

Sustainability+

Connecting private, public and academic sectors.

Delivered on behalf of:



interreg

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CREST seeks to identify and overcome the various technological, societal and psychological barriers to quickly adopting cost effective and efficient measures for developing energy efficiency and renewable projects.

Introducing Sustainability+

Sustainability+ is an eight week programme that was commissioned by the Interreg IVA France (Channel) - England funded CREST project and delivered by Southend-on-Sea Borough Council and the consultancy firm Purely CSR between 16th October 2014 - 16th December 2014.

The programme was designed to educate young people on the basic principles of sustainability, renewable energy and biodiversity and help develop educational 'route maps' for careers in sustainability for students from secondary and higher education.

The programme established a team that comprised one of the world's most respected design, engineering and project management consultancies Atkins, with a team of students from the University of Essex (graduate, Masters,

PhD level) and Southend-on-Sea Borough Council - linking the private sector with a local authority and higher education institution.

The team were tasked with developing a four week engagement programme for Year 9 pupils (14-15 year olds) at Chase High School, Southend-on-Sea that would help them to understand the importance of sustainable technologies and how they can help address issues around existing energy wastage in a building.

Sustainability+ culminated in the Big Bang Science Fair at the University of Essex on Tuesday 16th December 2014. The event provided a platform to engage 1,200 pupils across Essex and Suffolk on careers in sustainability and the importance of addressing energy wastage.



Lead Business Mentor Atkins

Atkins is one of the world's most respected design, engineering and project management consultancies. They are the world's 15th largest global design firm and employ over 17,000 people. They have experience of working for a broad range of clients, including national and local governments as well as the commercial sector.

Their skills lie in the expansive area of infrastructure – the wiring of society – encompassing buildings; land, sea, and air transport; information communications and security systems; and utilities (including energy and water).

The programme benefited from the expertise of Dr Dorte Rich Jørgensen, D.Phil. (Oxon.), B.Sc. (Hons.), CEng, MCIBSE Principle Sustainability

Engineer and Former Sustainability Manager
Atkins London 2012 Team Royal Academy of
Engineering Visiting Professor in Innovation at
Heriot-Watt University ATKINS

She is a leading sustainability engineering consultant in Britain with 25 years of experience and is the former Atkins Infrastructure teams' sustainability manager for the London 2012 Olympics and Paralympic Park. She provides leadership within the UK's design and construction industry, and has successfully embedded sustainability on a range of cutting edge and award winning project such as London 2012 and Chiswick Park.

The Atkins logo consists of the word "ATKINS" in a bold, blue, sans-serif font. The letters are spaced out, with the 'A' and 'K' being significantly larger than the other letters.

“The programme was a great way of connecting the private, public and academic sectors - a real game changer.”

Dr Dorte-Rich Jørgensen
Principal Sustainability Engineer, Atkins

Other Partners involved in Sustainability+

Southend-on-Sea Borough Council took an active role in the delivery of the Sustainability+ Programme from the outset.

It provided an opportunity to engage the private sector and academia in the CREST project and raise awareness among two potential future 'Living Labs' (Chase High School and Garons Park Leisure Centre) about how they could benefit from an energy efficiency and renewable technology programme.

The project had also been designed to support the delivery of the Council's new Low Carbon Energy and Sustainability Strategy 2015-2020.

The University of Essex supported the development of the programme and helped engage students from the School of Biological Sciences - from undergraduate level through to PhD candidates.

Initially over fifty students were engaged at an event that took place on Tuesday 30th September 2014 at the University of Essex's Colchester campus.

Six students were selected to participate in the delivery of the programme. Sustainability+ provided an excellent link to the Careers Department at the University to share knowledge on career pathways in the low carbon and environmental sectors.



Overview

Weeks 1-4

Week 1: Thursday 16th October 2014, Atkins Offices (London)

The teams met for an [introductory session](#) to the Sustainability+ programme at the London offices of the lead Business Mentor Atkins. It was an opportunity for the university students to meet with their Business Mentors for the first time and were introduced to the topic of energy efficiency and the CREST project.

The team were given an overview of Southend-on-Sea Borough Council's Low Carbon Energy and Sustainability Strategy and were given the task of developing two projects that linked to key objectives of the Strategy to present at Chase High School in weeks 5-8 of the programme.

Week 2: Wednesday 22nd October 2014, Conference Call

The second week of the programme required the university students to meet with their Business Mentors on a virtual platform to brain storm some ideas for the two projects they had been tasked with developing.

Atkins were able to support the university students by offering sector specific advice and guidance. This led the project focus to settle on (i) reducing energy wastage in buildings and (ii) renewable energy in the marine environment.

Week 3: Wednesday 29th October 2014 Conference Call

The team met again on a virtual platform to provide an update on progress made since Week 2. The outline of both projects was completed and agreed upon (see pages 13-14).

The university students were then split into two teams to cover both projects. The team was then given contact details of two additional companies; the [Energy Saving Trust](#) (reducing energy wastage) and [ASC Renewables](#) (marine environment) who had agreed to act as virtual business mentors to the university students.

Week 4: Wednesday 5th November 2014, Atkins Offices (London)

The team again convened at the London offices of the Lead Business Mentor Atkins in order to run through all of the materials that were set to be delivered at Chase High School over the next four weeks.

Additional information was provided to the team about the two destinations for the field trip that would take place during Week 7 of the programme - the leisure centre Garons Park and the Sea Life Adventure Aquarium.

Overview

Weeks 5-8

Week 5: Wednesday 12th November 2014, Chase High School (Southend)

The team delivered their first session at Chase High School, Southend-on-Sea with an afternoon lesson that covered the basic principles of sustainability, renewable energy and biodiversity and demonstrated what is meant by the term sustainable development.

The university students [presented](#) the session to a group of Year 9 pupils at the school and used a number of case studies to introduce the importance of reducing energy wastage and embracing renewable energy technology in both a local and global context.

Week 6: Wednesday 19th November 2014, Chase High School (Southend)

The second week at Chase High School saw Dr Dorte-Rich Jorgensen from Atkins provide a talk on her involvement in delivering the sustainable infrastructure programme at the 2012 Olympic Park.

The pupils were able to build on what they had learnt in the previous week through a real life case study.

The pupils were then provided with an overview of the two work topics that they would be involved in for the remaining two weeks of the Sustainability+ programme.

Week 7: Wednesday 26th November 2014, field trip (various venues Southend)

The pupils from Chase High School were taken on a field trip to explore the potential of developing an energy efficiency and renewable programme at their own 'Living Lab' - Garons Park Leisure Centre, Southend-on-Sea.

The pupils were given the opportunity to interview the Energy Project Managers at both Southend-on-Sea Borough Council and the leisure centre to determine what energy saving measures the centre could benefit from.

A trip to the Sea Life Adventure Aquarium was then undertaken for the pupils to learn about environmental issues that must be considered in delivering an energy efficiency project.

Week 8: Wednesday 3rd December 2014, University of Essex (Southend)

The final week of the Sustainability+ programme provided the pupils to present what they had learnt in front of a panel of experts from the low carbon sector (including representatives from Atkins, the University of Essex and Southend-on-Sea Borough Council).

The event took place at the Forum (University of Essex) and each pupil who completed the programme was presented with a certificate of achievement by Dr Dorte-Rich Jorgensen (Atkins) and Councillor Peter Wexham (Southend-on-Sea Borough Council).

Research Topic One: Reducing Energy Wastage in Buildings

Research topic one was designed to provide pupils with the opportunity to visit a 'Living Lab', which Southend-on-Sea Borough Council had identified as a future site for an energy efficiency and renewable technology project.

The building was Garons Park Leisure Centre, which is one of the largest leisure facilities in Essex and the diving facilities were utilised by the Great Britain team to train for the 2012 Olympic Games.

A team from Atkins, provided the university students with support to help the Chase High School pupils address the following questions:

How is the building currently being used? ie: how many hours is the building used for and what is the current energy consumption?

What kind of improvements could be achieved through the successful completion of an energy efficiency scheme?

How can a building benefit from the installation of renewable technologies?

How do you incorporate other sustainable considerations into the project i.e. sustainable, transport planning and enhancing biodiversity?

Where could improvements be made to encourage local people to use more sustainable transport?

How could any of the carbon reduction measures identified through this project be implemented in your own home or school?

“Sustainability+ was an excellent project and the pupils gained so much from being involved.”

Colin Brodigan
Head of Science, Chase High School

Research Topic Two: Renewable Energy in the Marine Environment

The second research topic explored through the Sustainability+ Programme aimed to develop awareness relating to the environmental considerations that energy efficiency and renewable projects needed to address before being approved for development.

The pupils from Chase High School were taken to the Sea Life Adventure Aquarium on Southend-on-Sea seafront to determine the impact of renewable energy projects on the marine environment.

Atkins provided support to the university students in order to help them answer the questions set out below and identify how the information could be applied to an energy efficiency and renewable programme on their own school building.

What are the advantages and disadvantages of having a large-scale renewable energy project just off the shores at Southend?

Could Southend Pier benefit from a renewable energy scheme?

How much energy can an off shore wind farm generate?

What would this mean to Southend on Sea and their energy supply?

Will this significantly affect the landscape, can you compare to other renewable energy projects globally?

What affect will a large wind farm project have on the marine biodiversity around Southend and potentially wider?



the Big Bang Science Fair

The Big Bang Science Fairs are the largest celebration of science, technology, engineering and maths (STEM) for young people in the UK.

On Tuesday 16th December 2014 the University of Essex hosted their second annual Big Bang Science Fair, which provided an opportunity for CREST to participate in a high profile event that was attended by Prince Charles.

Over 1,200 pupils from schools based in Essex and Suffolk took part in the event. It provided CREST with an excellent opportunity to engage with two key target audiences (i) 11-16 year old school children and (ii) university students.

The team behind the delivery of the Sustainability+ Programme designed an exciting interactive stand that consisted of a series of activities and a video booth for the day,

The video booth was used to obtain short video clips of pupils discussing the importance of energy efficiency, renewable technologies and how they envisage a sustainable future.

Dr Dorte Rich Jorgensen attended the event on behalf of Atkins and was able to promote the value of a career in engineering and other STEM subjects to the attendees.

The CREST stand was developed in collaboration with French partners in order to support the delivery of the overall project and meet key delivery targets.

The event also gained a great deal of publicity, including being featured on a national news website ([ITV](#)), [Engineering UK](#), and [regional press](#).



“We’d like to see more renewable energy used in schools to make them more eco friendly.”

Stanway School, Essex

“It has been really useful finding out how we can be more energy efficiency and cut carbon.”

The Billericay School, Essex



Sustainability+

With thanks to the staff at Atkins, Energy Saving Trust, ASC Renewables, Southend-on-Sea Borough Council, Chase High School, Legacy Leisure, Sea Life Adventure Aquarium and the University of Essex.