crises through to the Paris conference and beyond.



View of newly installed Solar System at Quaid-e-Azam Mausoleum in Karachi, Pakistan.



Green sector light tower for shipping navigation built on a UAE harbour wall is powered by solar panels.

UNITED ARAB EMIRATES

By Tanzeed Alam, Climate & Energy Director, EWS-WWF¹
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The UAE has a clear stake in and urgent need for a strong global climate change agreement that closes the pre-2020 gigatonne gap

It is a common misconception that a federation like the UAE, part of the Gulf region that collectively accounts for 34 per cent of the world's proven oil reserves, would not have a stake in a strong global climate deal to keep temperatures below 2° C.

The country is extremely vulnerable to the impacts of climate change within and outside its borders. Being a major food importer means any disruption of food production due to drought in its trade partners, will directly affect the UAE's food security. Increased salinity of coastal waters due to climate change will also affect the ability of desalination plants to provide sufficient drinking water for a growing population, which reached 8.2 million in 2010.

The country is already one of the most water-scarce in the world. If this ability to provide sufficient drinking water is impacted by climate change, then it makes the country extremely vulnerable, especially as its strategic ground water reserves are mostly used for domestic agriculture. If such impacts manifest, then the very fabric of society and the country's ability to sustain economic growth will be at risk. The UAE has a clear stake in and urgent need for a strong global climate change agreement as well as in reducing emissions pre-2020 to ensure the world is on a rapid pathway to reduce greenhouse gas emissions by 80 per cent by 2050.

With a rapidly growing economy that is amongst the most diversified away from oil in the gulf region, high per capita GDP, high levels of education, per capita carbon emissions five times higher than the world average and total emissions rising at a rate of five per cent per year from 1994-2013, the UAE must play a larger role in international climate change negotiations. In fact, making a pledge to reduce its greenhouse gas emissions pre- and post-2020 is something that would be very feasible for the country as many announcements have been made, with some committed to in government plans, policies and legislation.

The following targets must be implemented if carbon emissions are to be reduced:

- UAE's 15 per cent carbon emissions reductions target by 2021.
- Dubai's 16 per cent carbon reduction commitment compared to business as usual by 2020.
- Abu Dhabi's seven per cent renewable energy target by 2020.
- Dubai's seven per cent RE target by 2020 and 15 per cent by 2030.
- Dubai's 30 per cent electricity and water demand reduction target by 2030.
- UAE market transitions to energy efficient lighting which is estimated to save 940,000 tCO₂²/year.
- Improvements in vehicle fuel economy of light duty vehicles.

The real impacts of these targets on reducing net greenhouse gas emissions also need to be assessed.

The country needs to be more ambitious about implementing renewable energy, energy efficiency and climate mitigation activities. There is, for example, huge potential for surpassing current targets for renewable energy, where a recent report issued by IRENA⁴ and the UAE Ministry of Foreign Affairs stated that by 2030, 25 per cent of total UAE power generation can be met by renewable sources, something that would also create many thousands of jobs. The economics of such a transition are also unarguable; the recent world record low price for solar PV at US\$0.0584/kWh³ was awarded in Dubai for a 200 Megawatts plant means solar is now the cheapest form of electricity generation in the UAE.

The UAE has a unique opportunity to show leadership and embrace the climate challenge. Our recommendations are for it to do so are as follows:

- **Identify a peak date for its carbon emissions in line with international best practice.**
- **Consider a national pre-2020 net carbon reduction commitment (like Dubai), with targets to 2030 and beyond.**

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1. Emirates Wildlife Society in association with WWF
2. Total Carbon Dioxide Content
3. Kilowatt-hour

**WE MUST DEVELOP
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- **Develop a national climate change and energy policy that highlights policy instruments and clear institutional roles and responsibilities to deliver more ambitious renewable energy and energy efficiency targets, continued action on subsidy reform and climate change adaptation.**
- **Make an international commitment to the UNFCCC on reduction of greenhouse gas emissions in line with other emerging economies that are also rich in fossil fuels (eg. Mexico).**
- **Influence other gulf countries to make similar commitments given the efforts underway already in those countries on renewable energy and energy efficiency.**

Keeping climate change to below 2°C will mean the world will rapidly move away from the consumption of coal, oil and gas. This global movement away from fossil fuels is growing in momentum and would imply that economic sectors which rely on exporting and consuming large quantities of fossil fuels will be vulnerable.

The UAE could future proof itself from such vulnerability by taking the above concrete steps and by prioritising climate change as a key issue for national action. This would also enable it to diversify its economy in sectors that offer it a lower carbon future and help fulfil a dream of the late founding father and President of the UAE, Sheikh Zayed bin Sultan al Nahyan:

"We must not rely on oil alone as the main source of our national income. We have to diversify the sources of our revenue and construct economic projects that will ensure a free, stable and dignified life for the people."



Solar panel system in the desert, UAE.



Snowy birch grove in Russia.

RUSSIA

*By Alexey Kokorin, Head, Climate and Energy Programme, WWF-Russia
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Russia's "ostrich" policy is edging the country toward an economic and environmental disaster.

Most people in Russia already agree that even their northern country will experience the adverse effects of climate change, and that it is unlikely that bananas and oranges will grow in the vast territory of Siberia.

In the past 15 – 20 years, the number and strength of extreme weather events has doubled from 150-200 to 450-550 per year. In 2014, the most severe weather year ever recorded, there were 569 extreme weather events. The Ministry of Natural Resources and Environment and its hydrometeorological service (Roshydromet) insist that Russia is a vulnerable country. Permafrost covers nearly 60 per cent of its territory, and it is in these areas that the temperature is increasing at 2.5 times the global average rate. Roshydromet's recently published national counterpart of the IPCC¹ Fifth Assessment Report provides good evidence that climate change is a very serious problem for Russia.

In spite of this, "oil" thinking dominates in the Government and energy experts. Everyone, from the President to "babushkas" (grandmothers), agree it is time Russia stopped its over-reliance on oil, but nothing has changed.

Oil generates half of Russia's export revenues, with close to 15 per cent contributed by natural gas and another 15 per cent by metallurgy. This is what the Russian economy stands on: oil prices determine the Ruble exchange rate, investments, salaries, and social subsidies. And so we hear many good words, yet see little action to reduce greenhouse gas emissions.

Neither the government, nor the business sector reject the idea of low-carbon development or even of nearly complete decarbonisation of the electricity generation by 2050, but they put off drastic reduction in emissions until the 2030-2040's.

In spite of warnings by economists and environmentalists, the government and the business sector do not want to believe that the world will not need all of their oil, and, in particular, nobody will want to purchase their expensive Arctic oil.

The solar energy industry is flourishing, even in Russia. In the 2010-ies, it will grow by 1000 times. Between 2011 and 2015 the sector increased by 40 times. Growth of 25 times is projected in 2016-2020. Importantly, the development of this sector began during the recession, and in 2015 alone the plants currently under construction will increase the installed solar power generation capacity by a factor of 10. At present, this growth is promoted by the feed-in measures; but these measures may be cancelled in five or seven years because, by then, solar energy will be competing on equal terms with cheap natural gas and coal will be losing to other energy sources.

The government has yet to react to the fact that CO₂² absorption by Russian forests is going down and may drop 2- or 3-fold by the 2030's and further to zero. Special measures are required to protect Intact Forest Landscape (IFL) and to promote progressive forest management practices in secondary forests.

What should Russia do?

- **Realise that the "ostrich" policy is edging the country toward an economic and environmental disaster.**
- **Redirect at least part of the huge fossil-fuel subsidies (at least US\$ 200bn. per year by 2020) to renewable energy sources, energy efficiency, technological and social development.**
- **Take strong measures to protect more than 100 Mha³ of IFL and protective forests.** Put into force mandatory standards for environmentally conscious forest management in secondary forests. Eliminate all forms of illegal logging. Actively counter forest fires, particularly knowing that climate change will substantially increase fire hazards.
- **Develop an efficient adaptation strategy, recognize it as a national priority, and rigorously comply with its requirements.**

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1. Intergovernmental Panel on Climate Change
2. Carbon Dioxide
3. One-million Hectares

Russia comes fifth among the world largest emitters. It ought to contribute to the creation of a world free from anthropogenic GHG⁴ emissions; and to ensure resilience in its 11.5 per cent of our common planet.

**RUSSIA MUST
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REQUIREMENTS**



Black Law windfarm near Carlisle in Scotland, UK.



White tower of hydroelectricity in Poland.

POLAND

By *Tobiasz Adamczewski, Climate and energy expert, WWF-Poland*
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After a peak in greenhouse gas emissions in the late 1980s, by 2002 Poland had cut emissions by 30 per cent and established itself as a climate champion. Then emissions started to rise again.

What has caused the emissions fluctuation?

Poland is a European Union member state, which has one of the highest greenhouse gas emission reductions since they peaked in the late '80s after the collapse of the Iron Curtain. With an almost 30 per cent cut in emissions since 1988, and over 200 per cent GDP growth, Poland could be seen as a climate champion. But since the year 2002, when Poland's emissions dropped to 380 million tonnes of CO₂ equivalent (from 570 in the year 1988), the country's emissions started slowly rising again and in 2012 Poland emitted close to 400 million tonnes of CO₂ eq. Although this ten year difference isn't drastic, it does show a long term trend of stagnation and lack of success in net emission reductions. What's more worrying, is that Poland projects further stagnation until 2030¹. We expect more from Poland. And so do 86 per cent of Poles, who consider climate change an important problem.

2020 package goals; meaningful targets and lukewarm implementation.

Poland is obligated to meet its 2020 targets based on the EU climate and energy package. This means, among others, an increase of renewables in the gross consumption of energy to 15 per cent and increasing energy efficiency. The Polish government set a target of using 13,6 million tons of oil equivalent (Mtoe²) less energy in 2020 than in a business as usual scenario. Increasing the use of renewable energy in the country's energy mix and reducing the consumption of energy is the best way to build a sustainable and low-carbon economy. But targets need to be adequate, and actions need to bring results. So far, a green certificate scheme which supported renewable energy system development led to massive co-firing of coal with biomass and over-subsidising of old hydro-plants. The white certificate scheme, which was meant to support energy efficiency efforts, did not work and the market absorbed only four per cent of available certificates in 2014.

Poland recently passed a renewable energy law. The country now has an auctioning (tender) system where only the cheapest renewable energy technologies can win support. WWF, with Greenpeace and other NGOs, academia, experts, a handful of politicians and few committed individuals, brought an amendment into the renewable energy law, which now makes investing in micro-installations economically feasible. The feed-in tariff scheme, for installations up to 10 kW, is a novelty in Poland.

WWF has also been supporting the government in building a better white certificate scheme and an overall better energy efficiency law. Work on the legislation is still in progress and will hopefully result in real energy savings, hence emission reductions.

How we act now will determine if we reach 2030 targets – the inevitable decline of coal.

Poland must do its fair share in EU targets: Reaching Poland's 2020 targets will be an important test. EU member states agreed in October 2014 to set further goals, which should amount to at least 40 per cent emission reductions by 2030.

Going forward, switching to renewable energy and enhancing energy efficiency will be key. Planned coal-fired plants make absolutely no economic sense – especially since the 2030 climate policy includes the tightening of the EU emissions trading scheme, where each tonne of emitted CO₂ should cost more every year. This becomes even more clear when one realises that Poland's coal mining sector is not able to meet the country's needs anymore - and more coal will need to be imported in the future.

And finally, coal-based energy production in Poland carries vast external costs. An estimated 45 thousand Poles die prematurely every year due to Poland's poor air quality.

A strong Paris agreement would give Poland an important impulse for better long-term planning, with strong climate policy in mind. However, the benefits of sustainable development outweigh its costs regardless of international treaties.

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Wind turbines on a beach in the UK.

UNITED KINGDOM

*By Emma Pinchbeck, Head of Climate and Energy, WWF-UK
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The United Kingdom's Climate Change Act and its system of five-yearly carbon budgets, started in 2008, ensure that progress towards climate change mitigation ensures that the UK cuts its emissions by 80 per cent against 1990 levels by 2050.

The first three carbon budgets (2008-2012, 2013-2017, 2018-2022) cover the pre-2020 period. UK Emissions reduction in 2013, the latest data available, was 28 per cent below 1990 levels to 2,982 million MtCO₂e¹. It is projected that the UK will over-perform against its carbon budget targets to 2017.

While this progress is welcome, the UK must be cautious about overstating its achievements when emission drops cannot be attributed to mitigation alone. For example, in 2011 greenhouse gas emissions fell by seven per cent to 547 MtCO₂e - but only 0.8 per cent of this was achieved through reduction policies. A mild winter, economic crash, and rising energy prices, had stronger impacts on emissions. That said, there is no reason that this has to be the case: in 2014, preliminary numbers suggest that the UK reduced emissions and grew its economy.

Progress to 2020 on carbon has therefore been relatively straightforward but with the economy growing and some policy areas in need of reinforcement or renewal, the "abyss" for the UK opens after 2020. With existing policies the UK will miss the carbon budget by approximately 60 MtCO₂e per year from 2022. The Government will need to push for policy ambition if it wants the UK to continue to meet the Fourth Carbon Budget.

While low oil prices have momentarily taken the pressure off rising consumer bills, there is a latent consumer desire for more transparent energy markets in the UK. Investing in low-cost insulation; renewable heating; and accelerating deployment of electric vehicles (as well as innovative ways of funding these) would help meet the shortfall. Equally, the UK's Victorian-era, solid-walled building stock and existing gas pipelines are also serious infrastructure hurdles which need tackling. These demand-side measures have social as well as carbon benefits which the Government could do better at articulating to the public; this itself would help the UK's progress.

On the supply side, Government could use the powers granted to it in secondary legislation to set a 2030 target for power sector decarbonisation to e.g. 50gCO₂/kWh²; ensure that there is finance for renewable generation beyond 2020; reinforce the role of the demand side in the future energy market; and provide support for innovative technologies. At EU level, the UK Government must also push for reform of the Emissions Trading Scheme to provide a genuine incentive for power sector decarbonisation.

What more can the UK do?

- **The UK must do more "outside" the carbon budgets, on issues such as land-use change and adaptation.**
- **We must also continue to be aware of the carbon implications of our growing consumption - it highlights the reason that decarbonisation is a global effort.**
- **When it comes to achieving global 2020 ambition there is an opportunity for the UK to share the lessons learned from its progress to date, and offer further support for clean infrastructure to developing nations. The £3.87bn International Climate Fund, of course, is already delivering towards this ambition.**

It is also important to note that progress in carbon emissions reduction and renewables is not only the prerogative of the UK Government. Scotland was one of the first countries to enact climate legislation – in 2009 – and the Scottish Parliament instituted one of the world's most ambitious Climate Change Acts, with the aim of reducing emissions by 42 per cent by 2020 and 80 per cent by 2050 on 1990 levels. Scotland also has binding annual targets set in secondary legislation to ensure that its trajectory to 2050 is consistent with a 2°C world.

The Scottish Act has already allowed Scotland to harness the jobs, growth and environmental benefits of the low-carbon transition. This is most notable in the

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FOR CLEAN
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TO DEVELOPING
NATIONS

1. Metric Tonne Carbon Dioxide Equivalent
2. Carbon Dioxide per Kilowatt-hour

electricity sector, where renewables are already delivering nearly 50 per cent of Scotland's electricity needs and supporting over 11,000 jobs – nearly as many as in Scotland's world renowned whisky sector – and cutting emissions equivalent to Scotland's entire transport sector every year. Economy-wide, emissions have reduced more than 26 per cent from 1990 levels.

Nonetheless, progress has been patchy in other sectors and there is work to be done to deliver on Scotland's stretching annual targets. The Committee on Climate Change, which also advises the Scottish Government, has called for more action on accelerating sustainable transport, on developing low-carbon heat and on insulating Scotland's homes. The Scottish Government will have to prioritise these to ensure that they hit future targets. The Scottish Government has also established a small but significant climate justice fund designed to assist the world's poorest to adapt to climate volatility.

WE MUST ALSO
CONTINUE TO
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THE CARBON
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While the UK has made progress towards its pre-2020 commitments, we risk being complacent. The UK must also put its own efforts in the context of global climate change, and continue to support the international community, including with finance for low carbon development and adaptation. Domestically there is a cliff-edge in policy after 2020 that must be addressed as a priority. The political turning point towards bridging the "abyss" could be in 2015.



The Ormonde Offshore Windfarm built in the Irish Sea, UK.

About WWF

WWF's mission is to stop the degradation of the Earth's natural environment and to build a future in which people live in harmony with nature. The Global Climate & Energy Initiative is WWF's global programme addressing climate change through promoting renewable and sustainable energy, scaling up green finance, engaging the private sector and working nationally and internationally on implementing low-carbon, climate-resilient development.

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How to Close the Emissions Abyss

KENYA

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RUSSIA

"Redirect at least part of the huge fossil-fuel subsidies to renewable energy sources, energy efficiency, technological and social development."



PHILIPPINES

"The key to addressing energy security, while reducing carbon emissions, will be to harness and utilise the country's huge renewable energy resources."

UAE

"Consider a national pre-2020 net carbon reduction commitment (like Dubai), with targets to 2030 and beyond."



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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