



Our commitment to sustainable IT

A teal-tinted photograph of a hand watering a small plant. The hand is at the top right, with a single drop of water falling from the index finger onto the stem of a small plant with two leaves. The plant is growing out of a small mound of soil at the bottom. The background is dark and out of focus.

Because IT shouldn't cost the Earth

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Sustainable IT

Modern day laptops can do almost anything required of them. They're thinner, faster and more powerful. However, most are exchanged and replaced with little thought or reasoning.

As we move into the hopeful era of a circular economy, it is important we acknowledge the impact our everyday items are having on people and our planet, and to investigate alternate procurement methods.

Over 160 million new laptops are made every year and 160,000 are disposed of every day in the EU alone. 70% of those laptops could be reused.

Our demand for new IT is not driven by a real need. It is driven by a false

perception that our organisations cannot operate without the newest makes and models.

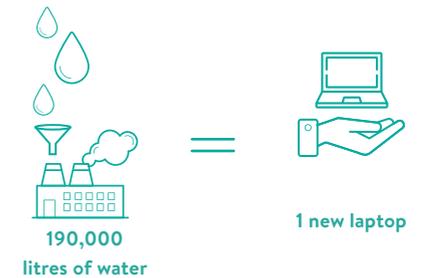
The result is excessive resource consumption, contribution to climate change, conflict mining, human rights issues, pollution and e-waste.

Our demand for new IT is not driven by a real need. The result is excessive [...] pollution and e-waste.

It takes 190,000
litres of water
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Water usage

It takes 1.7 tonnes of materials and around 190,000 litres of water to make just one new laptop – so when we look at an enterprise order level, we can see the impact this is having on our dwindling water supply.



Climate change

The IT industry alone is responsible for up to 2% of greenhouse gases worldwide, which may not sound like much, but is equal to that emitted by the entire aviation industry.

Studies indicate that this percentage will rise to as high as 3.6% by 2020 and 14% by 2040.

An average of 380kg of CO₂ emission is released during the production of a new laptop, adding to increased warming of the planet.

To put this into perspective, an organization buying 5,000 brand new laptops will indirectly contribute 1.9 million kgs CO₂ emission into the atmosphere.

Human rights

60% of the world's supply of critical minerals used in the manufacture of our computers and gadgets come from the conflict regions in the Congo, where it is reported that children as young as four are employed in the mines.

This means that when we buy a new computer, we are commissioning vulnerable communities to work in hazardous conditions.

Following this damaging beginning, computers are often made by low paid (or no pay in some IT factories) workers in difficult conditions. In some cases, these workers have been students, who are then failed in their exams if they do not meet production demand.

In the conflict regions of the Congo, it is reported that children as young as four are employed in the mines

Pollution

The chemicals used in the extraction, processing and production of new computers can be hazardous and, in some cases, have killed workers. Making new computers is energy-intensive, toxic and creates pollution.

A typical computer chip factory in China uses enough electricity from coal-fired power stations to power a small city.

China is one of the most polluted places on Earth due to it being the factory of the world.

This pollution has caused incidences of major ground water contamination and the poisoning of workers.



Making new computers is energy-intensive, toxic and creates pollution.

E-waste

China, Africa and other developing countries have become a dumping ground for an estimated 30% of our electronic waste, despite laws forbidding this. E-waste is one of the largest growing waste streams globally.

In developing countries, local e-waste 'pickers' (often children) are exposed to harmful toxins on e-waste sites, causing death in some cases, while the long-term damage to local populations and the environment is still unknown.

Mapping out e-waste

30% of our electronic waste is sent across the world despite laws forbidding this



We do IT differently

What we do is firmly rooted in the Circular Economy – an industrial model that aims to redefine products to be cradle-to-cradle rather than to the grave.

Our services focus on restoration, regeneration and take a stance against in-design obsolescence.

As the world's first Secondary Equipment Manufacturer (SEM), we offer a no-compromise route to sustainable IT. We take otherwise discarded products of between one and four years old and remanufacture them to perfect cosmetic condition with original high performance by fully disassembling, upgrading and reassembling.

To describe our products as refurbished would be incorrect.

While others refurbish to meet buyer expectations, we remanufacture and wildly exceed this short-term approach.

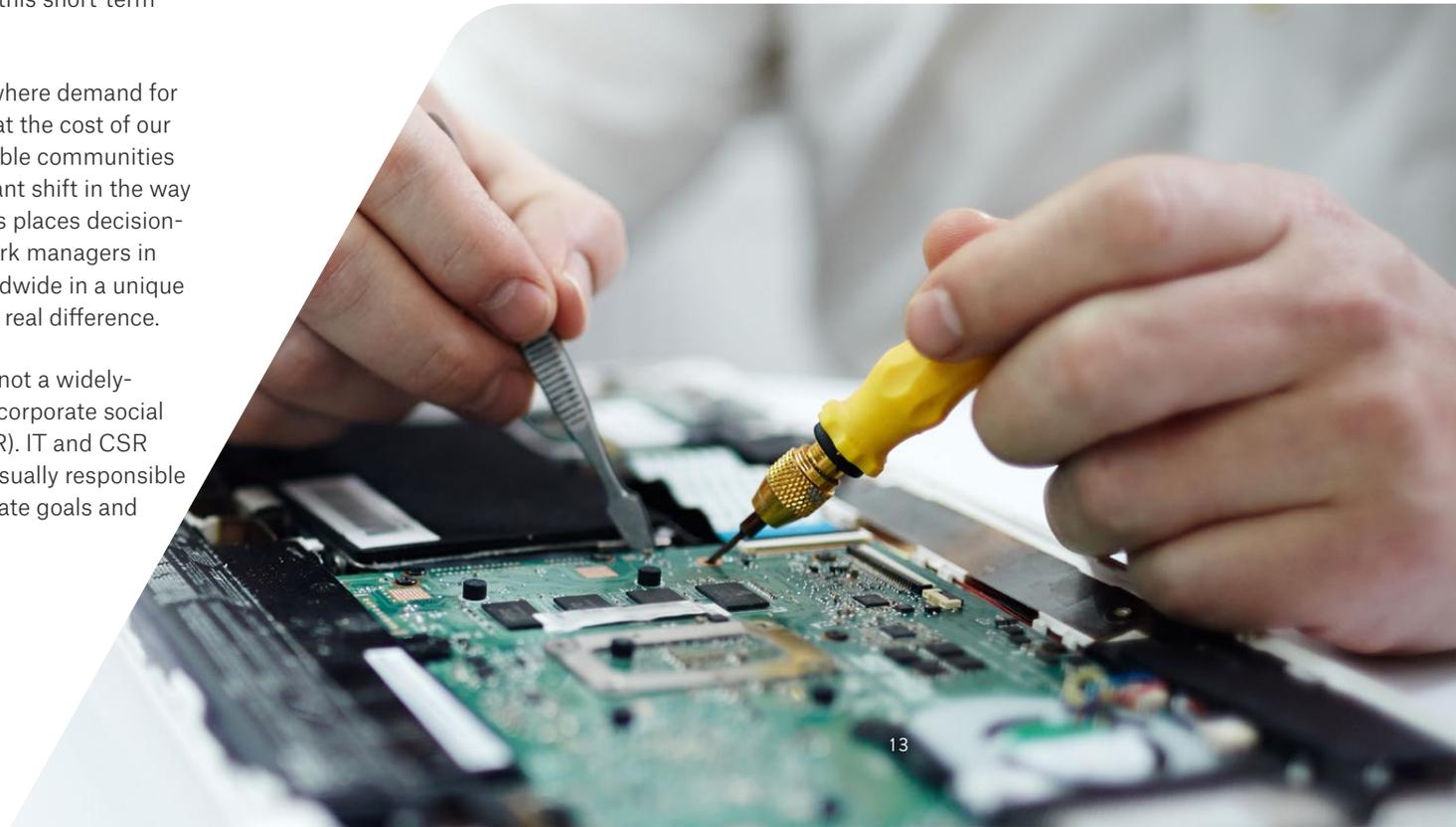
Creating a world where demand for IT does not come at the cost of our planet and vulnerable communities requires a significant shift in the way IT is procured. This places decision-makers and network managers in organisations worldwide in a unique position to make a real difference.

IT procurement is not a widely-adopted focus for corporate social responsibility (CSR). IT and CSR departments are usually responsible for pursuing separate goals and

are expected to deliver on different business needs. We want to change this.

Making Circular Computing™ products part of your IT procurement strategy maximises positive contribution towards CSR goals, whilst also satisfying the IT requirements of the business.

For us, this is about more than selling great products. Circular Computing™ was born from a desire to not only prevent, but reverse the environmental damage created by the IT industry.



Our 'Reversal' objectives

01

To reverse the harm caused to people and the environment by "manufacturing pollution" and the extraction of natural resources.

The true price of our IT is often paid by communities that are "put to work" in developing countries to meet manufacturer demand.

Whilst pay is poor by western standards, it is often the best source of critical income for local communities.

Families go to extreme lengths to protect that income, with children as young as four working in mines to extract minerals for new computers.

Throwing money at this problem is not a viable solution. There needs to be wider consideration for meeting short-term needs, whilst investing in long term solutions that give people real choice, without creating a void in family income.

02

To help reverse the legacy impact of IT CO₂ emissions on behalf of ourselves and our partners – there is a legacy of CO₂ debt carried by all of us who are engaged with IT operations.

Reversal will be committed to tackling this legacy of debt through reforestation projects that compensate for the production, use and disposal of IT.

03

To promote ethical and fair labour practices within the supply chains of IT manufacturers - the technology sector has typically done very little to offer transparency around the working conditions caused by our relentless demand for newer, better and faster technology.

We are 100% aligned to the Electronic Industry Citizenship Coalition (EICC) and are committed to giving choice back to the workers who are a crucial component of our supply chain. This includes a firm stance against bonded labour.

We will lead by example, giving our partners the opportunity to support us in ensuring ethical standards.

04

To combat the environmental damage and harm caused to human health by e-waste in developing countries.

Many millions of tons of ICT WEEE are sent to Ghana and Hong Kong illegally and disposed of without any duty of care to the local community or the environment.

Carcinogens are created by burning materials to salvage valuable scrap, inflicting life-long damage to the residents.

Reversal wants to see more products making their way to legitimate recycling centres for re-use, re-purposing and re-entry into the circular economy.

05

To bridge the digital divide, ensuring societies worldwide, have access to high quality computer equipment.

We work with regions of digital disadvantage by investing in technology required by under-resourced societies.

We do not want this to stop at laptops. We want to ensure global communities are digitally equipped to meet the needs of local people, whether that technology is required for water or energy projects, or to create the digital infrastructure required for education.

**We will lead by example,
giving our partners the
opportunity to support
us in ensuring
ethical standards.**



We are Carbon Neutral

Through our support of clean energy projects, we have offset the CO₂ emissions from the remanufacturing process so that every Circular Computing™ laptop is a certified carbon neutral product.

Carbon neutral

Making or resulting in no net release of carbon dioxide into the atmosphere, especially as a result of carbon offsetting.

Carbon offset

An action intended to compensate for the emission of carbon dioxide into the atmosphere as a result of industrial or other human activity, especially when quantified and traded as part of a commercial scheme.

Every action that every person takes every day has some form of carbon emissions impact. It is only by every person and every organization committing to being carbon neutral that we can achieve the zero-carbon (or ultra-low carbon) global economy required to help combat climate change.

As an organization, we have made a commitment to audit, understand and minimize our own carbon impact on the planet.

Becoming an accredited carbon neutral organization through our support of clean energy projects

allows us to have an immediate, positive effect. It allows us to take ownership and be fully accountable for our carbon footprint, right now - today.

By investing in carbon credits, we are contributing to making the global market for carbon work. Before the global carbon credit market, everyone could release carbon emissions without taking any responsibility for the cost to the environment. We fully support the carbon credit market as a transitional mechanism to 'internalise' the true environmental cost of carbon emissions into economic activities.

It is only by every person and every organization committing to being carbon neutral that we can achieve the zero-carbon global economy

Carbon credits are stimulating investment in renewable energy and zero or low carbon alternatives to all activities within our supply chains, transport and logistics.

However, carbon credits are not the complete solution – organizations must still aim for every viable means of carbon reduction. They are, however, the key mechanism in the global economy to people, planet and profit into a sustainable balance, change the business case for low carbon alternatives and have had a demonstrable effect already.

As the global economy moves closer to becoming carbon zero, the cost of carbon credits and offsetting will rapidly increase.

This will make more and more zero or lower-carbon alternatives for power, production, transport and consumption economically viable and, therefore, more widely available.

This will shift the economic balance to favour zero or low carbon activities and price excessive and unnecessary carbon emissions out of the global economy.



Improve health
and education,
reduce
inequality, and
spur economic
growth.

Sustainable Development Goals

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.

At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries – developed and developing – in a global partnership.

improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that



Circular Computing™ specifically impacts 8 of the 17 sustainable development goals:




Zero hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

2 ZERO HUNGER




Responsible consumption and production

Ensure sustainable consumption and production patterns.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



3 GOOD HEALTH AND WELL-BEING



Good health and well-being

Ensure healthy lives and promote well-being for all at all ages.



13 CLIMATE ACTION



Climate action

Take urgent action to combat climate change and its impacts.




Decent work and economic growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

8 DECENT WORK AND ECONOMIC GROWTH




Life on land

Protect, restore and promote sustainable use of ecosystems, sustainably manage forests, combat desertification, and reverse land degradation and halt biodiversity loss.

15 LIFE ON LAND



9 INDUSTRY INNOVATION AND INFRASTRUCTURE



Industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.



17 PARTNERSHIPS FOR THE GOALS



Partnership for the goals

Strengthen the means of implementation and revitalize the global partnership for sustainable development.



Reforestation

For every Circular Computing™ computer sold, five trees are planted.

Over the course of the lifetime of a tree, sufficient CO₂ will be sequestered to compensate for the emissions associated with the remanufacture of the computer at least three times over, helping to mitigate climate change.

The forests that Circular Computing™ are restoring will alleviate poverty through income diversity for the poorest communities, and restore soils, water and biodiversity.

OneTreePlanted

OneTreePlanted's mission is to reforest the planet, one tree at a time. This organization allows individuals to simply plant one tree, in order to create accessibility and motivate people to do something positive for the planet.

Through their network of on-the-ground reforestation partners, they fund tree planting in North America, South America, Asia and Africa.

Through OneTreePlanted, Circular Computing™ are contributing to the Moonlight Fire Restoration Project: Planting 1 million trees over 4 years.

WeForest

WeForest is a remarkable organisation which shares our vision for engaging the world's largest organisations in social and environmental sustainability initiatives.

Through the organization's numerous reforestation projects, it is transforming global landscapes with the aim of combatting climate change, supporting local people and preserving the planet.

Reforestation projects create businesses in themselves, generating sustainable employment, infrastructure and income security within local and otherwise vulnerable communities.

Circular Computing™ customers have access to near-real-time feeds where staff can keep up to date with the reforestation projects their laptops are supporting in India's Khasi Hills and Zambia's Luanshya, with the aim to support communities in regeneration of the forest and engaging farmers in reversal.

As with everything we do, our partnership with WeForest is as much about people as the planet.

“We are working in partnership with WeForest to create a more sustainable future where doing good for people and planet can coexist with good business.”

Rod Neale, Founder of Circular Computing™

Over their lifetime, these trees will absorb around 600kg of CO₂ to help compensate for the carbon emissions associated with the laptop – including 3 years of use by you.

This soon adds up – for every 1,100 Circular Computing™ laptops, there is enough fuel for over 1 million miles (1.6 million kilometres) in an average US passenger vehicle.

Working with our reforestation partners in Africa, India and the USA, our target is to plant 1.5 million trees by 2021 to help reduce the effects of global warming.

These projects also help empower and protect vulnerable, local communities by creating jobs and income through our planting programs.

One hectare is enough space for 800-1200 trees. It takes just 240 Circular Computing™ laptops to fill an area the size of a football pitch with trees.

Five trees in Zambia absorb 600kg CO₂ and five trees in India absorb 1020kg CO₂ over a 20-year period. We use the lower figure in our calculations as we run mixed planting programs.

The best time to plant a tree was 20 years ago.

The next best time is now.

Clean energy projects

Through our support of clean energy projects around the world, every Circular Computing™ laptop becomes a certified carbon neutral product.

Efficient Cookstone Project, Kenya

The project is located in the west of Kenya and provides families with fuel-efficient stoves.

Throughout Kenya, many people still cook in a traditional way on what is called a three stone fire – this is exactly as it sounds, three rocks with a pan sat on top of an open fire.

This method is very inefficient as much of the heat is wasted as it escapes around the pan. It also produces a great deal of smoke from the wood being burnt, as the majority of people cook indoors – this enclosed smoke is a major cause of health issues.

These brick stoves result in a 50% reduction in the need for firewood and thereby prevent carbon from being emitted.

The project provides locally-made domestic fuel-efficient cooking stoves to rural households within the Mathira East, Eldoret East and Keiyo Districts of Kenya.

The new stoves reduce the amount of wood fuel needed for cooking, thereby reducing carbon emissions.

To counter this, the Kenyan Energy Efficient Stove Project supplies energy saving cooking stoves for local villages.

The stoves provide families with a cleaner, cheaper and easier way of cooking, due to the reduction of wood that is needed.

The stoves are made in Kenya and are provided to families free of charge.

Environmental benefits

Significantly reduce Kenya's greenhouse gas emissions over its lifetime.

Reduce the use of non-renewable biomass from Kenyan forests, assisting the maintenance of existing forest stock, protecting natural forest ecosystems and wildlife habitats.

Protection of standing forests, ensuring the maintenance of watersheds that regulate water table levels and prevent flash flooding.

Social benefits

Less time spent collecting wood fuel, thereby reducing the work burden on rural families and presenting alternative opportunities for economic development. Reduced amount of indoor air pollutants from the burning of biomass in the home. Less carbon dioxide, carbon monoxide, and particulates emitted.

Economic benefits

Help develop a section of the Kenyan rural economy in the manufacturing of the stoves, their installation, maintenance and monitoring. Costs incurred in the purchase of fuel reduced through increased thermal efficiency.

Protecting
natural forest
ecosystems
and wildlife
habitats.

Wayang Windu Geothermal Power Project, Indonesia

Geothermal power plants use steam produced from hot water reservoirs found a couple of miles more below the Earth's surface, instead of having to use fossil fuels.

The steam rotates a turbine that activates a generator, which produces electricity.

It is a natural and sustainable source of energy.

Wayang Windu Phase 2 Geothermal Power Project is a 117MW geothermal power station, which is an additional power unit to an existing grid-connected renewable power plant.

The project involves the generation of power using a reliable and renewable resource in place of power generation by a more greenhouse gas-intensive fuel/source.

The project reduces greenhouse gas emissions through the displacement of fossil fuel electricity generation with a clean, renewable energy source.

Additional benefits

Environmental sustainability

Practising natural resource conservation and diversification. Assuring and maintaining levels of local community health and safety.

Economic sustainability

Assuring and maintaining local community welfare.

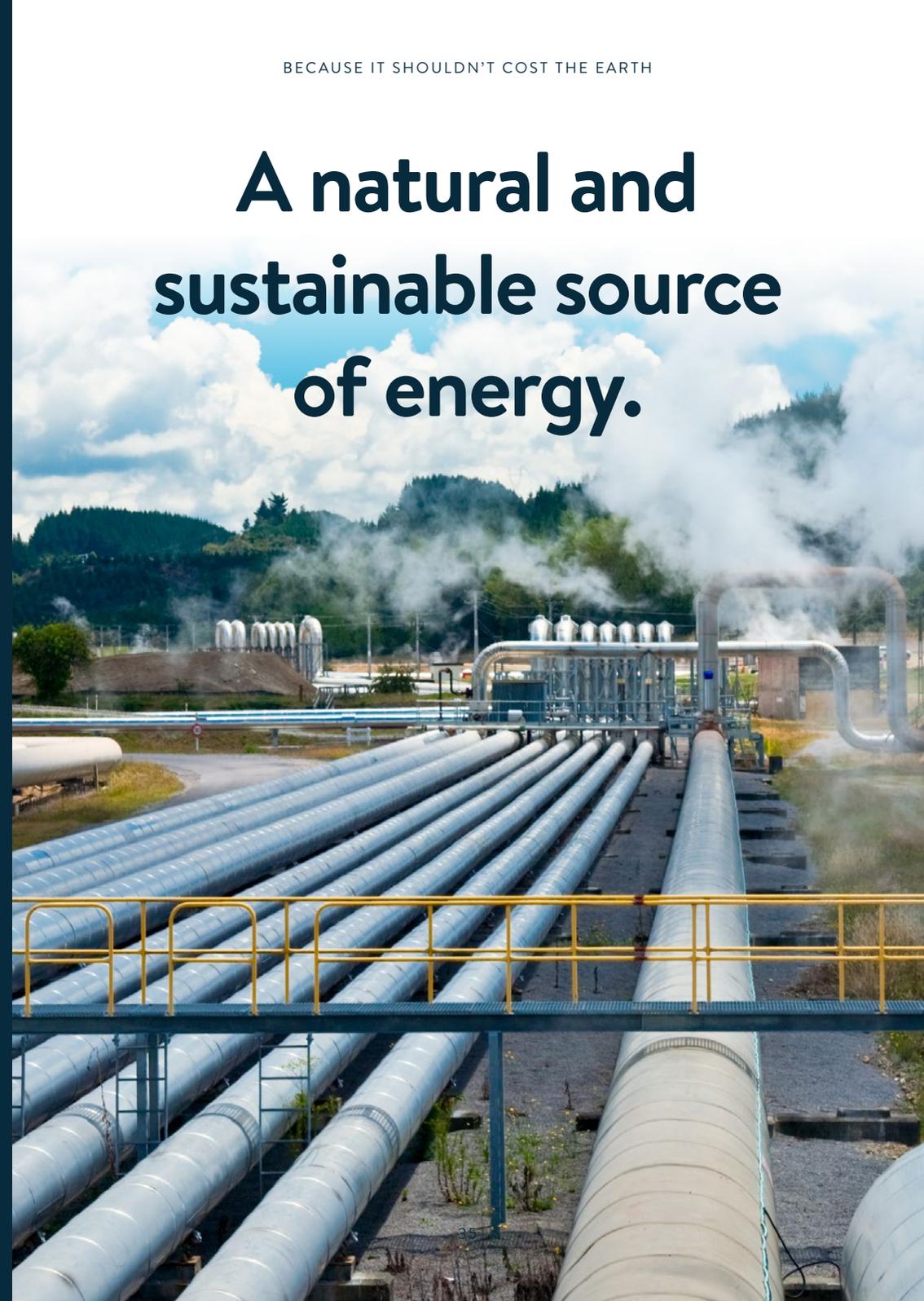
Social sustainability

Assuring and maintaining local community participation in the project and local community social integrity.

Technological sustainability

Technology transfer and enhancing the capacity and utilisation of local technology.

A natural and sustainable source of energy.



Kocaeli Landfill Gas to Electricity Project, Turkey

Solaklar Landfill Area, in the Kocaeli Province, Turkey, covers 3 million square meters. Solaklar Landfill is the largest in the municipality and accepts an average of 570 tonnes of municipal waste each day.

This landfill gas recovery and utilisation project prepares the landfill area for the collection of landfill gas which is utilised to generate electricity through the use of gas engines.

Landfill gas is one of the largest sources of methane, a greenhouse gas more potent than carbon dioxide which would otherwise be released from the landfill site into the atmosphere.

By capturing this landfill gas and using it to produce electricity, the methane and carbon dioxide contained within are destroyed, reducing the emissions released.

The electricity generated is fed to the national grid and replaces electricity which would otherwise be generated

by fossil fuel-fed power plants, resulting in further emission reductions.

It is estimated that the landfill gas supports approximately 2MW of installed capacity and that a total of 701,347 tCO₂eq of greenhouse gas emissions will be reduced within the first crediting period.

The project also improves the air quality in the region by reducing the amount of pollutants emissions contained in the landfill gas such as hydrogen sulphide which can cause nausea, delirium, headaches, and skin and eye irritation.

Covering the landfill area and extracting the landfill gas also significantly reduces odor nuisance and the risk of explosions and fires.

The project further benefits the local population by providing jobs, reducing local unemployment, and by supporting the renovation of the local school library.

Social and sustainability benefits

- Reduction in emission of Greenhouse Gases
- Creation of local employment
- Reduces unpleasant odors and risk of fire and explosion
- Improves air quality
- Supports the local school library
- Results in the transfer of knowledge on waste management principles

The electricity generated is fed to the national grid and replaces electricity which would otherwise be generated by fossil fuel-fed power plants



**Electricity would
be generated
through
sustainable means.**

Wind-Based Power Generation Project, India

This project generates power using a renewable energy source (wind) and sells the power generated to the state grid.

The project activity involves the installation and maintenance of wind turbines.

The total installed capacity of the project is 80 MW; which involves

operation of 40 Wind Turbine Generators (WTGs), each with a capacity of 2 MW.

The power produced displaces an equivalent amount of power from the grid, which is fed mainly by fossil fuel-fired power plants, thereby resulting in reduction of Greenhouse Gas (GHG) emissions.

The project is promoted by Panama Wind Energy Godawari Private Limited and located at Maharashtra state in India.

GHG emission reductions from the project activity will be 136,936 tonnes of CO₂ per year, with the total expected GHG emission reductions across the 10-year crediting period of 1,369,360 tonnes of CO₂.

The Project activity is a new facility with the purpose of generating electricity by the utilization of wind power and further selling the generated energy to the NEWNE Grid.

In this process there is no consumption of any fossil fuel and hence the project does not lead to any greenhouse gas emissions. Electricity would be generated through sustainable means without causing any negative impact on the environment.

The crediting period started in March 2014 and is expected to run for 10 years.

Social and sustainability benefits

Generation of employment opportunities during the construction and operation of the project.

The project helps reduce the demand/supply gap in the region.

The project will demonstrate the technology in the region and help encourage other wind power projects.

Further reading

For more information on sustainability, carbon-neutrality and what Circular Computing™ does to help, feel free to view our online ebooks and resource papers on our website:

circularcomputing.com/resources/





Because IT shouldn't cost the Earth



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Carbon
Neutral
Organisation



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