MAJOR NEW SCIENCE MUSEUM GALLERY EXPLORES RAPID ENERGY TRANSITION NEEDED TO LIMIT CLIMATE CHANGE

Tuesday 26 March, 2024

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STRICTLY EMBARGOED UNTIL 00.01AM, TUESDAY 26 MARCH

MAJOR NEW SCIENCE MUSEUM GALLERY EXPLORES URGENT ENERGY TRANSITION NEEDED TO LIMIT CLIMATE CHANGE

- Today a major new gallery examining the rapid energy transition and decarbonisation needed globally to limit climate change opens at the Science Museum;
- *Energy Revolution: The Adani Green Energy Gallery* features historic and contemporary objects and engaging digital exhibits that highlight how we can journey towards a low carbon world;
- The free gallery showcases how the world can generate and use energy more sustainably, highlighting technologies and projects from the UK and abroad - from hydrogen power on Orkney to terracotta air-cooling façades in India and solar farms in Morocco;
- The gallery encourages visitors to reflect on past energy transitions and the pioneers who dreamed what might be possible, while imagining the energy use that will shape our low carbon future.

Energy Revolution: The Adani Green Energy Gallery
Ticketed; FREE

Level 2

sciencemuseum.org.uk/energy-revolution

Today the Science Museum opens a major new gallery dedicated to one of the greatest challenges of our time, exploring how the world can generate and use energy more sustainably to urgently decarbonise global energy systems and limit dangerous climate change. Through striking displays of contemporary and historic objects, engaging digital exhibits and specially commissioned models, the gallery shows how the past, present and future of energy systems are shaped by human imagination and innovation and explores how we all have a role to play in deciding our energy future.

The free gallery examines this century's defining challenge through the lens of imagination across three sections. In *Future Planet*, visitors can examine how climate scientists use mathematics and complex computer-based models to understand our planet, and what these tell us about the range of climate futures that might lie ahead. In *Future* Energy, technologies - and the people behind them - that are reimagining how energy is supplied and used today are highlighted alongside historic artefacts which provide a longer view of the energy transition away from fossil fuels. *Our Future* looks forward to a new world that is being dreamt up, with children's creative ideas of how the world will meet its future energy needs displayed with expert responses to them.

At the centre of the gallery, uniting science and art, is an art commission *Only Breath*, a kinetic sculpture that moves and blooms, stretching to around 5 metres in diameter when unfurled. Created by artists Alexandra Carr and Colin Rennie from Torus Torus Studios, the sculpture was made from repurposed mirrors, recyclable stainless steel and windblown wood and signifies the power of nature to inspire technological change.

Vital low-carbon technologies for the energy transition, from nuclear, hydrogen and solar to wind and tidal power, are explored in *Future* Energy. On display for the first time is a huge quadrant from the Zero Energy Thermonuclear Assembly (ZETA), a nuclear fusion experiment created in the late 1950s by British scientists who imagined a world filled with abundant energy thanks to nuclear fusion. Visitors can study part of a later fusion experiment, the Mega Amp Spherical Tokamak (MAST) which operated in Oxfordshire until 2013, and enjoy a view inside the record-breaking Joint European Torus (JET) fusion machine where scientists are experimenting to create a fusion-powered future. Visitors can also examine

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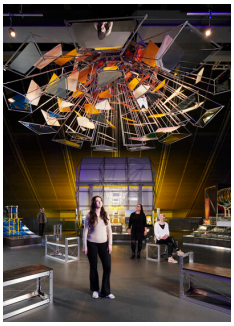
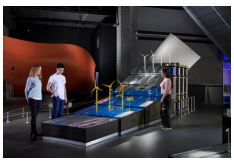
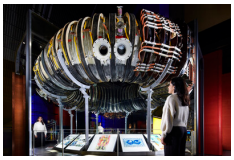
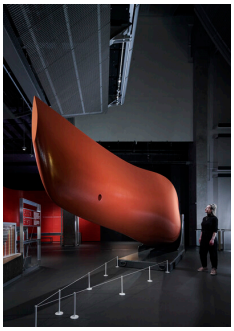


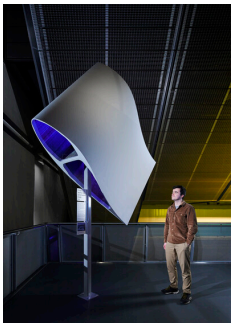



the complexities of nuclear power and consider if nuclear fission could meet growing energy needs. On display are models of made by Rolls-Royce of a small modular nuclear reactor, which may power more of our homes in the future, alongside part of a real (but non-radioactive) canister used for storing nuclear waste in the UK.



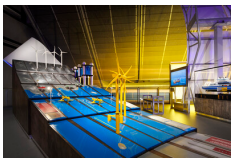
Every hour the Sun sends more energy to Earth than we use in a year. Yet to use this solar energy, it must be captured and distributed to where it's needed. The objects on display showcase the sheer variety possible with solar power, from a model of a solar-powered classroom which supports schoolchildren and local communities in India and Uganda to the towering 5m tall parabolic solar trough mirrors used on huge solar farms to concentrate sunlight and generate electricity, and a model of the Xlinks ship built to lay a 4,000 km long cable to supply the UK with electricity from Moroccan solar and wind farms. An interactive game designed for the gallery invites visitors to solve challenges at solar installations across the world.

The Scottish islands of Orkney are playing an important role in the energy transition, with abundant wind and tidal energy being harnessed to develop an innovative hydrogen economy. Visitors can see a model of hydrogen and renewable energy projects on the islands, from floating offshore wind and tidal turbines to the world's first large-scale green hydrogen plant, and watch a film featuring the people and places behind these pioneering projects. On display for the first time is a vast 7m long tidal turbine blade made by Orbital Marine Power. Used on a 63-metre-long, 500-tonne vessel in 2016, this prototype blade helped generate enough electricity to power a thousand homes thanks to the strong tidal flows around Orkney. Visitors can also ponder the potential of hydrogen to support our future energy needs while looking at the hydrogen electrolyser used in South Yorkshire to split water and generate hydrogen in the UK's first hydrogen refuelling station.



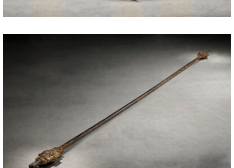
Oliver Carpenter, Lead Curator of Energy Revolution: The Adani Green Energy Gallery at the Science Museum, said: 'This gallery shares contemporary stories of individuals, organisations and communities all imagining the future of low-carbon energy, but it also spotlights some of the earliest ideas and technologies created by the imaginations of previous generations. By taking a long view of the energy revolution and showcasing impressive technologies of the past, alongside today's low-carbon options, we hope to inspire visitors to imagine a low-carbon energy future.'

It was by imagining a world powered by electricity that American inventor Thomas Edison created the world's first public electricity network in London in 1882 and established how electricity is supplied to this day. On display for the first time are rare surviving Edison tube mains cables which made this feat of engineering possible and transformed the way we live. Electrification has a long history and visitors can marvel at the first electric taxi, the elegant black and yellow Bersey cab hailed by Londoners in 1897, and one of the first rechargeable batteries made in 1860. In 1893 the dazzling vision of an electrically lit future became a reality as thousands of electric lamps like one on display lit up the Chicago World's Fair. These remarkable innovations remind us that major change is possible and that many of the technologies needed to achieve this low-carbon energy transition already exist.



The gallery also explores the challenge of energy storage and ensuring consistent access to power when it's needed. Visitors can balance supply and demand in an interactive game based on the National Grid and examine a variety of batteries used to store energy, from familiar AA alkaline and hearing aid batteries to chemical batteries that power electric vehicles and satellites. They can also play with a working model of a gravity battery, which uses falling heavy weights to generate electricity.

Low-carbon vehicles are appearing all around us, but transformed infrastructure, increased electrification and low-carbon fuels will be needed to decarbonise transport further. Visitors can see a bicycle from the largest urban bike sharing scheme in the world, the Hangzhou Public Bicycle scheme in China, alongside an early public electric car charging post installed in London in 2006. Also on display is a canister for synthetic aviation fuel from British company Zero and the Royal Air Force, which undertook the world's first flight powered by 100% synthetic kerosene in 2021.



The *Future* Energy section looks at the building and construction industries which also need to decarbonise. On display are traditional adaptation techniques, such as the 3m high CoolAnt passive air-cooling façade from India that reduces dependence on powered air conditioning, and unusual building materials, including a 'urine bio-brick' developed by the University of Cape Town that sets hard at room

temperature. Visitors can also see heat pumps, which use electricity to concentrate heat from the ground or air and deliver it into homes, and are likely to become increasingly common in UK houses as gas-powered boilers are replaced.

The museum is on course to welcome three million visits in the year ending on 31 March with more UK visitors than ever before, including 1 million children visiting with their schools or families among the record 2.25 million domestic visits.

Sir Ian Blatchford, Director and Chief Executive of the Science Museum Group, said: 'In a week when we're celebrating a record 2.25 million visits by UK residents to the museum, including a million children, this stunning gallery offers even more to ignite curiosity among the millions who will visit in the year ahead – provoking important conversations about the urgent need for the world to generate and use energy more sustainably. Our curators have created an inspirational experience, supported by hundreds of people from artists to those involved in acquiring, conserving and transporting vast objects safely into the gallery, and of course vital funding from our generous sponsor Adani Green Energy.'

Our understanding of climate change is founded on projections of how Earth's systems will change in the future. These projections are made possible because of vital long-term global observational data from instruments that show how our planet is changing. In *Future Planet,* visitors can watch a film exploring the application of computer models to improve understanding of climate impacts in the global south, focussing on a collaborative project involving the Met Office in the UK and the University of the Witwatersrand in South Africa and browse a mass display of instruments from the Science Museum Group Collection used to observe and measure the climate on land, in the air and at sea. These include an air-sampling flask used for observations of atmospheric carbon dioxide based on Charles David Keeling's original design, rain and wind gauges and the Advanced Along-Track Scanning Radiometer, a satellite-based scientific instrument which takes precise observations of sea surface temperature from space.

The gallery's Title Funder is Adani Green Energy, a major Indian renewables company. **Mr. Sagar Adani, Executive Director said,** 'The Science Museum has put together the world's best curated gallery on energy transition. As one of the world's largest renewable energy companies, we are dedicated to making progress towards net zero – and there is no greater resource in the fight against climate change than education. Through the sponsorship of the gallery, we aim to inspire young minds, scientists, and innovators to imagine a future powered by clean energy and build a carbon-free world. It is an initiative to stimulate their interest, curiosity and awareness, and encourage their active participation in creating clean technologies. The gallery brings together the global community to enable the shift towards energy efficiency, clean energy adoption and carbon emissions reduction. We hope the museum's millions of visitors learn about the vital importance of renewable energy in tackling climate change.'

In *Our Future*, the gallery encourages visitors to imagine the future, and use their creativity as a powerful tool for generating knowledge, stimulating innovation, and shaping decisions about how we live. This section features a digital installation showing children's ideas and scientific experts' responses to them. It also displays a decarbonisation tracker so that visitors can see how the UK is performing on its low carbon journey.

Energy Revolution was designed by award-winning architect and design studio Unknown Works, who also designed the solar-powered classrooms featured in the gallery. A key element of the gallery's sustainable design was the repurposing of more than 200 redundant metal shelves from the Science Museum's former object store in west London to create an innovative modular design to display objects in the gallery. Aluminium was also used where possible as it can be easily recycled, with energy efficient LEDs used to light the gallery. The gallery's digital screens and lighting is also turned off when the museum is closed to reduce energy consumption. The gallery's carbon footprint has been monitored and together these actions will help reduce the carbon emissions from creating and opening the gallery.

ENDS

NOTES TO EDITORS

For further information and interview requests, please contact William Dave through pressoffice.SCM@sciencemuseum.ac.uk , or 020 7942 4886. You can download high-res images of the new gallery here.

About the Science Museum

The Science Museum is part of the Science Museum Group, the world's leading group of science museums that share a world-class collection providing an enduring record of scientific, technological and medical achievements from across the globe. Over the last century the Science Museum, has grown in scale and scope, inspiring visitors with exhibitions covering topics as diverse as robots, codebreaking, cosmonauts and superbugs. The Science Museum was named a winner of the prestigious Art Fund Museum of the Year prize for 2020. www.sciencemuseum.org.uk. Follow on Twitter, Facebook and Instagram.

Engaging people with humanity's greatest challenge – the fight against devastating climate change – is a major priority for the Science Museum Group alongside reducing the impact of our own activity as we work towards achieving net zero by 2033. The new gallery is part of the Group's climate focused public programme, which includes our free Climate Talks series that has been watched by tens of thousands of people and featured more than 70 global leaders, experts, activists and campaigners. More information about sustainability and the Science Museum Group is available on our website.

About Adani Green Energy Limited

Adani Green Energy Limited (AGEL) is India's largest and one of the leading renewable energy companies in the world, enabling the clean energy transition. AGEL develops, owns, and operates utility scale grid-connected solar, wind and hybrid renewable power plants. With a locked-in growth trajectory up to 21.8 Gigawatt (GW), AGEL currently has an operating renewable portfolio of over 9.5 GW, the largest in India, spread across 12 states. AGEL is credited with developing several landmark renewable energy power plants, the latest being the world's largest wind-solar hybrid power cluster of 2,140 Megawatt (MW) in Jaisalmer, Rajasthan. The company has set a target of achieving 45 GW by 2030 aligned to India's decarbonization goals. AGEL is focused on leveraging technology to reduce the Levelized Cost of Energy (LCOE) in pursuit of enabling largescale adoption of affordable clean energy. AGEL's operating portfolio is certified 'water positive for plants of more than 200 MW capacity', 'single-use plastic free' and 'zero waste-to-landfill', a testament to the company's commitment of powering sustainable growth. visit: www.adanigreenenergy.com.

Related Sectors:

Education & Human Resources :: Entertainment & Arts :: Environment & Nature :: Manufacturing, Engineering & Energy ::

Related Keywords:

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