

# ENERGY GLOBE WORLD AWARD

13 November, Espoo/Finland

Conference Center  
Hanasaari – Hanaholmen

**WINNER  
2019**



[www.energyglobe.info](http://www.energyglobe.info)



**ESPOO  
ESBO**



**SUSTAINABLE  
DEVELOPMENT  
GOALS**

# Energy Globe World Award 2019



## Winner Category Earth

Colombia - Agglomerating Future..... 3



## Winner Category Fire

United Kingdom - The Waterloo Revolution..... 4



## Winner Category Water

Morocco - Drinking the Clouds: A Fog Collection Initiative in Southern Morocco..... 5



## Winner Category Air

Austria - Automated Hull Treatment..... 6

Finland - Geothermal Energy for the district heating of Espoo  
and Renewable Fuels for sustainable transportation ..... 7



## Winner Category Youth

Moldova, Republic of - MEGA Game: Connecting People for a Sustainable Future..... 8

## Winner Category „Energy for All“

Indonesia - Solar Power Solution for Indonesia's Poorest..... 9

# Agglomerating Future

Bioestibas is the first ecological pallets and boards factory in Latin America.

The essential ingredient is the stem of hydrangeas.

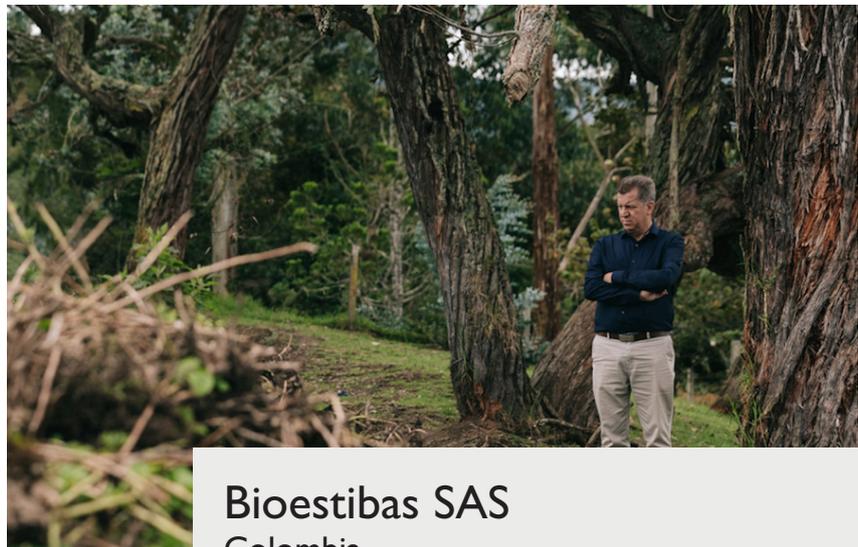
Hydrangea is a Colombian flower which is exported in large quantities. More than 60,000 tons of agricultural waste result every month from the production of these flowers. This biomass is either discarded or burnt.

## 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.

## 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



**Bioestibas SAS**  
Colombia

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.

# The Waterloo Revolution

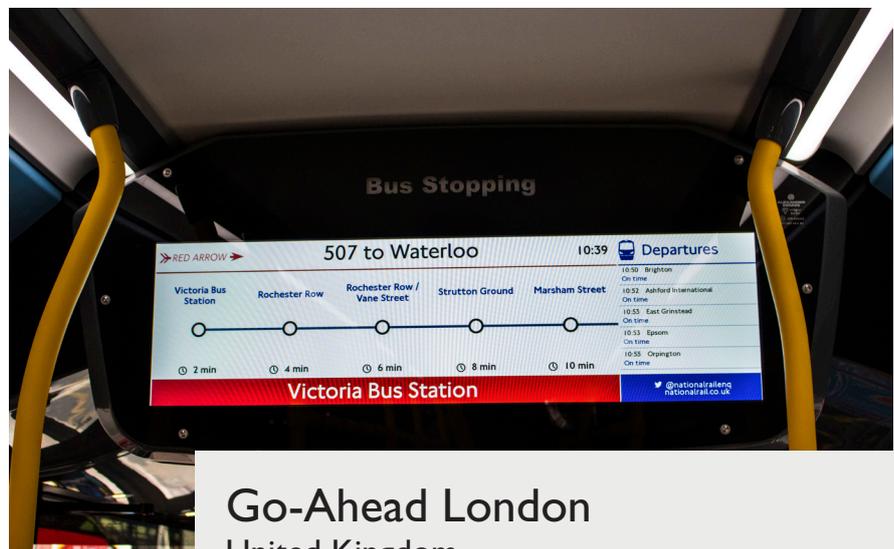
Spurred by the introduction of an Ultra-Low Emission Zone for part of the capital in 2019, Transport for London intends to introduce Europe’s largest fleet of electric buses. Therefore, it chose to partner Go-Ahead London, the biggest bus company in the capital, on an ambitious garage conversion, from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

## 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 tra-



Go-Ahead London  
United Kingdom

veling 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.

# 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 particular-

ly 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.

# Automated Hull Treatment

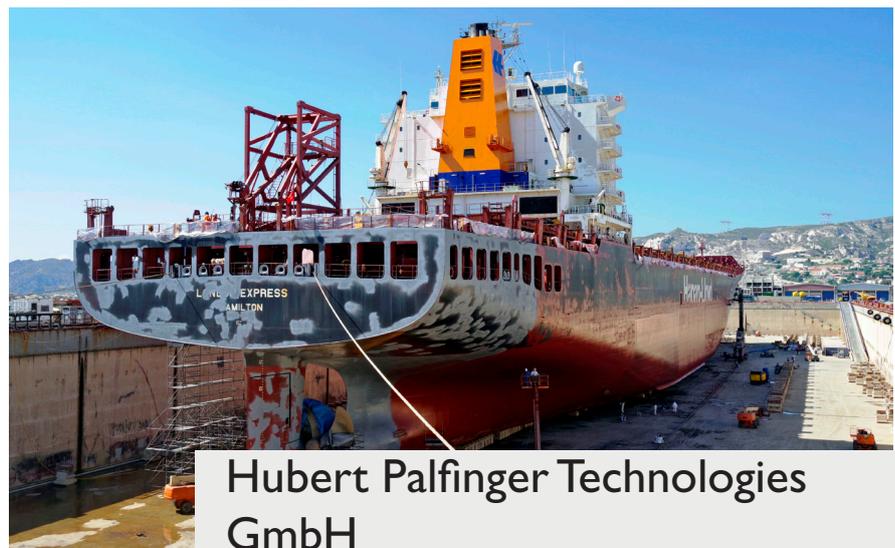
In the whole world there are around 60,000 trading ships that need to be re-colored every five years. For a long time, the maritime maintenance business has used the same old methods to apply new color to the ships. These methods usually are a burden on the environment. In this innovative Austrian project, 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.

## 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



Hubert Palfinger Technologies  
GmbH  
Austria

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.

# 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.

## 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 cir-



Group of Finnish companies:  
Fortum, ST I, Neste, HSY  
Finland

lar 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.

# 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.

## 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



Moldovan Environmental  
Governance Academy (MEGA)  
Republic of Moldova

„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 all-

ows 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.

# 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 re-

quired 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 ap-

proach 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%.