

A wider climate action angle



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power production

A utilitarian mobility solution
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The EIB – The EU bank

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Editorial

The conclusion of the 2013 Intergovernmental Panel on Climate Change (IPCC) is that humans are the most likely cause of 100% of global warming since the early 1950s. Their confidence level is 95%. Prior to the report's publication, there was argument and counter argument played out in the media across the world as the issue of climate change provokes debate like few others.

The arguments are now a waste of energy. We are facing a major international challenge which requires action, and which implicates everyone. The world has to transition to a low-carbon economy, and as the EU bank, the EIB can play a vital role.

The EIB backs climate action projects in Europe and further afield. The Bank supports initiatives to improve energy efficiency in our cities, the diversification of our energy supplies and the reduction of our dependence on fossil fuels and therefore our greenhouse gas emissions. We develop innovative financial instruments to ensure there is funding for the right projects, and mobilise private sector investment.

Climate change will have disastrous consequences if nothing is done about it. The international community is seeking to limit the average global temperature rise to less than 2° Celsius by 2100. Some forecasts suggest it could be significantly more. Even at that amount, sea level rise and more frequent extreme weather events will have their effects. We have to adapt to that.

Everything is changing, but now is not the time to down tools. The global economy and financial systems have to adapt to new ways, just as humans have to adapt to a changing world. New greener industries will create new economic growth and jobs. The EIB has helped, and will continue to do so.



Metz, in eastern France, is revolutionising its public transport system.

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A wider climate action angle

2013 is the year in which the Eastern European Group takes turn in hosting the Conference of Parties to the United Nations Climate Change Convention.

This year, as in all previous years, the EIB is among the largest providers of finance for climate action and an observer at COP 19.

Policies and attitudes change as the world searches for a path towards a lighter and more efficient approach. Damage limitation is needed more and more urgently, and adaptation both to new norms and new environments is becoming ever more mainstream. Why wait until it is too late? This is why EIB funding for projects in climate action has grown substantially and necessarily in recent years. The Bank invests and provides technical and financial expertise in projects in diverse fields under the umbrella of climate action. In 2012, the EIB financed EUR 13bn worth of projects in climate action and climate action considerations are mainstreamed in all the projects we finance.

Production and consumption

There is renewable energy generation and promotion, but also the rational use of energy and specific energy efficiency meas-

In 2012, the EIB financed EUR 13bn worth of projects in climate action.



Climate action must also embrace a wider and long-term view.

ures. Using renewables reduces emissions at the source once the facility is up and running, cutting a reliance on fossil fuels that in the long term is as unsustainable as it is damaging. The EIB invested EUR 3bn in renewable energy projects in 2012 and is the leading financier in wind energy.

Making our cities more energy efficient, whether in new construction projects or refurbishing and retrofitting older buildings, further reduces the strain on resources on both an environmental and an individual level. Energy efficiency accounted for a further EUR 1bn.

Unclogging arteries

Across Europe and beyond, more sustainable forms of public transport are being introduced: new technologies have afforded us the chance to install eco-friendly trams, buses, hybrids and trains. These both replace older machinery from an era when different attitudes prevailed and encour-

age some people to forego their cars as the option of public transport is more practical and more appealing. Noise pollution and emissions are reduced in city streets, and bottlenecks eased.

Trans-European rail networks can also encourage freight off the road as modern rail transport lightens the environmental burden and connects hubs across the continent. The EIB financed sustainable transport projects to the tune of EUR 6bn in 2012.

The wide angle

Climate action must also embrace a wider and long-term view. The EIB funded almost EUR 2bn worth of projects in research, development and innovation in 2012, but the world must also be ready to adapt to changes we are already feeling. In many regions across the globe, changes in precipitation, temperature and wind patterns have been noted. Climate volatility leads

to increased risks, and people, projects, businesses and vital ecosystems are exposed to those.

Adaptation to climate change is the process of identifying risks and vulnerabilities and taking pre-emptive actions to ensure, where possible, potential damage and disruptions are limited. In this world of uncertainty, flexibility is needed to avoid damage, or at least to cope with it.

To use an example, structures built in cities on the Pacific ring of fire are built to withstand certain seismic activity, or at least absorb the shock. Consideration is given in the planning stage. Adaptation involves applying similar principles but to climate related events, and the EIB encourages the systematic introduction of climate change screening into the preparation and design of projects and into business and organisational planning. Assessing the risks brought about by climate change should become a matter of good practice. It is vital to learn from past extreme weather events and, where there are high risks, to take future impacts into account before allocating resources in a project. This will be better value long term than last minute rebuilding or after the fact repair work.

Taking Europe as an example, climate change is affecting the distribution of plant and animal species. This opens the door to a greater number of pests and invasive species. The knock-on effect is that livestock and human health could well be put in danger. Water resources will become scarcer. The Alps are the source of 40% of Europe's water, but changing snow, glacier dynamics and precipitation patterns will lead to diminished water supplies which will in turn impact upon hydro-electric power, which is a valuable electricity source. Meanwhile, hotter temperatures will lead to more intense rainstorms. Europe has already experienced river floods in recent years. It must be ready for more.

More heat waves in the Mediterranean region are already being noted. These increase the length of the fire season, upping the risk of larger fires and in turn, desertification. Areas currently not prone to these hot, dry spells could become more at risk.

Climate change effects are thus not uniform so the consequences are more difficult to predict. Proper adaptation strategies and investment are a means to minimise them where possible.

The most common adaptation projects may involve water, from better flood defences to reducing water wastage, but increased heat waves, storms and blizzards may have to be considered (where applicable), not just extreme rainfall or drought. These extreme weather events and slower changes such as sea level rise can have a short-term and direct impact or a longer, more sustained one. Being prepared to deal with them is what counts, and the best or most appropriate solutions are not always the most obvious ones.

Supporting this work, the EIB invested EUR 1bn in adaptation projects in 2012.

Volatility, vulnerability

During 2013 the EIB has been working closely with the Caribbean Development Bank (CDB) on a programme of climate adaptation technical assistance that it is hoping to roll out to a number of its 18 borrowing member countries. The technical assistance also supports a EUR 65m line of credit to CDB for climate action projects.

The Caribbean region is particularly susceptible to the consequences of climate change, and the loan will provide long-term, low cost funding for measures to counteract these. The technical assistance funding from the Cotonou Investment Facility will support vulnerability assessments and adaptation investments in coastal protection from sea level rise and hurricanes, flood resilience for vital transport infrastructure and support for water resource management to deal with changes in rainfall patterns.

In addition, the EIB technical assistance will support the CDB in actions they are taking to develop and expand their disaster risk management expertise into adaptation investments, and the countries will be supported in improving their vulnerability assessments leading to cost-effective adaptation measures.

Significant climate risks, be they direct or indirect, should be taken into account in all projects. That much should be common sense. The correct solutions may fly in the

face of perceived wisdom, though. The key factor is to be prepared where possible for what an increasingly volatile climate may throw at you. ■

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty negotiated at the UN Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro in June 1992. The objective of the treaty is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The UNFCCC entered into force in 1994 and has 195 parties. The parties to the convention have met annually from 1995 in Conferences of the Parties (COP) to assess progress in dealing with climate change.

In 1997, the Kyoto Protocol was concluded and established legally binding obligations for developed countries to reduce their greenhouse gas emissions.

The 2010 Cancun agreements state that future global warming should be limited to below 2.0 °C relative to the pre-industrial level.

A new international agreement has to be concluded by 2015 with the establishment of the future international climate regime replacing the Kyoto Protocol as of 2020.





Janez Potočnik

EU Commissioner for the Environment since 2010 talks to EIB Info about the environmental challenges we face, and the roles the EU and the EIB can play.



All aspects of the environment require attention. Which fields are you prioritising?

"We have to be careful about what we mean by environment. It's not something we can look at in isolation. I often say we are facing a number of crises: an economic and financial crisis, a resource crisis, a climate crisis and a biodiversity crisis. We need to find ways to tackle all of them at the same time, delivering multiple benefits for the economy, people and the environment. This requires a strategic approach, and that is what we are doing with the 7th Environment Action Programme, to be formally adopted by all the EU institutions."

What does the programme entail?

"It focuses on three key areas. The first is protecting, conserving and enhancing our natural capital, on which so much economic activity depends. There is the 2020 Biodiversity Strategy and the blueprint to safeguard our waters, but we also have to fill in gaps in areas like soil protection and land use. We also need more action to protect oceans and seas, with targets to reduce marine litter for example.

Secondly, we need to put in place the right conditions for a single market for resource-efficient, low-carbon growth. This should be the core of the green economy we want to create. It means agreeing the next steps for climate policy beyond 2020, improving the environmental performance of products over their lifetime and reducing the overall impact of consumption. We need to turn more waste into a resource and boost growth with more recycling. A concrete plan is to halve EU food waste by 2020.

The third priority is to tackle environment-related challenges to health and make sure we are prepared for new and emerging risks. The focus here is on updating air quality, noise and water legislation and addressing concerns linked to chemicals and nanomaterials.

So it's simple. All we have to do is tackle all of these at the same time..."


We need integrated ways to progress, then. Have you always favoured this holistic approach?

"Environmentalism never works if it just concentrates on the environment. That's

the thinking we have to get away from. If we want the policies to work, we have to get the message out in regional policy, transport, energy, construction, consumer policy and many other areas. Agriculture is a clear example. If you look at Europe from space, it's basically a big farm, so if our policies aren't having an effect on the agricultural sector, they are touching less than half the land area of Europe. This is why we "environmentalists" are so involved in the greening of the CAP, and so keen to follow how it works in practice."

How can environmental initiatives help to address Europe's other problems such as unemployment or investment for SMEs?

"It's vital to combat the notion that environmental protection is somehow the enemy of business. There are numerous areas where strong legislation is a driver of investment and jobs. Take the example of waste: legislation at a European level has been a major driver for the development of the recycling sector. New types of industries have emerged, from basic sorting facilities to sophisticated separation systems for precious metals. Today the recycling sector represents some 50 000 fa-



"We run the risk of needing two planets"

"We have to be careful about what we mean by environment. It's not something we can look at in isolation."

needs to keep making a case for resource efficiency as a driver of growth and jobs.

By encouraging resource efficiency and eco-industry, we are favouring growth, competitiveness and long-term resilience for our businesses. We need to make this case as widely as we can, and it's not just about climate and energy: other areas such as water, waste and natural capital are concerned as well.

Recent studies have shown that every percentage point reduction in resource use is worth around EUR 23bn to business and could lead to the creation of up to 200 000 jobs. All the while, the global market for eco-industries is growing. Its annual value was estimated at EUR 1.15trn in 2010 and there is a broad consensus that this could double by 2020. This is an area where the EU has strong export potential. This is a message that needs to be heard and the EIB can play a significant part in getting it out there."

In a wider context, is it up to the EU to set an example?

"It will never be enough to just "set an example". The problems we are dealing with are global by nature so we need to be out there offering solutions that will work for the planet, not just the EU. That's what sustainability means.

A greener and more inclusive economy has become a global necessity and unless we learn to manage our natural assets and resources in a more sustainable manner, our economies and environment will suffer. Our efforts to alleviate poverty and achieve more social justice will never be successful. We have no choice. Seven billion people live on the planet at present, and by 2050 it will be nine billion. If we continue on the path we have followed for the last century we would need two planets to provide the resources we need." ■

cilities and 1.5 million jobs, most of which are hard to delocalise. European recycling industries have a comparative advantage and I hope this will be reinforced in the coming years as the industry evolves in response to the impending resource crisis. A lot of that is due to our legislation.

The same is true of many other sectors too, though. Europe has what I often call a silent majority of innovators. These entrepreneurs, companies and job-holders are generating the high-end technologies and new production methods that will deliver the solutions we need for the economy of tomorrow. We do try and reinforce the policy framework, for low-carbon technologies, for example, seeking to ensure that investments made by companies like car manufacturers, combustion plant owners and others in the supply chain will deliver most for those with the most effective solutions."

New research, innovation and technologies will be vital. Are there any you are particularly excited about?

"It's difficult to single out one area for research. Problems like poor air quality in

cities, water scarcity and protecting biodiversity all rely on scientific evidence and we need innovative solutions in all of those areas.

The new technologies that get me excited are those that use fresh ideas to help the environment like creating valuable secondary raw materials out of waste. Resources need to be used far more efficiently or we will inevitably exhaust supplies of the very materials we rely on for growth and jobs. That's the obvious reason behind the need to transition to a circular economy. Clearly, this cannot be done without proper research. When new technologies are developed we need to be convincing about any potential risks so that society can feel safe in benefitting from the results."

You met with EIB President Werner Hoyer in June 2013. What role can the Bank play?

"The main purpose of that meeting was to find ways to work together more effectively and find ways to increase support for investing in resource efficiency. This is really not something that captures the attention of many political leaders, and the EIB

A premium blend

Sustainable Energy for All (SE4All) is a UN initiative, launched in 2012 and led by Secretary-General Ban Ki-moon. The European Commission and the EIB are ready to help SE4All reach its ambitious targets.

The worthy ambitions of SE4All are, in the words of Ban Ki-moon, “to revitalise our economies, strengthen social equity and catalyse a clean energy revolution that benefits all humanity.” The initiative has three global objectives to achieve by 2030: universal access to modern energy services, doubling the share of renewables in the global energy mix, and doubling the rate of global improvement in energy efficiency.

Direct and indirect saving

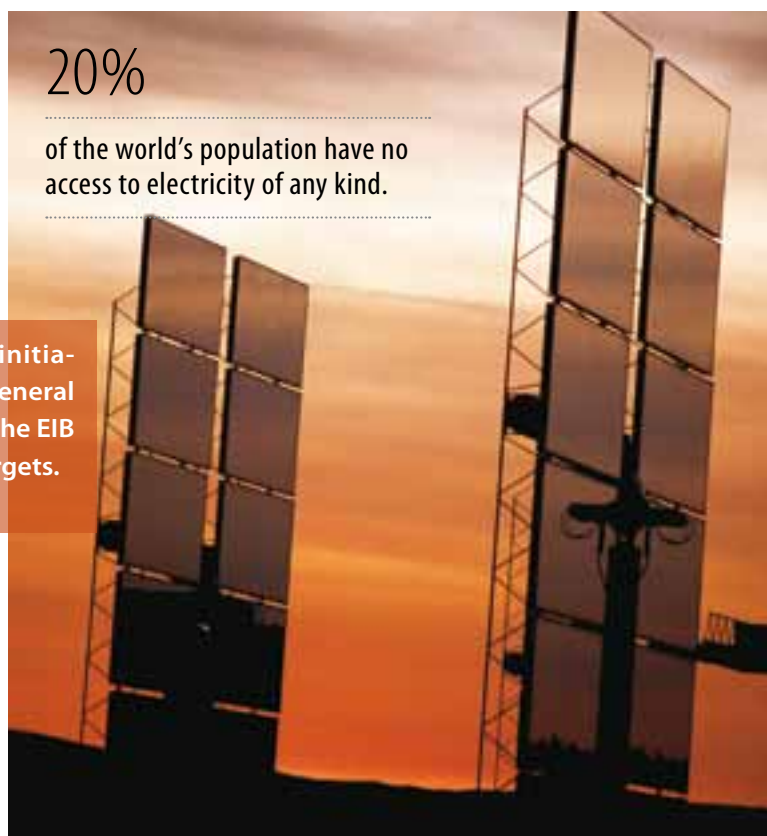
According to UN figures, 20% of the world's population have no access to electricity of any kind. That is 1.4 billion people. More startlingly, some 2.7 billion people have no access to clean cooking facilities, and breathing in toxic fumes from burning unclean cooking fuels such as coal or animal waste is estimated to kill two million people per year.

Doubling the share of renewables from 15% to 30% of the global energy mix will contribute to fighting climate change by reducing emissions, and increasing energy efficiency has the same effect while saving on other costs too.

The hard part is actually putting these ideas into practice. The challenges facing SE4All are numerous, but the European Commission and the EIB are fully supportive of the initiative, and can play a key role in helping the world meet the three key objectives.

20%

of the world's population have no access to electricity of any kind.



A financial catalyst

The Commission has provided EUR 65m in technical assistance to support participating countries in developing their energy policy, investment environment and eligible SE4All projects. It has also allocated some EUR 400m to existing and established financial facilities and funds which are managed by the EIB. While EUR 25m has been earmarked for the Global Energy Efficiency and Renewable Energy Fund (GEEREF), and a further EUR 20m is going to the EU Energy Facility, EUR 329m has been allocated to the [EU Africa Infrastructure Trust Fund](#) (ITF).

The ITF supports projects that meet SE4All criteria through interest rate subsidies, direct grants, technical assistance and insurance premiums. It was set up in 2007, but has been modified to include national energy projects and work through intermediaries to support smaller grid and non-grid projects: supporting schemes to improve accessibility. The extra EUR 329m is being channelled through a dedicated SE4All window for exactly these types of projects. The grants and subsidies serve to help pro-

jects get off the ground, filling funding gaps: each euro of an ITF grant in support of a project in its investment phase is expected to generate almost 13 euros of total investment.

Benefits for all

Under the umbrella of the ITF, a feasibility study is being carried out to assess the proposed EUR 600m Africa Energy Guarantee Fund (AEGF).

This is designed to provide risk mitigation and credit enhancement products to energy and infrastructure projects in Africa, as well as unlock capacity from the private insurance market through co-insurance and reinsurance. A key European response to the SE4All initiatives, the combined efforts of the Bank and ITF will offer multiple social and economic benefits for the populations of both Europe and Africa. Africa needs energy sector funding: efforts from the EIB are mobilising banks, financiers and investors to get involved in SE4All. 2030 is not so far away.

See also www.eib.org/climate ■

News in brief

Unprecedented support for French SMEs



The EIB Group and Bpifrance signed a contract to provide finance to innovative SMEs in France on 25 September.

The Bank has made available a EUR 750m credit line and a EUR 200m guarantee envelope under the EIF's guarantee facility, in its largest operation in France for 2013. This will target SMEs with fewer than 250 employees, and mid-caps with fewer than 3 000, in the crucial period between the end of R&D and the beginning of commercial exploitation, when finance is scarce.

France's minister of the Economy and Finance Pierre Moscovici hailed the fact that the deal "will help Bpifrance step up its support for innovative SMEs by mobilising the EIB's resources," calling it "a practical outcome of the European Growth Pact."

Backing microfinance in Palestine

The EIB joined several other organisations in signing an equity agreement with the Arab Centre for Agricultural Development (ACAD) worth USD 5.3m.

The project is focused on sustainable development in rural areas. It aims to reduce imbalances, fight poverty and food insecurity and support small and micro entrepreneurs throughout the Palestinian Territory. There is a notable focus on women and farmers, as well as creating sustainable jobs for local people and making the financial sector more accessible to them. The EIB is contributing USD 1m, 18% of ACAD Finance's capital, and combining this with a technical assistance operation.

Sailing through Schiphol airport

A new loan of EUR 200m has been agreed between the Bank and Amsterdam's Schiphol Airport, which will fund further significant transformation and boost the passenger experience.



Gate security checks for flights to non-Schengen destinations will disappear, to be replaced by a central security screening facility at Europe's fourth largest airport.

The EIB has previously helped Schiphol with other projects, notably the fifth runway and the new baggage reclaim system (EIB Info 139). As well as improving passenger comfort, the programme will ensure that Schiphol operates more efficiently and complies with future international security standards.

Farming and agrifood finance in Spain



Instituto de Crédito Oficial (ICO) has been granted a EUR 150m loan to finance projects of SMEs in the farming and agrifood sectors.

This operation is the first of its kind in Spain, and will inject liquidity into a dynamic, important and solvent sector of the national economy. The economic crisis has hit SME funding especially hard, and these funds will boost activity and job creation in this sector, which has plenty of export potential.

Castor energy storage: the first project bond

Investment in the Castor underground gas storage project was supported by the successful issue of the first EIB supported project bond. The Bank is providing a total of EUR 500m for the project, which will provide storage for the equivalent of 30% of Spain's daily gas consumption. The EUR 1.4bn bond issue for the project was supported by a EUR 200m liquidity line under the Project Bond Credit Enhancement Initiative, which made its credit rating more attractive to investors, while the EIB is also buying EUR 300m of the bonds as an anchor investor in the project.

Climate action in numbers

Last year the EIB provided over **EUR 13bn**
for climate action projects

This represents **26%** of our overall lending



EUR 1.1bn for energy efficiency. Supporting the EU's goal of increasing energy efficiency by 20% by 2020.



EUR 1bn for adaptation. Helping conserve our coastlines, combating the risk of flood damage and assisting with planning for future climate-based risks.

EUR 6bn for sustainable transport. Urban, rural, road, rail, sea and sky, cutting emissions and time on vital journeys and logistics.



EUR 2bn for climate action research, development and innovation. Finding the sustainable solutions of tomorrow.

EUR 3.3bn for renewable energy projects. One third of our total energy lending supports the EU goal of sourcing 20% of consumption from renewables by 2020.



www.eib.org/climate



A perfect geothermal storm

Geothermal power has a surprisingly long history, but can only be exploited in certain parts of the world. Iceland counts itself as one of them, and is a pioneer in the field. There, the EIB has supported the second largest geothermal facility in the world.

Iceland has abundant geothermal resources thanks to its location. It sits atop the divergent boundary between the North American and European Tectonic plates, bisected by the Mid-Atlantic Ridge.

This makes the island a volcanically active geological marvel, and gives it the perfect environment for geothermal energy.

From the first steps to exploit this asset in 1928, Iceland has come a long way, and geothermal energy now accounts for 30% of its electrical consumption and almost 90% of its domestic heating requirements. Impressively, the remainder of Iceland's electricity generation comes from hydropower, meaning the country gets nigh on 100% of its electricity from renewable sources.

A world leader

"Given the minuscule penetration geothermal energy has in the world's energy production, Reykjavik Energy applauds the EIB for giving it attention and financing," says Bjarni Bjarnason, CEO of Orkuveita Reykjavíkur (Reykjavik Energy), owners

and operators of the Hellisheiði geothermal power plant.

The Bank has been involved in its financing since it was commissioned almost a decade ago, and has lent a total of EUR 303m to support it. Boasting an installed power generation capacity of 303 MW, along with a thermal capacity of 133 MWth, Hellisheiði is not only the largest power plant in Iceland, but also the second largest geothermal facility in the world, having been built up in phases since it came online.

Dynamic landscape

The plant is situated in the Hengill region, some 20 km east of Reykjavik, in the South West of the country. The Hengill volcano itself is active, although the last eruption is estimated to have occurred approximately 2 000 years ago, while the 112 km² area is perched atop a vast magma chamber and has hot springs and gas vents in abundance.

The probability of a significant volcanic eruption in the area is low. The 2010 eruption of Eyjafjallajökull, 140 km east

of Hellisheiði, may have caused the ash cloud which hamstrung pan-European air travel, but it had no effect on the operation of the plant, which has had an annual load factor north of 90% since it entered into service in 2006.

Straight from the source

Conventional plants burn fuels to boil water to create steam to drive turbines, but at Hellisheiði it is obtained via a series of wells some 2 000 metres deep. With no fuels to burn, greenhouse gas emissions from geothermal energy are very low: according to Orkuveita Reykjavíkur's 2012 environmental impact report, average operational CO₂ emissions from Hellisheiði were 40 gCO₂eq/kWh (grammes of carbon dioxide equivalent per kilowatt hour of electricity generated), compared to over 800 gCO₂eq/kWh for emissions from coal-fired plants, while heavy fuel oil and natural gas-fired plants typically emit around 650 and 350 g/kWh respectively.

There are also hydrogen sulphide emissions to take into account. Iceland's own regulations on H₂S emissions are stringent: acceptable limits in the country are one third of those set out by the World Health Organisation.

Further exploitation?

Orkuveita Reykjavíkur is keen to ensure utmost compliance, and is currently developing a method to mix geothermal gases, CO₂ and H₂S, with Hellisheiði's run-off water and reinject it into the ground at a depth of 600-800 metres, well below ground water levels. Such innovations are essential on a national level as this technology progresses.

Iceland's national power requirements are approximately 1 500 MWe. Geothermal energy may contribute one third of this, but potentially the production capacity from this source alone is estimated in some quarters at 4 000 MWe. What proportion of that will be exploited in the future remains to be seen, and while Iceland's geothermal lessons may not apply on a global stage, local players in other nations can take heed from them. ■

Different levels of cool

The Centre Hospitalier de la Polynésie Française (CHPF) in Tahiti provides vital services to the population of the French overseas territory, but runs up huge electricity bills. The installation of a sea water air conditioning system will offset these costs. And it is all part of an ambitious plan.



13 GWh

The annual savings of 13 GWh can be valued at EUR 3.7m

In the tropical climes of Tahiti, air conditioning is essential in just about every public building, but it presents a weighty financial burden.

The CHPF is no exception: the largest hospital in French Polynesia, with 500 beds and a workforce of 350, it spends 50% of its annual outgoings on electricity just to keep cool and enhance the comfort and wellbeing of patients and staff alike.

Towards self-sustainability

The hospital itself is responsible for 4% of national energy consumption.

As things stand, almost 70% of French Polynesia's power supply is generated through oil imports. Their requirements hardly make a dent on a global scale, but are financially crippling on a local one. It is not easy to ship small quantities of anything to a location as remote as the South Pacific without incurring significant costs. This is the challenge the islands face and, indeed, the reason they have set themselves the target of sourcing 100% of their electricity from renewables by 2030.

Power-hungry cycles

The EIB is lending the hospital EUR 7.5m to fund a sea water air conditioning (SWAC) system which will enter service in mid-2015, as part of a EUR 25m project which is being financed under the Mutual Reliance Initiative. SWAC systems have the same end results as traditional ones, but with a key difference in process.

Some traditional units cool water electrically in a chiller before pumping it around a building to lower air temperature by displacing hot air with cold. A lot of energy is required to cool the water. About 90% of power consumption and greenhouse gas emission by traditional air conditioners is accounted for by the water cooling process alone. In the case of the CHPF, this process adds up to approximately 2% of the territory's electricity use.

SWAC uses water that is cold to begin with, thereby cutting out the most uneconomical and polluting element of the air conditioning process. The hospital's new air conditioning system will instead have cool sea water on a circuit pumped from a depth of 900 metres. It then passes through a heat extractor where the sea water extracts the heat from warmer water in a second circuit. The water from the second circuit is now cooled and then passes through the

building. The sea water is finally deposited back into the ocean at a shallower and therefore warmer depth. The circuits do not mix, but the heat is exchanged via titanium plates in the cooling station.

This innovative cooling system has little environmental impact and the geological make up of Tahiti is such that the sea-floor falls away sharply from the land, like a sheer mountain top breaking the waves. The temperature of this water is between five and eight degrees Celsius and, because it is coming from the Pacific Ocean, it is a naturally occurring and inexhaustible reservoir.

Investment in health

At full capacity, the hospital's SWAC system will cut cooling bills by approximately 90%, and electricity costs will be halved.

The annual savings of 13 GWh can be valued at EUR 3.7m, while the reduction in emissions from substituted thermal power will reach 570 tonnes CO₂ equivalent per year. The financial saving will lift a burden from the hospital and allow it to invest more in the wellbeing of the population. The way it stays cool, meanwhile, will mark an important step in French Polynesia's progress towards self-reliance. ■

Low energy buildings

see the light in Bucharest

The majority of Bucharest's two million inhabitants live in aging self-owned multi-storey apartment buildings.

To reap energy savings and modernise housing, the EIB is supporting the rehabilitation of some 1 000 buildings, comprising 66 380 apartments.

The overall impact of the project in terms of housing quality for the citizens of Bucharest and energy savings has been positive.

Residential buildings account for more than one third of total energy consumption in Romania.

Almost 3.7 million apartments were built between 1950 and 1990 in the country, 650 000 of these in Bucharest, and few have been renovated to reduce energy consumption since construction. The demand for thermal rehabilitation projects in Romania is thus enormous, with an estimated investment cost of EUR 12bn. To save heating costs and reduce CO₂ emissions while increasing the quality of living, the government has launched a national thermal rehabilitation programme for residential buildings.

The first funding was granted in 2010, for a total amount of EUR 70m, to rehabilitate 273 buildings, comprising 23 000 apartments, in Sector 6 of the capital. Three other loans have followed, adding up to some EUR 282m. EIB loans will finance up to 75% of the programme's investment costs, providing insulation of walls, windows, roofs, and cellars. The programme has the additional advantage of contributing significantly to job creation in the area.

An attractive investment plan for resident owners

90% of Bucharest residents own their apartments, but many cannot afford the EUR 6 000 to 8 000 refurbishment costs. Under these circumstances, most of the city authorities have decided to fund 100%

of the investment, including the 20% contribution that would normally be covered by the apartment owners.

In addition, apartment residents benefit from heavily subsidised heating tariffs. Authorities are, however, planning to phase out these subsidies over the next couple of years, when heating costs in refurbished buildings are expected to fall by up to 50%.

State of progress

As of today, much progress has been made: 580 buildings comprising 38 572 apartments have been finalised. Out of four districts in the capital city where works are ongoing, Sector 1 is the most advanced in implementation. 222 new buildings in the same district are due to

be finalised by the end of the year, comprising 13 536 additional apartments.

The overall impact of the project in terms of housing quality for the citizens of Bucharest and energy savings has been positive. Nonetheless, there have been a number of minor problems along the way, especially concerning delays and construction quality. These have been resolved by additional quality control.

Before works started, most buildings in Sectors 1, 4 and 6 were classified with a D energy performance rating. Today, their performance has significantly improved as most have passed from D to B and are below the energy consumption threshold of 100 kWh/m² per year, set by the programme requirements. This represents between 37% and 49% of energy savings. ■



Poland's evolving **power production**



Poland is still heavily reliant on aged coal-fired plants to produce electricity.

Things are changing as the country seeks to secure and diversify its energy supply and further integrate it into the European Union.

15%

The country has stated goals of sourcing 15% of its energy from renewables by 2020.

Situated in South East Poland, not far from the border with Ukraine, the city of Stalowa Wola has a population of approximately 70 000 people. This year the EIB agreed to lend EUR 140m to Elektrociepłownia Stalowa Wola as part of a EUR 400m project to construct a modern and efficient combined cycle gas turbine.

The technology is the most efficient and common to be used in new gas power plants, and the one in Stalowa Wola will be the largest of its kind in Poland, producing 450 MWe, for the national grid, thereby improving the internal energy supply in the country and increasing competition in the domestic electricity market. The plant will also generate heat for the city and surrounding towns, a metropolitan catchment area of 120 000 inhabitants.

Located on an industrial site, the new plant is being constructed beside two old and

inefficient coal-fired facilities that it will put out of use. Gas is recognised by EU energy policy as a critical transition fuel for the decarbonisation of the energy system, and coal consumption in Stalowa Wola will fall by 100 000 tonnes per year once the new turbine is fully operational, in the second half of 2015.

Boosting renewables

There has been considerable EIB investment in Poland's energy sector as a whole, over EUR 2bn and counting since its first operation in 1990. The country has stated goals of sourcing 15% of its energy from renewables by 2020. This figure stood at 9.4% in 2010. In the same year, the Bank co-financed a large-scale onshore wind farm at the small town of Margonin, north of Poznan.

The loan was worth EUR 45m, and the wind farm's electrical output capacity is 120 MWe, produced by 60 separate turbines in two separate locations to the east and west of Margonin.

Meanwhile, in the south of Poland, the Bank lent EUR 53m to Tauron Polska Energia to construct and operate a biomass-

fired boiler in Bielsko-Biala. Producing 50 MWe of electricity and 45 MWth of heat, the new plant has replaced a coal burning unit. Energy generated comes solely from renewable resources, and the heat generated will benefit some of Bielsko-Biala's population of 180 000.

European priorities

Poland is seeking to shrink its national carbon footprint, but its energy market will improve across the board with better integration into EU networks. For this reason the EIB has invested EUR 135m in the construction of a liquefied natural gas terminal at Swinoujscie port, on the Swina River and flanked on either side by the German border and the Baltic Sea. The facility, to be completed in June 2014, will further move Poland away from heavy fuels and alleviate the financial burden arising from the dependence on Russia for certain energy provisions.

Poland may remain coal dependent, but the country is taking steps across the board to change this.

See also www.eib.org/poland ■

Turkey shoots for forest renewal

Forest rehabilitation and afforestation offer a chance for climate-resilient and sustainable growth. The EIB is now looking to expand on a successful experience boosting Turkey's efforts to upgrade and protect its forests.

Turkey is one of the most erosion-prone countries in the world. Steep slopes, climate and frequent over-exploitation of forests, rangeland and farmland contribute to the vulnerability of its soils. 46% of the total land has a slope of more than 40%. An estimated 500 million tonnes of soil are lost each year, causing siltation problems in rivers and dams, reducing the fertility of the land. Across the Mediterranean region, the growing risk of forest fires due to climate change is a further cause for concern, exacerbating erosion and contributing significantly to CO₂ emissions in the country.

Forest rehabilitation and afforestation have an important role to play in both mitigating climate change and adapting to climate change impacts. Afforestation and responsible forest management can increase carbon sequestration, provide a sustainable source of bioenergy and help adapt to increased forest fire and soil erosion risks associated with climate change. With almost 4.2 million hectares of degraded forest which could be rehabilitated to deliver a range of environmental benefits as well as a sustainable biomass supply, Turkey understood that the opportunity to revive its forests for the benefit of the country's environment was one not to be missed.

Investing in healthy forests

In 2011, the EIB supported Turkey's Ministry of Forestry and Water Works with a EUR 150m loan for the implementation of the

country's ambitious Afforestation and Erosion Control Action Plan. The investment covers the reforestation of 70 000 hectares of degraded forest and 30 000 hectares of rangeland, with erosion control measures implemented on a further 190 000 hectares. Investments also focused on forest fire-fighting capacity and equipment, which have contributed to the authorities' ability to respond to outbreaks of fire within just 18 minutes.

A review of project achievements in the summer of 2013 revealed impressive results. Annual targets for afforestation and erosion control activities are being successfully implemented to levels of at least 90%, and the benefits the project is having on the surrounding environment are already visible. Forest health has improved, soil and water resources have been protected and supplies of timber and biomass are increasing. Recent measurements confirm that loss of soil to erosion is being successfully reduced. It is estimated that the rehabilitation and afforestation measures will result in the sequestration of 230 000 tonnes of CO₂, which is equivalent to 150 000 people taking return flights from Ankara to New York.

Reviving rural economies

Forest rehabilitation and afforestation are also bringing benefits to the local economy. Nearly eight million people live in Turkey's forest villages. Two years of intensive rehabilitation and afforestation has

A review of project achievements in the summer of 2013 revealed impressive results.

created employment for 6 500 people in rural areas where incomes are significantly below the national average.

Recovering forests also help meet energy needs in areas where fuel wood from state forests is the major energy source. Bioenergy forms an integral part of the country's climate strategy. Wood pellets and briquettes are currently being promoted as replacements for coal, both to reduce





CO₂ emissions and as a way of diversifying rural incomes.

But there's still a lot of degraded forest...

The EIB is now looking into how it can extend its support to sustainable forestry in Turkey. The Bank intends to build on fruitful collaboration with both the Turkish

Ministry of Forestry and Water Works and the Agence Française de Développement (AfD), our funding partner for the project. Working together, the EIB and AfD developed a productive division of labour to enable the project to be prepared efficiently and benefit from the vast project experience of the two financing institutions. A

further 110 000 hectares of Turkey's forests have been earmarked for rehabilitation and 80 000 hectares for establishment of new forests, helping the country meet ambitious goals of 30% forest coverage by 2017. The EIB looks forward to getting its hands dirty planting more trees to breathe life into Turkey's forests. ■



www.eib.org/France

Metz, in eastern France, inaugurated its own network of dedicated bus lanes and highly economical buses for use in October. Trams may be a compelling option, but they are not the only one.

Public transport was a burdensome issue for the local authority, Metz Métropole, with the knock-on effect of heavy congestion in the city. A tramway was considered but ultimately rejected. The city's historic centre with its narrow streets would not lend itself to the works, and the chosen system is far less of a financial burden.

The total cost of the project was around EUR 230m, with the EIB contributing EUR 80m. Metz Métropole estimates that a tram network would have cost EUR 450m and maybe more. Mettis took three years to go from drawing board to operation and created 2 100 jobs in that time frame.

Traffic proof

Mettis should shake up the public transport system for the 230 000 inhabitants of the urban agglomeration of Metz. It comprises two dedicated lines with a total length of 17.8 km, as well as three park and ride facilities and a maintenance centre. The lines will be served exclusively by a fleet of 27 state-of-the-art diesel electric hybrid buses. These 24-metre vehicles

are bi-articulated so can negotiate tight corners, and were built in Belgium by Van Hool. Mettis formally entered into service on 5 October in the presence of French Prime Minister Jean-Marc Ayrault.

The combination of larger eco-friendly buses and exclusive lanes for them has been done before in France. Nantes, Rouen and Nîmes all have these systems in place, while Cannes, Saint-Etienne and Valenciennes are in the process of installing them.

Helping 80% of the workforce

Taken together, the two lines will serve half of the city's inhabitants and a quarter of those in the greater urban area. Furthermore, 80% of employees in the city and 52% of those in the greater area will be served directly: Mettis takes in the central business district but also peripheral ones, as well as providing a direct link to the central station. A trickle-down effect will also occur as the buses which ran the old lines will be used to bolster others. This will improve capacity all over the city.

230 000

Mettis should shake up the public transport system for the 230 000 inhabitants



During peak hours, the bright pink, green, orange or blue buses, each with a capacity of around 150 passengers, will serve each stop on the lines every four to eight minutes. Studies conducted by Metz Métropole suggest that allying the frequency of service with the exclusive lanes will cut point-to-point journey times by an average of 43% when compared with the previous lines. The new buses, meanwhile, will cut CO₂ emissions by an average of 1.53 tonnes per regular working day, and 374 tonnes per year, factoring in reduced service on weekends, holidays and off-peak times.



A utilitarian mobility solution for Metz

From the beginning, Mettis is expected to cater for 25 500 passenger journeys per working day. In time, and certainly within

the next decade, Metz Métropole expects this figure to have risen to 37 000 from 78 000 daily journeys on the city's entire

transport network. 42 000 tried out the new buses on their maiden weekend. It is off to a promising start. ■



A diversified and eco-friendly range

Renault, the French car manufacturer has embraced the idea of electric vehicles. The latest EIB loan will be used for three different programmes: weight reduction, next generation powertrains and a new urban car to replace the Twingo.

Renault are looking to develop a new generation of efficient, affordable and environmentally friendly cars. The new range will be technologically innovative and ecological, less thirsty than previous models and emit less CO₂. The new loan is destined to finance the research and development for these cars, which is itself divided into three separate programmes.

The EIB has lent almost EUR 1bn to Renault since 2009. All of the Bank's investment in Renault has targeted research and development for both electric vehicles and conventional powertrains: new models and improvements to older ones.

Lightweight transport

The Renault range currently includes four different 100% electric vehicles, all of which have been launched in the past year or so. In addition to the ZOE super-mini, the first traditional car to be designed as electric-only, and the Twizy, a quirky city vehicle that is better described as a quadricycle and probably would never have been released by a different manufacturer, there are also electric versions of the Kangoo van and Fluence family car.

These run on Lithium-ion batteries, and EIB support has afforded Renault the chance to develop expertise in products and pro-

cesses for Lithium-ion technologies. It is natural that as electric cars become more competitive, a mass market for them will develop. According to estimates, there is a potential annual reduction of over 150 000 tonnes of CO₂ for these cars, as compared to ones fitted with conventional engines.

While the Twizy and ZOE are wholly electric, Renault is developing a new compact urban car to replace the Twingo. Details remain sketchy, but the company is adamant that the new machine will be "modular and accessible with very competitive CO₂ emissions levels."

Savings from start to finish

An important part of reducing vehicular environmental impact is to reduce the weight of the vehicles themselves. Renault is undertaking research into an integrated programme to do just that, as well as improving aerodynamics to avoid drag. They will create virtual platforms and prototypes with a view to applying the solutions found to upcoming new models.

The company is developing new conventional powertrains as well. The idea as ever is to reduce emissions and allow the cars to run more efficiently, but Renault are also seeking to minimise the environmental impact of the manufacturing process, and are including this as part of the research pro-

cess for the new engines, while a further strand is looking specifically at component parts. The company is exploring ways to lengthen the lifespan of these, and also to use more standard parts across the range as well as reusing them where possible.

Combustion engines are governed by the same principles from one manufacturer to another. Renault is not seeking to reinvent this, but to make steady improvements across the lifetime of both the process and the power unit. These strategies have allowed the company to cut average CO₂ emissions across the range by 50% in the past 20 years. ■

www.eib.org/France





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REDD or dead

The EIB is investing up to EUR 25m in the Althelia Climate Fund, an innovative financial instrument which will benefit the environment and reduce carbon emissions through the promotion of sustainable land use and forest conservation.

It is a startling fact that deforestation and forest degradation are responsible for almost 20% of the planet's greenhouse gas emissions.

Taken together, agricultural expansion into forested land, conversion to pastureland, infrastructure development, poorly controlled logging and forest fires, whatever their causes, are second only to the global energy sector when it comes to carbon emissions.

Deforestation and forest degradation are more harmful in this context than the global transport sector in its entirety. Tropical forests hold 25% of terrestrial carbon, while also absorbing 15% of global carbon emissions. And yet, what should be an important mitigating factor in the struggle against climate change is, thanks to random and short-term human intervention, a problem and not a solution.

Local drivers, global benefits

The Althelia Climate Fund meets REDD+ criteria (Reducing Emissions from Deforestation and Forest Degradation), a market-based and UN-backed mechanism that is nationally driven and designed to protect forests and support their role in climate abatement strategies by monetising the value of conserving them. For the EIB, this is new territory: the initial investment of EUR 15m represents our first ever REDD+ operation.



So what sets this fund apart? The model espoused by the fund manager deals with the drivers of deforestation and unsustainable land use, and aims to show that financial performance and socially and environmentally unimpeachable projects are far from mutually exclusive. The Althelia Climate Fund is global, and will invest in about 20 projects around the world, with a particular focus on Africa and Latin America, beginning towards the end of 2013.

Multiple revenue streams

The investments themselves will take different forms, though all will fall under the umbrella of social and environmental governance standards as set out by the fund manager. To protect standing forests, and in accordance with REDD+, a financial value is given to the carbon stored in these tropical forests, in the form of carbon credits. Because of this, there is a further financial incentive to protect them.

These carbon credits can be exchanged as long as the carbon is present, and that

is the key point: they become a mechanism to protect the environment and biodiversity in tropical regions because they have a financial value. Forest landholders need to be compensated for potential lost revenues from the land, but receiving the value of the carbon credits offsets this opportunity cost.

A portion of the Althelia Climate Fund's carbon credits corresponding to the size of the EIB's stake will be sold on to companies to facilitate corporate social and environmental responsibility objectives. Effectively, the entire investment is geared towards tropical forest conservation.

The fund will also increase the volume and quality of a range of agricultural commodities, and takes into account the wellbeing of local stakeholders as well as social and environmental aspects of local activities. Sustainable livelihoods and poverty alleviation on a local level are core principles of the investments. The EIB has experience in these fields and, by investing in REDD+, is branching out into new areas of sound environmental practice. See also www.eib.org/ala ■

People@EIB

László Baranyay appointed to EIB Management Committee

The EIB's Board of Governors has appointed László Baranyay as Vice-President and member of the Bank's Management Committee. A Hungarian national, Baranyay has succeeded outgoing Vice-President Anton Rop.

Prior to joining the EIB's Management Committee on 1 September, he was CEO and chairman of the board of directors of MFB Hungarian Development Bank and a member of the supervisory board of the Hungarian National Bank.

**Dario Scannapieco reappointed as EIB Vice-President**

Dario Scannapieco, Italian Vice-President and member of the Management Committee, has been reappointed for a further period of six years commencing on 16 August 2013.

Mr Scannapieco is also Chairman of the Board of Directors of the European Investment Fund.



Klaus Zimmermann (centre) and Elias Papaioannou (third right) were the inaugural winners of the EIB prize.

Zimmermann and Papaioannou take EIB Prize awards

The EIB Prize was created by the EIB Institute to recognise and stimulate excellence in economic and social research. Awarded annually, the EIB Prize consists of the EUR 40 000 "Outstanding Contribution Award", and the EUR 25 000 "Young Economist Prize".

Respectively, the first winners were Professor Klaus F. Zimmermann of the University of Bonn, and Professor Elias Papaioannou from the London Business School, in recognition of their research on the topic "growth, employment and convergence, with applications to the European Union".

The prizes were awarded at a ceremony in Warsaw in September by EIB President Werner Hoyer and Nobel Laureate Christopher A. Pissarides.



Agenda

- **11-22/11/2013**
Warsaw Climate Change Conference (COP 19)
- **14/11/2013**
EIB Annual Economics Conference 2013, Luxembourg
- **28/11/2013**
Second Eastern Partnership Business Forum, Vilnius
- **10/12/2013**
FEMIP Conference on Energy, Brussels

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Finance at work for climate action



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