ENERGY GLOBE WORLD AWARD

13 November, Espoo/Finland

Conference Center
Hanasaari – Hanaholmen

NOMINEES 2019

SUSTAINABLE DEVELOPMENT GOALS

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Energy Globe World Award - Nominees 2019

Category Earth

Category Fire

Category Water

Category Air

Category Youth

Category „Energy for All"

Agglomerating Future

Bioestibas is the first ecological pallets and boards factory in Latin America.
The essential ingredient is the stem of hydrangeas.
Hydrangea is a Colombian flower which is exported in large quantities.
More than 60,000 tons of agricultural waste result every month from the production of these flowers. This biomass is either discarded or burnt.

Initial situation:
A lot of organic waste results from the cultivation of hydrangeas. When exploring possible uses for the abundant biomass that results from the flower production process, the company found several applications of great utility. Bioestibas found out that in Antioquia province alone more than 60,000 tons of agricultural waste are generated per month that could be used as raw material in several industrial processes.

Bioestibas SAS
Colombia

Solution:
Ecological pallets and particle boards are produced that have many advantages over traditional wood products. After deep investigation, several applications of great utility were found for this floricultural waste, such as agglomerated pallets. After three years of successful participation in the market, the production of boards for carpentry and construction were added. So far, more than 7,300 trees have been saved as well as over 3,000 tons of carbon oxide. Furthermore, the combustion of more than 1,600 tons of waste from floriculture has been prevented.

Innovation:
In Eastern Antioquia, the residual flower stems are collected free of charge from the floriculturists. After that, they get a final disposal certificate of this agricultural waste. This residual biomass is then cut, milled, dried, mixed with resins and agglomerated at high pressure and temperature for the manufacturing of ecological pallets. The new product is a great surrogate for traditional pallets.

World Cleanup Day, 15 September 2018

On 15 September, 17 million people across 158 countries and territories came together for the biggest waste pollution cleanup in human history, World Cleanup Day 2018. This was a huge and inspiring collective effort, involving thousands of cleanup leaders and volunteers who raised awareness and created lasting change in their neighborhoods. An epic 36-hour „green wave" of cleanups spread across the globe, beginning with the small island nation of Fiji, and traveling around the world before ending in American Samoa.

Let's Do It Foundation
Estonia

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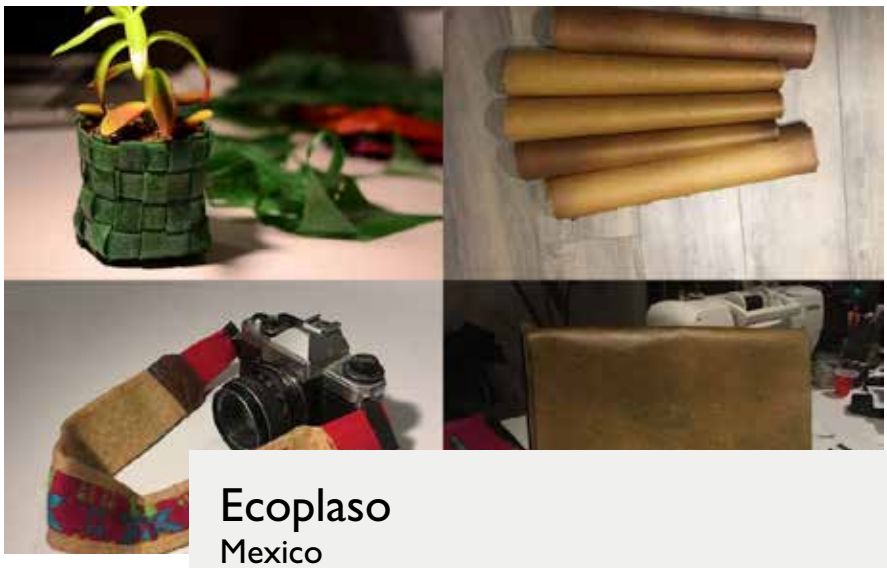
Ecoplaso

Ecoplaso is intended as a biodegradable alternative to the disposable plastic products with little or zero degradability that are used daily. Organic wastes like fruit peel and bagasse from the food industry are collected and reused. The bio-plastic is being produced in sheets and pellets as the final products. Currently, 3D printing filaments are also developed. The final products are 100% biodegradable with a degradation rate of 100-200 days and also compostable.

Initial situation:
In Mexico, 34% of the food that is produced are lost or wasted. That equals approximately 20.5 million tons each year which results in great environmental, economic and social impacts. On the other hand, plastic pollution is one of the primary environmental threats to our planet. In the US for example, less than 8% of post-consumer plastic are recycled.



Ecoplaso
Mexico

Solution:
Ecoplaso is dedicated to transform fruits and vegetable peels and organic scraps into bioplastic that can replace petroleum based plastics as the raw material for the production of products molded into thin sheets or pellets, as well as 3D printing filaments. These can then be transformed into products such as disposable plates, straws, bags, furniture or toys. The goals of this project are the reduction and substitution of plastic products which are discarded on a daily basis and which represent a major pollution concern. This material is 100% biodegradable and compostable which makes it ideal for use and quick disposal without compromising the environment.

Innovation:
Ecoplaso has developed and adapted some machines in order to be able to transform the organic waste into bioplastics. The process can be divided into 5 steps: recollection, separation, sterilization, transformation and finishing. The machinery used for these steps comprises grinder, blender, autoclave, extrusion and injection machines. In addition, a technology was developed that enables every organic waste to be transformed into paper.

Thermal Solar Plant Cerro Dominador

The CSP Cerro Dominador is a plant with solar thermal tower technology that uses a series of 10,600 heliostats that track the sun on two axes, concentrating the solar radiation onto a single point on the upper part of the tower. Each heliostat consists of 32 individual mirrors that reach 140 m2. At the receiver, the heat is transferred to the molten salts. In a heat exchanger, the molten salts transfer their heat to a water stream to generate superheated and reheated steam which powers a turbine capable of generating around 110 MW of power.

Cerro Dominador
Chile

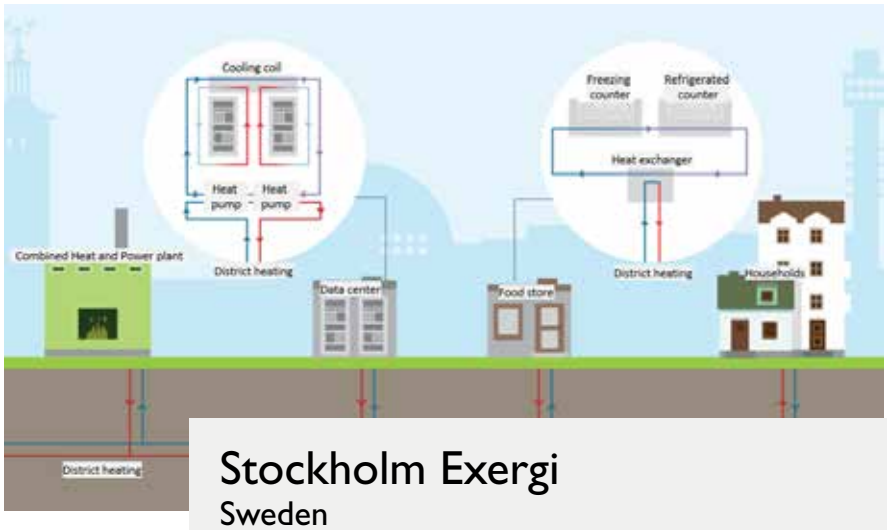
Initial situation:
In Chile, energy is produced mainly through the use of water power, gas and coal. The use of solar power is still not very common. Cerro Dominador emerged from a tender by the Chilean Government and the plan is to develop and build a 110 MW solar thermal plant with 17.5 hours of thermal storage with the help of molten salts. The solar thermal electric plant construction began in May 2014 and the photovoltaic plant construction started in January 2015.

Solution:
A huge breakthrough was made by this project, since a large solar thermal electric plant with the largest thermal storage in the world is being built. Ten thousands of mirrors are tracking the sun and then reflect and concentrate the solar light on a single point. Molten salts are used to transport the resulting heat to a heat exchanger. There, the heat is used to heat a water stream which generates very hot steam. This steam powers a turbine which can generate more than 100 MW of environmentally friendly power. Thanks to the thermal storage, the power supply can be guaranteed 24 hours a day.

Innovation:
For Latin America this technology is a real revolution, and being the first on the continent, it marks a step of entry and a real possibility to contribute to the confrontation of climate change. The plant has the largest thermal storage in the world which ensures the supply of green electricity 24 hours a day which makes it a real alternative to the production of fossil fuel based power.

Stockholm Data Parks

Stockholm Exergi captures excess heat from data centers, sewage systems and industrial processes. In 2012, the work was intensified, and a heat recovery offering named Open District Heating was launched in 2014. With data centers being the largest potential source of excess heat, it was decided in 2017, in cooperation with the City of Stockholm, grid provider Ellevio and dark fiber operator Stokab, to launch Stockholm Data Parks to encourage major data center operators to locate in Stockholm with a view to performing heat recovery on a large scale.



Stockholm Exergi
Sweden

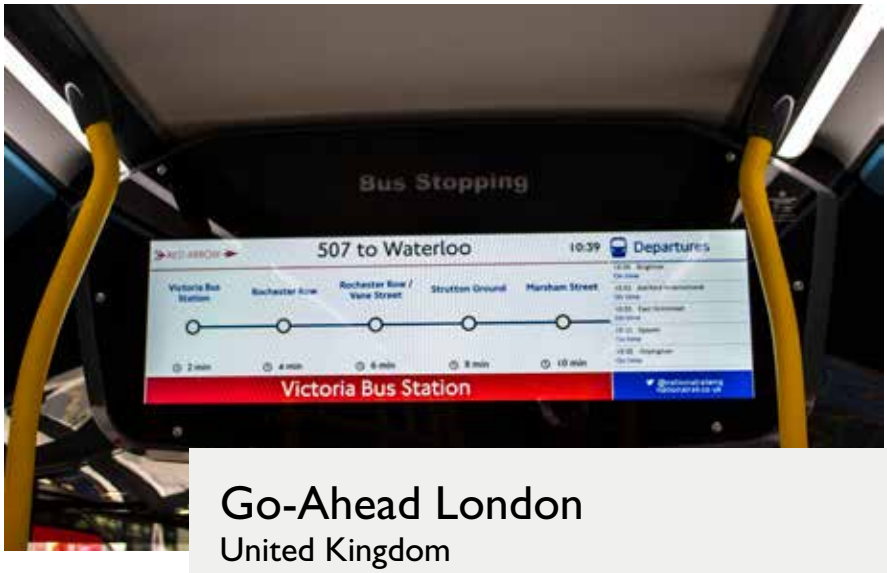
Initial situation:
By 2040, the City of Stockholm should be entirely fossil fuel free. Besides making transportation green, the main challenge is to make the heating of the city 100% renewable. Already today, thanks to the city's district heating network and conscious selection of technologies and fuels, more than 89% of the heating is fossil fuel free, with the heating network covering close to 80% of the city's population. Phasing out the remaining fossil fuels requires a multipronged strategy, deploying new technologies and fuels.

Solution:
The main objective of Stockholm Data Parks is to get more data centers to do heat recovery and contribute to the city's objective to become entirely fossil fuel free by 2040, with Stockholm Exergi becoming fossil fuel free already before 2030. The reuse of data center heat allows Stockholm Exergi to phase out fossil fuels, and data centers deploying renewable electricity can become climate net positive. Notably, a 10 MW data center load can heat 20,000 modern residential flats. For the data center, heat recovery is financially very attractive since the excess heat is purchased for around $ 200,000 per MW and year.

Innovation:
With the booming data center industry already today consuming close to 2% of the global electricity, and even more if crypto currencies are included, there is an urgent need to make data centers energy efficient. With heat recovery, energy efficiency in data centers is taken to the next level. The main innovations relate to bridging the gap between key actors that so far have not cooperated. By integrating their systems, a major positive impact can be achieved on the environment, the electrical grid and for profitability.

The Waterloo Revolution

Spurred by the introduction of an Ultra-Low Emission Zone for part of the capital in 2019, Transport for London intends to introduce Europe's largest fleet of electric buses. Therefore, it chose to partner Go-Ahead London, the biggest bus company in the capital, on an ambitious garage conversion, from diesel to electric operation, which was delivered on-time and to budget in 2016.



Go-Ahead London
United Kingdom

Initial situation:
As with any world city, London's transport system evolves and it is on the cusp of additional volume being added to it, most notably in the form of the Elizabeth Line, a heavy rail scheme linking the eastern suburbs to those in the west (and well beyond in both directions), via the heart of the city. In 2000, London elected its first citywide Mayor and in the intervening 18-years, the bus system has benefitted from a period of sustained growth, supported by record levels of volume, frequency and quality.

Solution:
In early 2015, having successfully secured a five-year contract to run London bus routes 507 and 521, work started on converting the site, in readiness for a full fleet of electric buses the following year. The project brief was to achieve the minimum amount of disruption to the traveling public and neighbors. The garage maintained 99.8 per cent operated mileage throughout this time, while pro-actively consulting the community, with no major issues raised by those living and working in the vicinity.

Innovation:
E-buses drive in a completely different style to diesels and the drivers were re-educated, especially when it comes to acceleration and braking. One of the many benefits is that a fleet of two-year old buses look like new, with little or no bodywork damage and very limited brake pad wear, as a result of regenerative braking.

Desalination of Seawater to potable using Wind Power in the Island of Milos

The Seawater Reverse Osmosis desalination plant with a nominal capacity of 4.500 m3/day is a state-of-the-art seawater reverse osmosis desalination plant. The plant is located at an old bentonite clay mine on the island of Milos. It produces high quality potable water, in accordance with EU legislation.

Initial situation:
Until 2007, when the seawater reverse osmosis desalination plant was inaugurated, the island of Milos used poor quality water, brackish and corrosive, coming exclusively from drilling, mixed with expensive water that reached the island. The cost of transporting the water to meet the island's needs was around ? 12 per cubic meter which equals approximately 5 million ? yearly. Now, it is only a fifth of that cost.

ITA Group of Companies
Greece

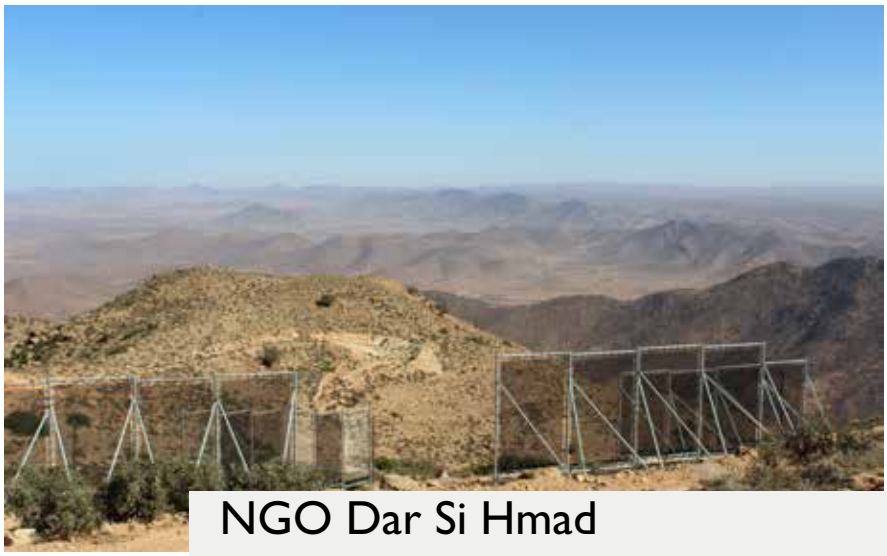
Solution:
The project led to the complete substitution of drinking water transported in tanker ships or pumped from local wells, which was of very poor quality and scarce availability. The technology used for the project is that of reverse osmosis which requires only the electricity. The combination of the desalination plant with the wind turbine leads to optimal results for the island environment and the inhabitants of Milos, leading the way down the path of sustainable development.

Innovation:
This technology involves reverse osmosis seawater desalination as a more environmentally friendly and cost-effective option compared to other water desalination technologies. It is the first CO2-neutral desalination project in Greece that does not burden the electric load of the local power network and the local thermal power production plant. It is also the first desalination plant in Greece located after a special architectural survey, in order to minimize any negative effects to the landscape as far as visual intrusion is concerned.

Drinking the Clouds: A Fog Collection Initiative in Southern Morocco

The NGO Dar Si Hmad for Development, Education and culture implemented the largest fog-collection project in the world.
Safe and clean potable fog-water is delivered to previously water-starved, poor, marginalized rural Berber communities of the Sahara bordering Anti-Atlas mountains in Morocco.

Initial situation:
This region on the edge of the Sahara is the most water-scarce region of the world: 78% of the land are desert or semi-arid, droughts are increasing in intensity, frequency and duration, desiccating the water supply. Prior to fog-water delivery to households, Berber women bore the laborious task of carrying water from distant wells. During the peak dry seasons, water used to be bought and delivered in water-trucks depleting already fragile revenues of these households.



NGO Dar Si Hmad
for Development, Education
and Culture
Morocco

Solution:
The project involves communities actively in the fog collection technology. Through building the largest fog collecting station in the world with a current mean water yield of 34,000 l/day, the NGO Dar Si Hmad for Development, Education and Culture transformed the lives of entire villages, but particularly that of women and girls, who spent around 3.5 hours a day to fetch water.

Innovation:
The CloudFisher is highly efficient, wind-resistant, and requires little maintenance. It is the embodiment of the fundamental principles of sound engineering. Its robust experimental design allows data collection, state-of-the-art modeling, real-scale prototyping, on-site implementation and honest evaluation. It does not only address structural limitations of previous designs but has dramatically increased the overall water yield of the system through intelligent development of 3D fog nets.

Access to safe and clean Drinking Water via AHD Nadi Filter

8,000 direct beneficiaries now have access to safe and clean drinking water at their door step. Their health and quality of life has been improved since the introduction of filters which leave dirty water clean. The project helps to eradicate endemic poverty, strengthen communities' resilience and expand socio-economic development options of the local population.

Initial situation:
The rural areas of Sindh Pakistan communities had to use contaminated canal water for drinking purposes. About 70% of the rural communities in Pakistan are still drinking contaminated water. The health of small children and mothers was often affected since they had to rely on dirty water. The majority of the population of both districts had only limited access to safe drinking water and sanitation services.

Association for Humanitarian Development (AHD)
Pakistan

Solution:
The AHD Nadi Filter Unit is a cheap and reliable source of safe water which has contributed to the provision of safe drinking water to the community. Local villagers now have an opportunity to access facilities of safe and clean drinking water through this project. This community based solution model helps the communities and villagers by protecting them from water borne and stomach diseases, eliminating up to 99% of the bacteria and viruses in water, removing biological contamination from the water and improving the water quality.

Innovation:
The AHD Nadi filter innovation is made from locally sourced material available in the rural areas and communities around the town. The positive and sustainable impacts of the filter can be seen in the communities of Sindh and Pakistan. The local communities promote the use of this technology at household level.

The AIDFI Hydram pumping drinking and irrigation water uphill through a holistic approach

The Hydram is an automatic device which pumps 24/7 an increased amount of water (up to ten times compared to what is carried manually) from lower situated sources to higher elevated waterless communities and farms using hydropower (energy contained in falling water). For farms, the Hydram provides irrigation water at no operational cost and can help a crop to survive sudden dry periods caused by climate change, add a crop or help a farmer diversify.

Initial situation:
In the Philippines, half of the land is mountainous. 20 million Filipinos are living in these mountainous areas of which 10 million are engaged in agriculture. Local problems are erosion, lacking irrigation, low productivity and migration to cities and slums. Irrigation is absent because the motorized pumps need expensive fuel and the cost of transporting this fuel to the mountains is high.

Alternative Indigenous Development Foundation, Inc. (AIDFI)
Philippines

Solution:
The Hydram is a device which can pump water from low areas to higher areas. The main objective of the Hydram program is to bring water around the clock closer to the houses and farms of the beneficiaries and by these means improve or rather completely change their lives. Through the formation of water associations and training of local technicians these systems are sustainable and the beneficiaries proud and empowered.

Innovation:
The pump was developed as a crossbreed model between oversized expensive imported models and the inferior DIY models. The result is a perfectly working model based on locally available materials and spare parts. It only costs 10% of the costs of imported units with the same capacity and efficiency. In a later step, a miniature model was developed which became the smallest ram pump in the world with all parts fitting in a camera box and which has been used in demos to demystify the technology in many countries.

Automated Hull Treatment

In the whole world there are around 60,000 trading ships that need to be re-colored every five years. For a long time, the maritime maintenance business has used the same old methods to apply new color to the ships. These methods usually are a burden on the environment. In this innovative Austrian project, this process was automatized which has a lot of advantages. The work safety has improved, cleaning is easier and the amount of colors is reduced by 20% which in turn reduces the costs by almost 50%. CO2 emissions have been reduced by 3%, less fossil fuel is needed and the pollution of the air is also lowered.

Hubert Palfinger Technologies GmbH
Austria

Initial situation:
For decades, the maritime maintenance business has not seen any developments in the automation of the various work processes for ship/hull maintenance. Shipyards are responsible for high environmental impacts by using manual processes for surface preparation or corrosion/fouling protection. High performance antifouling protection coatings were applied manually and usually in bad quality, causing unnecessary friction which leads to high fuel consumptions of the worldwide merchant fleet.

Solution:
This new treatment is the first worldwide environmentally friendly and cost optimized automated hull treatment system for maintaining ship hulls. The rotor jet tool is a modern flexible basket mounted tool primarily for working on ship hulls or similar surfaces. In combination with direct vacuuming it ensures eco-friendly rust removal and old coating removal with waste and waste water collection.

Innovation:
For cleaning the ship before the application of the new color now water is used instead of grit dust which is not only better for the workers but also for the environment. The closed loop water system ensures that only as much water as is really needed will be used for the cleaning of the ship. Ground based operation of the color application makes it possible for the workers to stay away from applying the colors themselves, making their work environment safer.

EconX - Knorr-Bremse TruckService's industrial remanufacturing gives old products a second life

Knorr-Bremse evolved to a major player in the remanufacturing business offering high quality heavy duty reman products for commercial vehicles under the brand name „EconX". All worn parts are exchanged, updates to conform to latest serial technology can be made and all products are thoroughly tested before re-selling them to the market.

Initial situation:
Although the company has over 70 years of experience in the remanufacturing of some products, this was never pursued strategically, only locally and for a few product groups. In 2014, the importance of this business field and the possibility to extend a product's life via industrial remanufacturing were recognized and an own department was founded.

Knorr-Bremse Systeme für Nutzfahrzeuge GmbH
Germany / implemented in Czech Republic

Solution:
All remanufacturing capabilities were bundled in a new specialized remanufacturing plant in Czech Republic to enable an industrial remanufacturing process under serial conditions. In 2015, the plant was opened centralizing reman processes, e. g. core (old, used products) receipt and sorting, disassembly, cleaning and reconditioning. Reassembly and end-of-line testing is either done at the reman plant or at the original serial lines at other plants, depending on the product group to maximize utilization of all assembly lines.

Innovation:
Knorr-Bremse patented several of its cleaning and reconditioning process steps that were specifically developed by its engineers. The company actively participates in research projects, currently for example in the publicly funded project ASPIRE with Fraunhofer Institute and other industry partners to improve the cleaning of components for higher reusability rates. Additionally, damaged cores are photo-documented with their rejection reason via tablet computers, generating a PDF report with an overview of rejected cores for the customers.

Geothermal Energy for the district heating of Espoo and Renewable Fuels for sustainable transportation

In the Finnish town of Espoo, public-private-people partnerships were established with the goal of making the city carbon neutral by 2030. The participating companies are involved in the regional transformation to carbon neutrality, but also innovative in their business fields. The proposal showcases with clear evidence the importance of several parallel forefront activities and their synergic collaboration.

Initial situation:
The Finnish city of Espoo has officially become a city only in 1972. Five city centers were combined and the city of Espoo was formed and planned. Visionary decision-makers have designed it in a way that is has become the most sustainable city in Europe. But this is still not enough to fight the climate change: New knowledge, new innovative solutions, new concepts and industrial breakthrough initiatives are needed.

Group of Finnish companies:
Fortum, ST1, Neste, HSY
Finland

Solution:
Partnerships between people, the private sector and the public are formed. The joint measures have the clear target of making Espoo city carbon neutral already by 2030. In order to achieve this, the use of coal in this city will be replaced by renewables. Several activities are also targeted to promote regional circular economy solutions. Several activities for the production of carbon-free energy are being planned or on their way to implementation.

Innovation:
The combination of various measures makes this project innovative. For example, the introduction of renewable jet fuel achieves up to 80% reduction of greenhouse gas emissions since it is made of renewable raw materials. Another example is the construction of a wastewater treatment plant which is able to remove over 96% of the phosphorus and organic matter and in addition produces carbon-neutral district heating.

DC Micro Power grid with energy storage integrated for marine & offshore vessels

BlueDrive PlusC is a revolutionary propulsion system that was specifically designed to help marine vessel owners and the wider offshore industry reduce emissions and improve the efficiency of their operations. Siemens has taken the next step in commercializing this technology by combining its experience in the maritime and oil and gas sectors, with expertise in electrical engineering, electronics, and digitalization, to deliver an advanced lithium-ion battery solution.

Siemens AS
Norway

Initial situation:
The shipping, marine, and offshore energy industries have come under immense pressure to improve the sustainability of their operations. In light of this, facility and marine vessel owners and operators have begun to take aggressive measures to lower fuel consumption and associated emissions, while at the same time reducing operational costs. Using vessels with hybrid (diesel-electric) or all-electric propulsion systems has proven to be an effective way of achieving these goals. However, the design and implementation of these systems present many unique technical challenges.

Solution:
The main motivation for this project was to create a fully integrated power solution that could help the marine and offshore industries reduce fuel consumption and associated emissions, without impacting profitability. The integration of the BlueVault energy storage with BlueDrive propulsion technology represents an advancement on the way to help offshore operators in the oil and gas, shipping, and energy sectors minimize the environmental footprint of their activities.

Innovation:
Multiple hybrid propulsion systems and energy storage solutions exist on the marketplace today, however, few (if any) companies have been able to bring the two together into a fully integrated solution. The integration of field-proven Bluedrive PlusC power and propulsion technology with a state-of-the-art energy storage solution like BlueVault represents a step change on the way to improve sustainability in the marine, offshore, and shipping sectors.

Himalayan Environmental Rhythms Observation and Evaluation System (HEROES)

Himalayan Environmental Rhythm Observation and Evaluation System is the first nationwide school based initiative to monitor the climate change and its impact on mountain ecosystems in Bhutan.
21 schools, representing different ecological zones and geographic regions of Bhutan, are currently involved in the HEROES project. Annually, over 400 students from 21 schools are engaged in monitoring seasonal lifecycles of plants and their yearly variation right in their respective school backyards.

Initial situation:
The Himalayas are one of the most iconic mountain ranges on the planet. The forests and the watersheds in these mountains support an estimated tenth of the world's population. As such, in addition to being a storehouse of unique biological diversity and storing a major chunk of the world's water in the form of ice, the Himalayas also regulate regional climatic conditions and provide crucial eco-system services.

UWICER
Bhutan

Solution:
One of the objective of the project is to enhance climate literacy, especially in terms of promoting enquiry based learning in environmental education in Bhutan. Such learning is very limited, if not, non-existent in the current education system of Bhutan. By implementing this environmental curriculum, students are expected to experience scientific progress and at the same time contribute meaningfully to the understanding of climate change and its impact in Bhutan and across the globe.

Innovation:
In this project, students use a mobile application called ‚Heroes' to record their daily plant observations, capture their location, take images and submit the data to an online data repository. Each school manages and owns the online data repository from where they can download data, do analyses and see yearly variations in the plants' lifecycles. This database is also accessible to the general public through an online portal.

MEGA Game: Connecting People for a Sustainable Future

MEGA Game is a map-based project management tool with elements of gamification and e-learning designed for environmental organizations and Green Tech companies. This platform helps them to manage environmental projects and fieldwork collaboratively within a global community.
Since 2015, the MEGA Game enabled 17 environmental organizations from Europe, Asia, and the US that have used the platform to implement 30 environmental and educational projects.

Moldovan Environmental Governance Academy (MEGA)
Republic of Moldova

Initial situation:
In Moldova, there are many environmental projects organized by NGOs. The majority of them are focused on raising awareness and educating the youth about existing environmental problems, elaborating policy proposals, cleaning up and recycling waste, and planting trees. For these activities, the NGOs altogether spend approximately 500,000 EUR of grant money per year. Unfortunately, in spite of all this grant support and multiple projects and campaigns, the scientific data on practically all aspects of the natural environment in Moldova show a continuous decline.

Solution:
The aim of this project management tool was to address organizational internal issues by engaging youth into MEGA projects and in reporting on the projects' results and impact to stakeholders. To alleviate these „pains", in 2013, the MEGA team initiated the first „experiments" in using maps and gamification to engage youth into nature conservation, to coordinate the fieldwork of volunteers, and to make the „fruits" of their work visible to project partners. The long-term vision was that volunteers registered in MEGA Game would be able to engage with organizations' projects posted on the platform.

Innovation:
The MEGA Game platform allows environmental organizations (called Mission Providers) to connect with volunteers (called Green Agents) and other NGOs, engage and educate them on various environmental topics, research existing environmental issues, manage their projects, monitor progress, display positive impact achieved, and report to stakeholders. All of this is done in a collaborative space and in a fun, engaging, and motivating way due to elements of gamification integrated into the platform.

Educating through Technology (Raspberry PI Computer Labs)

In this inspiring project, environment protection, the use of technologies and education are combined. A tool called Pi-oneer is used which is an innovative teaching tool consisting of a Raspberry Pi computer and offline educational content. Solar energy is the source of electric power which is perfect for the remote areas where the project is implemented.

Initial situation:
Many schools in Tanzania are still not connected to the national grid and therefore don't have electricity. This is also one of the reasons why people who are interested in technologies leave their villages and go to live in towns where they hope to find a better future.

Potential Enhancement Foundation
United Republic of Tanzania

Solution:
Instruction videos from the Khan Academy, e-books from the project Gutenberg, encyclopedias and other content can now be displayed in the classrooms. The teachers are provided with a mobile projector and a solar recharging unit. Next to the better education which is now available in 29 schools, a side effect of the project is that the people can see the advantages of solar energy with their own eyes and start to use it in their homes too.

Innovation:
The project provides a unique tool called Pi-oneer, an innovative teaching tool consisting of a Raspberry Pi computer with RACHEL offline educational content that includes Khan Academy videos, as well as a mobile projector and a solar recharging unit. Teachers can take the Pi-oneer into their classrooms and display educational videos and other visual teaching materials to their students. More than twenty schools in Tanzania have a Pi-oneer.

Solar Power Solution for Indonesia's Poorest

Selaras Daya Utama has successfully developed three 10 kWp off-grid solar power plants for three remote and isolated villages in Papua and West Papua. Each of the solar power plants produces more than 50 kWh per day and is able to support a school with more than 200 students and its clinic, catering not only for the students but also the local community. This solution substantially reduces the deforestation and consequently CO2 emissions.

Initial situation:
One of the main reasons behind the development challenges in Papua and West Papua is the lack of access to electricity, i. e. low electrification ratio. The island of Papua is largely mountainous and the majority of the island is covered with heavy tropical rainforest. A few tribes are living there, most of them in different locations in remote and isolated highlands, making this Indonesian island sparsely populated.

PT Selaras Daya Utama
Indonesia

Solution:
In the initial stage, an educational institution was identified that is active in providing education in Papua, especially to tribes located in remote and isolated areas in the highlands. After signing an agreement to collaborate, a technical team was sent to gather the information needed to design the solar power solution by surveying the sites and understanding the required electricity load pattern for the schools and clinics.

Innovation:
The decision to empower the local Papuans as part of the construction team was one of the most innovative approaches in the projects resulting in multiple benefits, from increasing the confidence of the local people in the technology and its operation and maintenance aspects. On top of this, this approach also saved a significant amount of project expenses since sending the whole team from the main island of Java to Papua would have increased the project budget by at least 30%.